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Београд, Волгина 15; тел/факс (+381)11/6972-848; E-mail: economicsofagriculture@ea.bg.ac.rs
Belgrade, Volgina 15; phone/fax (+381)11/6972-858; E-mail: epoljoprivrede@gmail.com

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CONTENT

WHAT DISTINGUISHES CONNOISSEURS FROM SPENDERS? A CASE STUDY OF WINE IN CROATIA

Anita Silvana Ilak Peršurić[1], Stefan Mann[2],

**Corresponding author E-mail: anita@iptpo.hr*

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ABSTRACT

This paper had a goal to explore the knowledge and spending power, which frequent criteria are for target groups, although they are rarely distinguished in a systematic way. This paper develops motivation for a thorough distinction and reveals differences among connoisseurs and spenders within the Croatian wine market. A theoretical model of the two target groups in a framework around the BCG matrix was developed. For the empirical verification, standardized face-to-face interviews were conducted with 307 Croatian wine consumers. For the sake of knowledge, both self-reported and observed measures were used. Our findings confirm that Connoisseurs emphasize particularly functional characteristics of wine that constitute self-related items such as self-fulfillment and social values, while spenders rather emphasize the gastronomy experience of wine. The difference between connoisseurs and spenders can be translated into marketing strategies that emphasize different product attributes and characteristics of wine at different stages of the product life cycle.

Introduction

Marketing science rests on the notion that different segments of consumers require different approaches (Wedel and Kamakura, 2012). Among the many segments, those who have been strongly exposed to the product under scrutiny usually receive the strongest attention. Thach and Olson (2015), for example, describe systematic differences between heavy wine users and the remaining segments in terms of sociodemographic characteristics. Therefore, Fattorini (1994), similar to Frochot (2000;p.5), suggests a 'strategy to create a small but loyal group of highly knowledgeable (invariably affluent) consumers'

1 Anita Silvana Ilak Peršurić, Ph.D., Scientific advisor, Institute for Agriculture and Tourism, C. Hugues 8, Poreč, Croatia, Phone:+38552408329, e-mail:anita@iptpo.hr, https://orcid.org/0000-0001-5234-7602

2 Stefan Mann, Ph.D., Full Professor, Agroscope, Tanikon 1, Aadorf, Switzerland, Phone:+41584803131, e-mail: stefan.mann@agroscope.admin.ch, https://orcid.org/0000-0003-3654-8644

This paper aims to achieve a stronger differentiation among the segment of heavy users. While connoisseurs and spenders are grouped into one segment in the papers referenced above, several scholars name connoisseurs (McAnley and Leskovec, 2013, Banting *et al*., 2015) and spenders (Moufakkir *et al*., 2004, Legohérel and Wong, 2006, Kruger *et al*., 2015) separately. However, as far as the authors are aware, a thorough distinction between the two groups is missing. A thought developed by Lindholm *et al.* (2015,p. 542) for online marketing likely comes closest to such a distinction, they propose that 'Campaigns directed to spenders should enable easier spending or provide financial incentives to increase spending. Campaigns directed to engagers should focus on content creation and attraction of new customers'. Such a distinction between individuals engaged in the subject—or connoisseurs—and spenders is only useful from a marketing perspective in the event that the two segments fulfil different functions in the product life cycle.

By building on the idea by Lindholm *et al*. (2015) cited above, this claim is supported by a theoretical model in section theoretical background. Section materials and methods describes the methodology with which the difference in characteristics between connoisseurs and spenders is tested empirically, whose results are displayed in section research results. Finally, the last section brings concluding remarks and confirms the set arguments.

Theoretic background

A BCG framework of connoisseurs and spenders

In spite of repeated criticisms (Drews, 2008), the BCG matrix remains one of the most influential theoretical models in marketing science both in textbooks (Kotler and Keller, 2016, Schürmann, 2016) and in research (Gite and Kumar Roy, 2014, Tao and Shi, 2016, Suksantilap *et al*., 2017). In a review paper, Madsen (2017) describes both the enormous impact of the model and its fading popularity in the academic world, emphasising today's practical relevance of the model.

The BCG matrix was developed by Hedley (1977, p.9.), who argued that 'the relative competitive position and growth are the two fundamental parameters which must be considered in determining the strategy that an individual business should follow when viewed within the context of the company's overall "business portfolio". The model argues that focusing on the expansion of the market share is useful in the early stage of a product life cycle, whereas the main challenge in a later stage involves maintaining the high market share in times of low business growth.

Even in papers using the BCG matrix framework that focus on the identification of appropriate target groups (Vrontis *et al*., 2006, Nissen, 2019), the various stages of the product life cycle are typically not connected with a change in target groups. This may be considered a conceptual omission when more closely observing the single steps of product development.

Creating awareness for developing stars

More than 50 years ago, Murphy (1962, p. 49) named communication—one of the core success factors when handling new products—'the greatest potential source of trouble in product programmes'. During a stage wherein the greatest obstacle for higher sales numbers is that consumers are unaware of a product, it is crucial that multiplicators—individuals who spread news of a product's existence—be approached.

However, if information is the bottleneck of sales growth, one must identify the appropriate multiplicators within the market. For the creative industry, for example, Lange (2018) identifies fashion label owners and gallery owners as multiplicators, whereas financial journalists and tax consultants have been identified as multiplicators when branding financial services (Degener, 1999, Fritton, 2004).

In both cases, multiplicators are individuals with greater cognitive and emotional engagement and therefore more profound knowledge of the respective market than average consumers. For this reason, multiplicators are often labelled as the most appropriate target group in general (McAuley and Leskovec, 2013) as well as in terms of innovative products in particular (Kawamae, 2015).

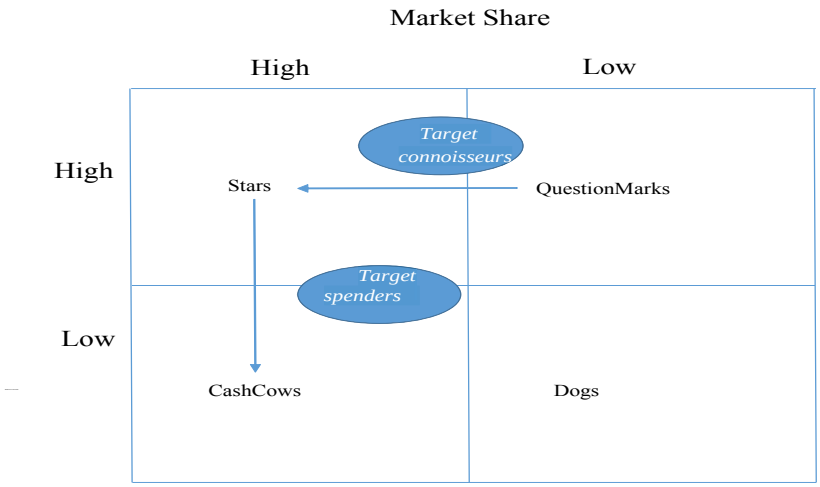
This creates the necessity that connoisseurs be focused on during the early stages of a product life cycle. A market's connoisseurs are most likely trustworthy and available to give advice as well as generate attention when sharing their consumption experiences. Therefore, connoisseurs should be the main target groups for strategies to increase the market share.

Broadening the buyer base

Once a product is established in the market and is later widely known, it is questionable how much attention should be paid to spreading the product's information on a broad scale. If cash cows are to be generated, the most likely target group is the group with the most cash. Frascarelli (2005) gives a prominent example of a strategy that involves focusing on spenders to attract the attention of consumers who matter. In any case, approaching and convincing a consumer who spends 100 € per month contributes ten times the value to sales targets as does approaching and convincing a consumer with a monthly expenditure of 10 €.

All these factors indicate that target groups should change over time, as illustrated in Figure 1. In the beginning of a product life cycle, multiplicators should be actively approached, people with some authority due to their knowledge and engagement. This will be the most effective way to broaden the buyer base and thus increase the market share.

Figure 1. A BCG model of different target groups



Source: Authors' model created according to *Hedley (1977)*

Putting this principle into practice, however, requires that connoisseurs and spenders be distinguishable by their sociodemographic characteristics, tastes, or preferences. Whether or not this distinction is empirically possible will be explored in the following section.

Materials and methods

Research settings

This paper was founded upon on a survey conducted as a part of project "MalvasiaTourIstra" financed by Operational Programme Slovenia-Croatia 2007-2013. The target population included Croatian wine consumers who were 18 years of age or older. Wine consumers were approached by trained researchers and asked to participate in the survey. The researchers explained that the survey was anonymous and the purpose of the survey. In the process of on-site data collection responders were mobile while researchers were stationary (Veal, 2006). A convenient sample was used. The self-complete questionnaires were administered by researchers and 307 validated questionnaires were collected. The survey was executed during 2015. The survey contained a broad range of questions on wine as well as wine's social and other functions.

The goals of the research were a) to detect differences between two groups of wine consumers considering expenses for wine; b) to detect differences in the level of wine knowledge; c) to detect differences in motives for wine consumption. We presumed that wine consumers can be identified in two different groups; connoisseurs and spenders. We are led to the old dichotomy of observation versus self-declaration described by Kendall et al. (2004) and Freedman et al. (2018). These authors illustrated that self-declarations may lead to results very different than those achieved by external observations. Going beyond past reliance on self-declared knowledge, as discussed by Sellers-Rubio and Nicolau-Gonzalbez (2016), it would therefore be useful to

additionally include measures based on observations. In our research amounts spent on wine per month were self declared and the only dependent variable for identifying spenders. A self-reported variable was also used for knowledge aspects. In addition, however, we assumed wine event attendees would more likely be connoisseurs than would consumers approached in their homes; for this reason, the interview location was used as a dependent variable. Taking the considerations above together, our hypothesis was that wine spenders are a different group compared to wine connoisseurs considering the attributes they connect with wine and the occasions when they consume wine.

The choice of the independent variables was guided by the underlying hypotheses. Because both knowledge and wage may rise over the life course, it was hypothesised that age will be positively correlated with all dependent variables. Income, however, was likely to be connected with spending volume but not with knowledge.

Based on the findings by Dodd et al. (2010) which states that 'the sweet segment is younger, less well-educated, less involved with the product category and less informed about wine, the preference for dry wine is one of the factors we expect to be connected to knowledge rather than income.

The motivations of wine drinking will, in general, have a strong impact on both becoming an expert as well as the amount spent on wine. Based on Meler et al. (2016) and Ilak Persuric et al. (2018), we considered self-fulfilment one of the forces that could contribute to an individual concerning oneself with wine in terms of spending money, but even more so in terms of collecting wine-related knowledge. Therefore, we hypothesised that self-fulfilment experienced while drinking wine will be positively related to all three dependent variables.

It was apparent how strongly family cultures influence our lives (Ticknell, 2005), this also applies to wine consumption (Ritchie, 2009). Therefore we utilised this fact through two different variables, both of which inquired as to the influence of family tradition and the use of wine as a bond between generations. These cultural factors are unlikely to affect spending behaviour.

Table 1. Descriptive Statistics

Variables	Explanations	Scales	Mean
Dependent Variables			
Wine event	Interview conducted at a wine event	0 - No; 1 - Yes	0.67
Knowledge	Agreement to 'I believe I have knowledge of wine'	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	2.91
Expenses	Monthly wine expenses	1: < 20 € 2: 21–35 € 3: 36–55 € 4: > 55 €	1.91
Independent Variables			
Age	Respondent's Age	Years	37.93

Variables	Explanations	Scales	Mean
Income	Monthly net household income	1: < 1000 € 2: 1000–2000 € 3: 2001–3000 € 4: 3001–4000 € 5: > 4001 €	2.80
Dry wine	Preference for dry wine	1– dry 2 – semi dry 3- semisweet 4 – sweet	0.98
Self-fulfilment	Self-fulfilment as a reason to drink wine	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	2.96
Family tradition	Family tradition as a reason to drink wine	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	2.43
Bond of generations	Wine is a bond of family generations	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	3.23
Ambience	Wine creates special cosiness and ambience	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	3.66
Time of my own	Wine gives me time of my own	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	3.10
Gastronomy experience	Wine offers a complete gastronomy experience	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	4.13
Thirst	Wine is good for thirst	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	3.72
New experience	Wine provides the possibility of new experiences	Likert scale from 1 (I do not agree at all) to 5 (I agree totally)	3.31

Source: *authors' calculations based on field research*

However, consumption behaviour and consuming knowledge was known to be strongly influenced by psychographic traits, subjective knowledge and family income (Pomarici et al. 2017).Two variables that emphasised the affective component of wine were included. Ambience, while particularly emphasised in the context of wine tourism (Getz *et al*., 1999, Bruwer and Leschaeve, 2012), may be an important attribute that motivates both knowledge generation and purchasing actions. However, consumers who do not prioritise wine as a social tool, but rather use it for self-enjoyment, appear more likely to inform themselves more thoroughly and spend more on wine.

The next variable directed the attention towards a wine's innovative function. If new experiences were sought while individuals drink wine, the cognitive element of information seeking rather than the amount spent was likely to play an important role.

Wine possesses different social and culinary functions, and as such, wine drinking may be considered a culinary experience in itself. Alternatively, wine may also be considered an instrument to increase the enjoyment of food consumption. Warde and Martens (2000) demonstrated that restaurants were particularly prone to such acts of pleasure. Consumers with this attitude towards wine were hypothesised as being less likely to

have thorough knowledge of wine. Due to the extra margins that must be paid for wine served in restaurants, however, this group was likely to spend larger amounts on wine. We expected negative signs for the 'Thirst' variable; if wine was hardly considered a way to quench one's thirst, then consumers were likely to neither gather knowledge of wine nor purchase expensive bottles.

A logit analysis was used to explain the three dependent variables, the interview location, and the ordered logit in the case of the two self-statements on a multinomial scale. Stata 14 programme was used for the calculation.

Research results

The average replies for each single item, which are worth comparing with the different functions of wine are displayed in Table 1. Wine is rarely considered a family tradition, and the agreement of wine as a provider of self-fulfilment is also rather low. It is acknowledged, however, that wine serves as an enjoyable complement of gastronomy and quenches thirst.

The level of wine knowledge and expenditures is explained through results presented in Table 2. The left columns provide results for the two knowledge-related variables. The lower share of variance that may be explained by using self-stated knowledge compared to the observation variable (location of the interview) may have occurred due to many reasons. It is possible, however, that large amounts of noise make self-stated knowledge quite unreliable. Some respondents may live in a very well-informed environment and may therefore underestimate their own level of knowledge, whereas other respondents may wish to brag. Being on a wine event may be a more effective indicator for distinguishing connoisseurs from others.

As often, it is not only interesting to see significances, but also missing ones where they would have been expected. This applies, for example, to age; apparently, neither the level of knowledge nor the amount spent on wine significantly correlates with age.

Another noteworthy insignificance is the relationship between income and expenses. It seems wine does not cover a sufficiently large part of consumer budget to be steered by the latter's absolute level. However, a surprising result is that wine event attendees generally earned less than consumers who were interviewed in their households.

A hypothesis that may be clearly confirmed is the preference of dry wine among connoisseurs not according to self-ratings, but rather according to observations. In addition, consumers who spend larger amounts on wine tend to prefer dry wine, albeit at a lower degree.

When observing the following variables, a general tendency was the stronger importance placed on functional characteristics by connoisseurs compared to spenders.

Self-fulfilment was a motivation to drink wine and relevant for both connoisseurs and spenders—although more so for the former group. The fact that wine facilitates

a bond between generations and provides time for both the self and new experiences was important to connoisseurs rather than spenders. A particularly striking case was the role of cosiness and ambience, which matters to those who claim to know much about wine, although it was negatively significant regarding the monetary amount spent on wine. While the appreciation of the wine-drinking atmosphere seemed to be important for gathering knowledge on wine, low-priced wine seemed to function as sufficiently for this purpose in the same way as high-priced wine.

Table 2. Regression Results

	Wine event	**Knowledge**	**Expenses**
Age	-0.002 (0.894)	0.017 (1.58)	0.008 (0.74)
Income	-0.694*** (-3.44)	0.131 (1.26)	0.035 (0.738)
Dry wine	1.715*** (3.39)	-0.121 (0.470)	0.466** (2.57)
Self-fulfilment	1.257*** (3.21)	0.198 (1.27)	0.368* (2.15)
Family tradition	0.266 (1.28)	-0.008 (-0.07)	-0.126 (-0.12)
Bond of generations	0.522* (2.24)	0.344** (2.67)	-0.090 (-0.68)
Ambience	0.068 (0.29)	0.534*** (3.71)	-0.281* (-1.96)
Time of my own	0.460* (2.04)	-0.066 (-0.56)	0.111 (0.93)
New experience	0.424* (2.05)	0.177 (1.31)	-0.148 (-0.11)
Gastronomy experience	-0.900** (-2.72)	0.182 (1.06)	0.425* (2.39)
Thirst	-0.886* (-2.40)	-0.150 (-1.27)	-0.068 (-0.57)
Pseudo-R^2	0.47	0.11	0.06

z-value in parentheses; *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

Source: *authors' calculations based on field research*

Patterns changed among the two functional variables. As hypothesised, high spenders tended to emphasise the gastronomy function of wine, wherein bottles costed markedly more than those sold in the shop. On the other hand, wine event attendees didn't think highly of the gastronomical function of wine. As expected, they also rejected wine as a tool for quenching thirst.

Conclusions

By including both self-rated and observation-related variables for knowledge of wine and comparing them to the amount spent on wine, some noteworthy differences between connoisseurs and spenders were revealed. As a general tendency, it was reasonable to claim that connoisseurs emphasised rather metaphysical attributes of wines, and being related to the drinking subject (e.g., time of my own or self-fulfilment) or the community (e.g., bond of generations), while spenders, on the other hand, rather prioritised gastronomical experiences with wine.

Taken together with the theoretical framework developed above, these results allow for a clearer distinction between target groups. Multiplicators who know more about the subject than others should be approached during the earlier stage of the product life cycle. The empirical results demonstrate that the functional characteristics of wine

provide a convenient starting point for such a strategy. Emphasising both the social and self-transforming functions of wine are promising ways of getting attention by connoisseurs for advertising messages.

The recommended communication strategy changes as soon as the product has reached a stage of maturation, when it then becomes more important to target individuals spending larger amounts on wine. The results suggest that targeting these individuals through the catering chain rather than through retailing seems to provide the most promising pathway for their mobilisation.

Connoisseurs and spenders should be distinguished in strategical marketing, what is possible to accomplish due to their diverse characteristics. While this distinction has been demonstrated for wine in Croatia, there are certainly multiple products and additional regions wherein such a distinction would be equally worthwhile.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Banting, P.M., Blenkhorn, D.L., Kosenko, R. (2015). An Exploratory Investigation of New Product Adoption Decision Criteria Reported by Non-Food Retail Chain Buyers. In: Malhotra N. (eds) Proceedings of the Academy of Marketing Science (AMS) Annual Conference. Developments in Marketing Science, Springer, ISBN 978-3-319-11797-3
2. Bruwer, J., Lesschaeve, I. (2012). Wine tourists' destination region brand image perception and antecedents: Conceptualization of a winescape framework. *Journal of Travel & Tourism Marketing,* 29(7), 611–628, doi: 10.1080/10548408.2012.719819
3. Cypryjanski, J., Grzesiuk, A., Rudawska E. (2016). The Behaviour of Inexperienced Buyers in Buy-It-Now Online Auctions. In: Nermend K., Łatuszyńska M. (eds) Selected Issues in Experimental Economics. Springer Proceedings in Business and Economics, Springer, ISBN 978-3-319-28419-4
4. Degener, M. (1999). *Branding of services, with special reference to the financial service sector.* Stellenbosch: University of Stellenbosch
5. Dodd, T.H., Kolyesnikova, N., Wilcox, J.B. (2010). A matter of taste: Consumer preferences of sweet and dry wines. *5th International Academy of Wine Business Research Conference*, Auckland, New Zealand,http://academyofwinebusiness.com/wpcontent/uploads/2010/04/DoddKolyesnikovaWilcox-A-Matter-of-Taste.pdf

6. Drews, H. (2008). Abschied vom marktwachstums-marktanteils-portfolio nach über 35 jahren einsatz? Eine kritische überprüfung der BCG-matrix. *Zeitschrift für Planung und Unternehmenssteuerung*, 19(1), 39–57. doi.org/10.1007/s00187-008-0041-8
7. Fattorini, J. (1994). Professional consumers: Themes in high street wine marketing. *International Journal of Wine Marketing,* 6(2), 5–13. doi.org/10.1108/eb008628
8. Frascarelli, L. (2005). 'Come back to Kendal' urge traders. *The WestmorelandGazette,*https://www.thewestmorlandgazette.co.uk/news/594550.display/
9. Freedman, L.P., Kujawski, S.A., Mbuyta, S., Kuwawerarwa, A., Kruk, M.E., Ramsey, K., Mbaruku, G. (2018). Eye of the beholder? Observation versus self-report in the measurement of disrespect and abuse during facility-based childbirth. *Reproductive Health Matters,* 26(53), 107–122. doi.org/10.1080/09688080.2018.1502024
10. Fritton, M. (2004). Kommunikation und marketing für eine förderbank. In W.L. Brunner (Ed.), *Erfolgsfaktoren im Bankmarketing,* Wiesbaden: Gabler Verlag, ISBN 978-3-322-82491-2
11. Frochot, I. (2000). Wine tourism in France – A paradox? In C.M. Hall, B. Cambourne, L. Sharples, N. Macionis (Eds.), *Wine tourism around the world.* Amsterdam: Elsevier. ISBN 0 7506 5466 X
12. Getz, D., Dowling, R., Carlsen, J., Anderson, D. (1999). Critical success factors for wine tourism. *International Journal of Wine Marketing,* 11(3), 20–43. doi.org/10.1108/eb008698
13. Gite, P., Kumar Roy, C. (2014). Export markets' segmentation, performance and marketing of Indian carpet industry: A BCG matrix approach. *Pacific Business Review,* 6(11), 28–33.
14. Hedley, B. (1977). Strategy and the 'business portfolio'. *Long Range Planning,* 10(1), 9–15.
15. Ilak Persuric, A.S., Damijanić Težak, A., Kerma, S. (2018). The relationship between autochthonous wine attributes and wine consumption motives. *Economics of Agriculture,* 65(4), 1337–1357. doi:10.5937/ekoPolj1804337I.
16. Kawamae, N. (2015). Real time recommendations from connoisseurs. *KDD15 Proceedings of the 21st ACM Conference,* New York, ACM, ISBN 978-1-4503-2404-5
17. Kendall, P.A., Elsbernd, A., Sinclair, K., Schroeder, M., Chen, G., Bergmann, V., Hillers, V.N., Medeiros, L.C. (2004). Observation versus self-report: Validation of a consumer food behavior questionnaire. *Journal of Food Protection,* 67(11), 2578–2586. doi.org/10.4315/0362-028X-67.11.2578
18. Kotler, P., Keller, K.L. (2016): *Marketing management*. New York: Pearson, ISBN-13 9780133856460

19. Kruger, M., A. Viljoen, M. Saayman (2015). Who are the big spenders at a motorcycle event? *Journal of Economic and Financial Sciences* 8 (2) 327-353.
20. Lange, B. (2018). The paradox between individual professionalization and dependence on social contexts and professional scenes. In E. Innerhofer, H. Pechlaner, E. Borin (Eds.), *Entrepreneurship in culture and creative industries.* FGF Studies in Small Business and Entrepreneurship. Cham: Springer, ISBN 978-3-319-65506-2.
21. Legohérel, P., Wong, K.K.F. (2006). Market segmentation in the tourism industry and consumers' spending. *Journal of Travel & Tourism Marketing,* 20(2), 15–30. doi.org/10.1300/J073v20n02_02
22. Lindholm J., Kaptein, M., Parvinen, P. (2015). The price of customer engagement: How substitution in online services leads to decreasing revenues. In L. Robinson, Jr. (Ed.), *Marketing dynamism & sustainability: Things change, things stay the same…. Developments in marketing science: Proceedings of the academy of marketing science,* Springer, ISBN 978-3-319-10912-1
23. Madsen, D.Ø. (2017). Not dead yet: The rise, fall and persistence of the BCG matrix. *Problems and Perspectives in Management,* 15(1), 19–34. doi.org/10.21511/ppm.15(1).2017.02
24. McAnley, J.J., Leskovec, J. (2013). *From amateurs to connoisseurs: Modelling the evolution of user expertise through online reviews,* Proceedings of the 22nd International Conference on World Wide Web. New York: ACM, ISBN 978-1-4503-2038-2
25. Meler, M., Horvat, D., Kristic, J. (2016). Wine consumer traits. *Journal of Agricultural, Food and Environmental Sciences,* 70, 20–26.
26. Moufakkir, O., Singh, A.J., Moufakkir-van der Woud, A., Holecek, D.F. (2004). Impact of light, medium and heavy spenders on casino destinations: Segmenting gaming visitors based on amount of non-gaming expenditures. *Gaming Research & Review Journal,* 8(1) https://digitalscholarship.unlv.edu/grrj/vol18/iss1/4
27. Murphy, J.H. (1962). New products need special management. *Journal of Marketing,* 26(4), 46–49.
28. Nissen, V. (2019). *Advances in consulting research*. Heidelberg: Springer, ISBN 978-3-319-95999-3
29. Pomarici, E., Lerro, M., Chrysochou, P., Vecchio, R., Krystalli A. (2017). One size (obviously not) fit all: Using product attributes for wine market segmentation. *Wine Economics and policy* 6:98-108. doi.org/10.1016/j.wep.2017.09.001
30. Ritchie, C. (2009). The culture of wine buying in the UK off-trade. *International Journal of Wine Business Research*, 21(3), 194–211. doi.org/10.1108/17511060910985944
31. Schürmann, M. (2016). *Marketing – in vier schriten zum eigenen marketingkonzept*. Zürich: Hochschulverlag. ISBN 978-3-7281-3715-9 (E-Book), doi/10.3218/3715-9

32. Sellers-Rubio, R., Nicolau-Gonzalbez, J.L. (2016). Estimating the willingness to pay for a sustainable wine using a Heckit model. *Wine Economics and Policy,* 5(2), 96–104.doi.org/10.1016/j.wep.2016.09.00
33. Suksantilap, P., Leelasantitham, A., Glesner, M. (2017). A survey of demand factors utilized in the facial surgery service business using BCG matrix. *International Journal of Applied Biomedical Engineering*, 10(2), 10–15.
34. Tao, Z.-Q., Shi, A.-M. (2016). Application of Boston matrix combined with SWOT analysis on operational development and evaluations of hospital development. *European Review for Medical and Pharmacological Sciences,* 20, 2131–2139.
35. Thach, L., Olsen, J. (2015). Profiling the high frequency wine consumer by price segmentation ithachn the US market. *Wine Economics and Policy,* 4(1), 53–59.doi.org/10.1016/j.wep.2015.04.001
36. Ticknell, E. (2005). *Mediating the family: Gender, culture and representation.* Bristol: Hodder Arnold, ISBN-13: 978-0340740804
37. Veal A.J. (2006). *Research Methods for Leisure and Tourism: A Practical Guide.* Pearson Education Limited: Essex, 1-559, ISBN 0273682008.
38. Vrontis, D., Kogetsidis, H., Stavrou, A. (2006). Strategic marketing planning for a supplier of liquid food packaging products in Cyprus. *Journal of Business & Industrial Marketing*, 21(4), 250–261. doi.org/10.1108/08858620610672623
39. Warde, A., Martens, L. (2000). *Eating out: Social differentiation, consumption and pleasure.* Cambridge: Cambridge University Press, ISBN 9780521599696
40. Wedel, M., Kamakura, W.A. (2012). *Market segmentation: Conceptual and methodological foundations*. Heidelberg: Springer, ISBN 978-1-4615-4651-1
41. Wicks, B.E., Schuett, M.A. (1994). Using travel brochures to target frequent travellers and 'big-spenders', *Journal of Travel & Tourism Marketing*, 2(2–3), 77–90.

EXPORT COMPETITIVENESS OF THE SERBIAN AGRI-FOOD SECTOR ON THE EU MARKET

Milan Marković[1], Bojan Krstić[2], Žarko Rađenović[3]

**Corresponding author E-mail: bojan.krstic@eknfak.ni.ac.rs*

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ABSTRACT

The aim of the research is to examine the degree of competitiveness of the agri-food sector of the Republic of Serbia on the market of the European Union (EU) countries, as the most significant export market. Two partial indices were used in the analysis: the net trade index (NTI) and the Grubel-Lloyd index (GLI). In addition to these indicators, unit export and import price analysis was also used to obtain data on the type of competitiveness achieved by the divisions of the agri-food sector. The results show that the cereals division makes the highest contribution to reducing the existing trade deficit, while the high values of the GLI reflect a high degree of integration with this market. The agri-food sector shows dominant price competitiveness in terms of the share of such divisions in total exports to the EU. The results will include recommendations for improving the structure of exports by focusing on specific divisions.

Introduction

In today's globalized world, countries aim to increase their exports and specialize in exporting certain products by increasing their competitiveness (Bozduman, Erkan, 2019, p. 160). At the macroeconomic level, competitiveness is often viewed through the prism of a country's success in placing goods on the international market. The mirror of competitiveness growth is a decrease in import dependency and an improvement in the export structure (Mitrović, Mitrović, 2014). On the other hand, for the prosperity of the economy and the achievement of economic growth, it is important to ensure the achievement of adequate results in foreign trade (Melišek, 2012, p. 450).

1 Milan Marković, PhD, Research Associate, Innovation Centre of the University of Niš, Univerzitetski trg 2, 18000 Niš, +381 64 288 51 34, markovicmilan89@gmail.com, ORCID ID (https://orcid.org/0000-0002-9617-6697)

2 Bojan Krstić, PhD, Full professor, Faculty of Economics, University of Niš, Trg kralja Aleksandra Ujedinitelja 11, 18000 Niš, +381 18 528 685, bojan.krstic@eknfak.ni.ac.rs, ORCID ID (https://orcid.org/0000-0003-4597-6819)

3 Žarko Rađenović, PhD, Research Assistant, Innovation Centre of the University of Niš, Univerzitetski trg 2, 18000 Niš, +381 63 87 87 359, zarkoradjenovic@hotmail.com, ORCID ID (https://orcid.org/0000-0002-3679-7870)

The agri-food sector is the backbone of Serbia's export potential. It is a sector that has a significant share in the export of the Republic of Serbia, and potentials have not yet been fully utilized. With trade liberalisation and regional integration on global agri-food markets, export competitiveness and its long-term duration are crucial for prosperity of agri-food products on global markets (Bojnec, Fertő, 2017, p. 2). That is why research into the competitiveness and contribution of agri-food products to the total volume of foreign trade is of utmost importance (Maslova et al., 2019). Therefore, this paper analyses the degree of competitiveness of all sections (divisions) of the so-called agri-food sector of the Republic of Serbia on the European Union (EU) market. Previous studies have mainly dealt with the competitiveness of the agri-food sector in the overall market (Ignjatijević et al., 2014; Božić, Nikolić, 2016; Andrei et al., 2017; Jovović, Jovović, 2018; Armeanu et al, 2018), that is, in the markets of the Western Balkans and other neighbouring countries (Marković, Marjanović, 2019; Birovljev et al., 2015; Drăgoi et al., 2018).

The subject of the study is the analysis of the importance, degree of competitiveness and specialization of the agri-food sector in foreign trade with the EU. In the EU accession process, it is very important to strengthen the capacities in order to bring the competitiveness of the agri-food sector closer to the highly competitive European market. Adjustment to market requirements should involve changes in the export structure and production modulation in quantity, quality and competitiveness (Simonović et al., 2010, p. 74). The research therefore aims to show the current situation, potentials and possible directions for improving the export of this sector to the EU, by looking at the external competitiveness of the respective divisions, through various indicators.

Typical indicators in the analysis of export competitiveness at the sector and division level are: the net trade index (NTI) (or net export index), the Grubel-Lloyd index (GLI), and unit export and import price analysis. The NTI is closely related to the concept of revealed comparative advantage (RCA) first studied by Balassa (1965). Since it encompasses international flows, it can be said that it is an indicator of external competitiveness of the economy (Marković, 2019, p. 56). The NTI indicates whether the country is a net exporter or a net importer. The GLI is used mainly to quantify the capacity of countries to use economies of scale (Grubel, Lloyd, 1971). It is a widely used indicator that measures the volume of intra-industry (intra-sectoral) trade (Lee, 2004, p. 3). In the theory of international trade, intra-industry trade implies commodity exchange of differentiated products within the same statistical sectors (Petrović, 2005, p. 116). In contrast, there is inter-industry trade when a country exports goods belonging to one sector and imports goods from another sector (Milutinović, 2015, p. 36). It should be noted that the gains from intra-industry trade are generally higher than those resulting from inter-industry trade, as they include benefits associated with economies of scale, technological externalities, positive links with the rest of the economy, increasing yield dynamics (Gayá, Michalczewsky, 2014; Aditya, Acharyya, 2015; Henao Rodríguez et al., 2016). Both indices are indispensable tools in analysing and assessing the level of external competitiveness of the national economy and its sectors, and in particular the agri-food sector. Otherwise, all these indicators are used primarily in bilateral analyses.

Materials and methods

Owing to the massive use of information technologies, foreign trade statistics are very accurate and easily accessible, which has enabled the dissemination of scientific research and published papers in this field (Stanojević, Kotlica, 2018, p. 24). The agri-food sector comprises 18 sections (divisions) from 4 export sectors of the economy of the Republic of Serbia according to the Standard International Trade Classification (SITC) (revision 4). The paper covers the period from 2012 to 2018, in order to analyse the recent state and tendencies in the competitiveness and trade of agri-food products with the EU, and draws on data from the Statistical Office of the Republic of Serbia.

The first partial indicator of export competitiveness that will be applied in the analysis is the NTI. This index is also referred to as the relative foreign trade balance (Matkovski et al., 2017). It is an index representing the quotient of net exports and total foreign trade in a given sector or division, and, accordingly, calculated as follows (Jefferson Institute, 2003; Bouzdman, Erkan, 2015; Božić, Nikolić, 2016):

$$NTIijt = \frac{X_{ijt} - M_{ijt}}{X_{ijt} + M_{ijt}} \quad (1)$$

Where in:

NTI_{ij} – index of net trade of division *i*, country *j*,

X_{ij} – value of export of division *i,* country *j*,

M_{ij} – value of import of division *i,* country *j*,

t – year.

The value of this index ranges from -1 to +1. Positive values indicate the existence of competitiveness in the foreign market, while negative ones indicate external non-competitiveness and the absence of specialization of the division. Higher index value implies higher export competitiveness. This index is often viewed as an alternative to the RCA index, which does not include import data (Božić, Nikolić, 2019). In addition to interpreting the data obtained on export competitiveness in the EU market, it is necessary to compare them with the total export market, which will serve as a specific benchmark, i.e. standard for comparison.

In addition to the NTI, the GLI is an indispensable tool in the analysis and assessment of competitiveness at the division level. It was created in 1971 by Herb Grubel and Peter Lloyd. It is an indicator that is used to determine the importance of intra-industry exchange of divisions in trade between two countries and is calculated by the following formula (Grubel, Lloyd, 1975; Clark et al., 2001; Mrdalj, 2015):

$$GLIijt = 1 - \frac{|X_{ijt} - M_{ijt}|}{X_{ijt} + M_{ijt}} \quad (2)$$

This is the most commonly used form of this index in empirical research, which is also used in structural compliance or export matching analyses. The index has been modified to analyse at the division level and its value indicates the degree of presence of the division in intra-sectoral foreign trade (Milićević et al., 2017, p. 140).

If the value of this indicator is 1, then there is no inter-industry trade. This would mean that the country simultaneously exports and imports the same type of product. In this case, the entire export/import of a particular section is cancelled by the import or export of the same division. If the GLI is zero, then there is no intra-industry, but only inter-industry exchange. Then the country only exports or imports a certain type of product, so only inter-industry (cross-sector) trade is realized. Higher index values indicate a higher degree of specialization in intra-industry trade, while lower values imply that foreign trade is closer to inter-industry trade (Raičević et al., 2012, p. 210). Higher values of the GLI make it possible to exploit the economies of scale effect due to the higher degree of integration with a particular market, enable specialization within certain sectors, as well as adjusting to market conditions at lower costs (because of the ease of reallocation of production resources within the same sector).

The GLI shows the ability to compete with a particular country with competition, as well as the degree of integration of a particular sector, division or commodity group with a particular market (Birovljev et al., 2015). Higher values speak to the complementarity of economies. However, some limitations in the application of this index have been noted in practice. Brülhart (1994) states that the GLI is mercantilist in nature, while the relationship between exports and imports does not provide complete information on competitiveness and overall adjustment costs. The same author emphasizes the greater importance of exploring "dynamic" flows, i.e. structures of change in the flow of goods.

An analysis based on the comparison of export and import values, on the one hand, and unit prices of exports and imports, on the other, completes the research on export competitiveness. Depending on whether there are higher values of exports or imports, as well as on the basis of a comparison of unit export prices ($Px_{ij} = X_{ij} / Qx_{ij}$) and unit import prices ($Pm_{ij} = M_{ij} / Qm_{ij}$), useful information on the type of external competitiveness in the market is obtained (in this case in the EU market), which is explained by the following relationships (Jefferson Institute, 2006; Marković, Marjanović, 2019):

i) $Px_{ij} > Pm_{ij}$ Ù $X_{ij} > M_{ij}$ Þ quality competitiveness,

ii) $Px_{ij} < Pm_{ij}$ Ù $X_{ij} > M_{ij}$ Þ price competitiveness,

iii) $Px_{ij} > Pm_{ij}$ Ù $X_{ij} < M_{ij}$ Þ price non-competitiveness, and

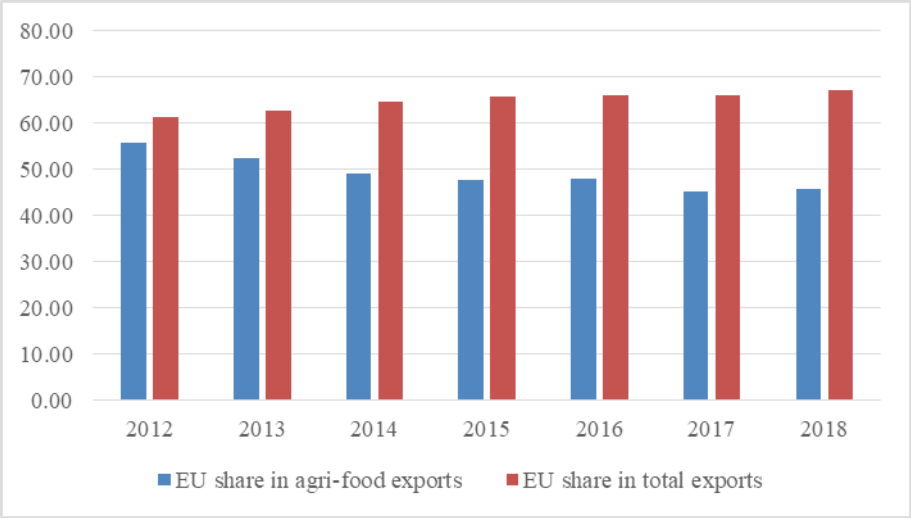
iv) $Px_{ij} < Pm_{ij}$ Ù $X_{ij} < M_{ij}$ Þ quality non-competitiveness.

Depending on this, the divisions of the agri-food sector will be classified into one of these four segments. Such an analysis, among other things, indirectly shows the structure of imports and exports of the agri-food sector. Lower unit export prices indicate the export of raw materials and this is characteristic of countries with low levels of agricultural and food industry development and vice versa.

Results and discussions

The EU is the most important foreign trade partner of the Republic of Serbia. This is shown by data on the EU's share in total exports, as well as in exports of agri-food products of the Republic of Serbia (*Figure 1*). At the same time, the percentage of EU-directed exports has been steadily increasing, while the EU's share in exports of the agri-food sector, on the other hand, has been steadily decreasing since 2012. This is one of the first signals that the export competitiveness of this sector should be increased, as the EU agri-food market is undoubtedly highly developed, with strict standards, high requirements and significant protectionist measures in the field of agriculture.

Figure 1. EU participation in the total exports and exports of the agri-food sector of the Republic of Serbia from 2012 to 2018 (in %)



Source: Authors' calculations based on the data of the Statistical Office of the Republic of Serbia, 2019

The first in a series of indicators was the NTI of the agri-food sector with the EU. *Table 1* shows the values of this index for the agri-food divisions both in the EU and world market. The analysis showed that the cereals division is the most competitive in exports both in the EU market and in the overall market, with an average NTI value of 0.71 and 0.75, respectively. The lowest external competitiveness in the EU market is recorded by divisions covering live animals and meat and meat products. The downside is that only 7 out of 18 divisions of this sector are competitive on the EU market, while the situation with world exports of agri-food products from Serbia is more favourable given that 12 divisions achieve positive net exports and overall external competitiveness is higher compared to export competitiveness in the EU. This means that trade with the EU contributes less to reducing Serbia's permanent trade deficit.

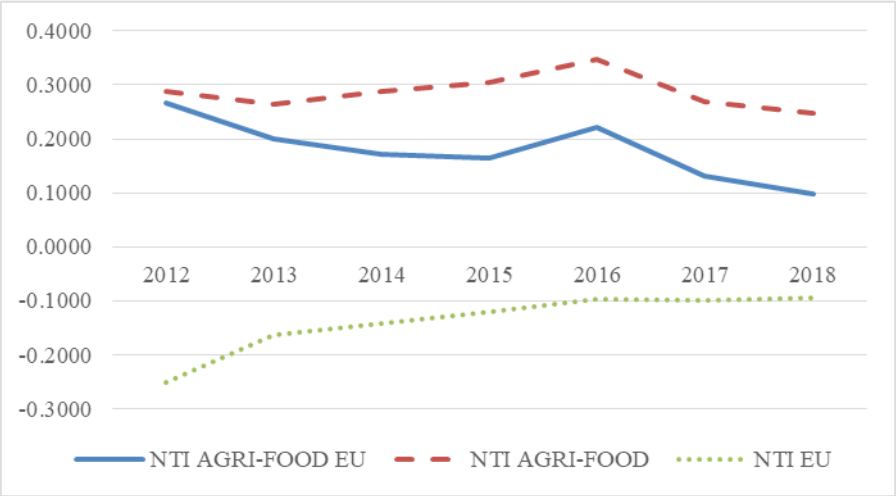
Table 1. NTI of the Serbian agri-food sector in trade with the EU and the world

Divisions, by SITC rev. 4	NTI (average, 2012-2018.)	
	EU	World
00 Live animals other than animals of division 03	-0,98	0,18
01 Meat and meat preparations	-0,85	-0,06
02 Dairy products and birds eggs	-0,59	0,21
03 Fish, crustaceans, molluscs and aquatic invertebrates; preparations	-0,78	-0,81
04 Cereals and cereal preparations	0,71	0,75
05 Vegetables and fruit	0,51	0,39
06 Sugar, sugar preparations and honey	0,48	0,52
07 Coffee, tea, cocoa, spices, and manufactures thereof	-0,64	-0,42
08 Feeding stuff for animals (not including unmilled cereals)	0,10	0,29
09 Miscellaneous edible products and preparations	-0,45	-0,03
11 Beverages	-0,04	0,39
12 Tobacco and tobacco manufactures	-0,28	0,11
21 Hides, skins and furskins, raw	-0,02	0,10
22 Oil-seeds and oleaginous fruits	0,24	0,24
29 Crude animal and vegetable materials, not elsewhere specified	-0,36	-0,15
41 Animal oils and fats	-0,51	-0,33
42 Fixed vegetable fats and oils, crude, refined or fractionated	0,50	0,56
43 Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin	0,31	0,27
TOTAL AGRI-FOOD SECTOR	**0,18**	**0,29**

Source: Calculation of the authors' based on the data of the Statistical Office of the Republic of Serbia, 2019

Figure 2 compares the NTI of the agri-food sector in trade with the EU and the world, as well as overall foreign trade with the EU. In the total foreign trade with the EU, this index is negative, because in fact there is a net import. Despite the negative values, there is a constant increase in the value of this index in the total trade with the EU. The NTI of the agri-food sector with the EU is lower than the NTI of the agri-food sector with the world, especially after 2013, due to increasing imports of agri-food products from the EU.

Figure 2. NTI in trade in agri-food products of the Republic of Serbia with the EU and the world and the NTI in total trade with the EU



Source: Authors' calculations

In order to observe the degree of integration with the EU market in the agri-food sector, the GLI values are given in the *Table 2*. The analysis showed that a higher degree of connectivity is recorded with the EU market than with the whole world market. The degree of integration is by far the highest in the beverage and leather and fur divisions, which can be used to grow exports from these divisions.

Table 2. GLI values in trade of agri-food products of the Republic of Serbia with the EU and the world

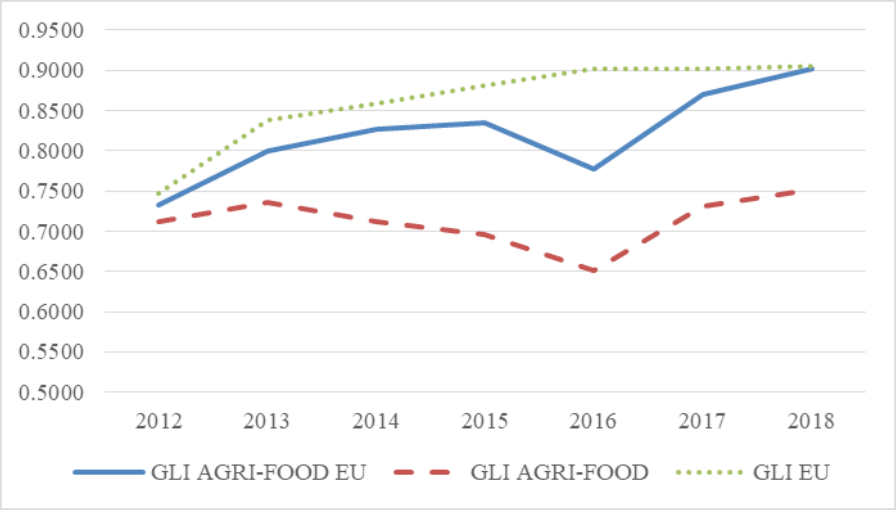
Divisions, by SITC rev. 4	**GLI (average, 2012-2018.)**	
	EU	**World**
00 Live animals other than animals of division 03	0,02	0,73
01 Meat and meat preparations	0,15	0,91
02 Dairy products and birds eggs	0,41	0,79
03 Fish, crustaceans, molluscs and aquatic invertebrates; preparations	0,21	0,19
04 Cereals and cereal preparations	0,29	0,24
05 Vegetables and fruit	0,49	0,61
06 Sugar, sugar preparations and honey	0,51	0,48
07 Coffee, tea, cocoa, spices, and manufactures thereof	0,36	0,58
08 Feeding stuff for animals (not including unmilled cereals)	0,88	0,71
09 Miscellaneous edible products and preparations	0,55	0,95
11 Beverages	0,96	0,61
12 Tobacco and tobacco manufactures	0,72	0,81

Divisions, by SITC rev. 4	GLI (average, 2012-2018.)	
	EU	World
21 Hides, skins and furskins, raw	0,93	0,90
Divisions, by SITC rev. 4	**GLI (average, 2012-2018.)**	
	EU	**World**
22 Oil-seeds and oleaginous fruits	0,71	0,72
29 Crude animal and vegetable materials, not elsewhere specified	0,64	0,85
41 Animal oils and fats	0,49	0,67
42 Fixed vegetable fats and oils, crude, refined or fractionated	0,50	0,44
43 Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin	0,69	0,73
TOTAL AGRI-FOOD SECTOR	**0,82**	**0,71**

Source: Calculation of the authors' based on the data of the Statistical Office of the Republic of Serbia, 2019.

Graph 3 gives a comparative overview of the GLI in the foreign trade of the agri-food sector with the EU and the world as well as the total trade of all sectors with the EU. The highest degree of integration is recorded in total trade with the EU, and in the agri-food sector there is a greater degree of integration with the EU than with the world as a whole. Due to the extremely high complementarity between the agriculture of Serbia and the EU, an increase in exports and specialization could be significant in the future.

Figure 3. GLI in the trade of agri-food products of the Republic of Serbia with the EU and the world, as well as in the overall trade with the EU



Source: Authors' calculations

Finally, *Table 3* presents an analysis of the competitiveness (non-competitiveness) factors, by comparing export and import prices with the values of exports and imports

of the agri-food divisions on the EU market. The data showed that non-price factors of competitiveness were dominant, since most of the divisions show this type of non-competitiveness. Fortunately, the average share of such divisions in total exports of agri-food products to the EU is only 13.55%. The positive fact is that the vegetable and fruit division, which is the most significant section in terms of the average annual value of exports, is competitive with quality in the EU market. In addition, the division of cereals, which, by the average value of exports lags very slightly behind the said section, also records competitiveness, but of a different type, i.e. price competitiveness.

Table 3. Factors of competitiveness of the divisions of agri-food products of the Republic of Serbia in the EU market and average participation in the export to the EU

Divisions of the agri-food sector, by SITC rev. 4	**Price/non-price (non) competitiveness**	**Average participation in the EU agri-food export**
00 Live animals other than animals of division 03	Price non-competitiveness	0,02
01 Meat and meat preparations	Price non-competitiveness	0,54
02 Dairy products and birds eggs	Quality non-competitiveness	0,94
03 Fish, crustaceans, molluscs and aquatic invertebrates; preparations	Price non-competitiveness	0,35
04 Cereals and cereal preparations	Price competitiveness	29,03
05 Vegetables and fruit	Quality competitiveness	30,50
06 Sugar, sugar preparations and honey	Price competitiveness	7,60
07 Coffee, tea, cocoa, spices, and manufactures thereof	Quality non-competitiveness	1,39
08 Feeding stuff for animals (not including unmilled cereals)	Price competitiveness	5,07
09 Miscellaneous edible products and preparations	Quality non-competitiveness	3,42
11 Beverages	Quality non-competitiveness	3,64
12 Tobacco and tobacco manufactures	Quality non-competitiveness	2,78
21 Hides, skins and furskins, raw	Price non-competitiveness	1,66
22 Oil-seeds and oleaginous fruits	Price competitiveness	5,06
29 Crude animal and vegetable materials, not elsewhere specified	Quality non-competitiveness	1,23
41 Animal oils and fats	Quality non-competitiveness	0,15
42 Fixed vegetable fats and oils, crude, refined or fractionated	Price competitiveness	6,37
43 Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin	Price competitiveness	0,27

Source: Calculation of the authors' based on the data of the Statistical Office of the Republic of Serbia, 2019

However, according to the share of exports, dominated by a group of divisions that achieve price competitiveness. Their average share in total agri-food exports to the EU is 53.40%. Divisions from a segment that achieves price non-competitiveness in the EU market should be translated into a segment that captures price competitiveness by increasing production efficiency or reducing transport costs (Jefferson Institute, 2006). The divisions with the highest unit export prices are live animals, fish and tobacco, so these sections should have greater support in the restructuring of this sector.

Conclusions

The EU is the most important foreign trade partner of the Republic of Serbia, both in terms of total exports (on average, over the survey period, 65% of exports are directed to the EU) and exports of agri-food products (49% of agri-food exports are exported to EU countries), and is undoubtedly a significant market for the Republic of Serbia. In the current circumstances, increasing the value of exports and achieving long-term competitiveness will increasingly be based on export restructuring and product differentiation, rather than an increase in export volumes. The aim of the research was to analyse the competitiveness of the agri-food sector in foreign trade with the EU in order to find new directions for increasing the value of exports, which ultimately means changing (improving) the production-export structure.

The results of the research showed that the agri-food sector as a whole is competitive in exports to the EU market, bearing in mind that the NTI is positive and stands at 0.18. However, it is a low level of competitiveness that is lower and compared to the total trade of agri-food products to the world. Due to the increasing imports of agri-food products from the EU, the value of the NTI has been steadily decreasing, except in 2016. Cereals and vegetables and fruits represent parts of the agri-food sector, accounting for close to 60% of agri-food exports and achieving the highest levels of the NTI. On the other hand, live animals and meat show the lowest competitiveness in the EU market. According to the value of the GLI, the export potential could be divisions of beverages and leather and fur, since the costs of adapting to the EU market conditions when it comes to these divisions would be the lowest. In terms of competitiveness type, quality competitiveness is dominant in the EU market. Only the vegetable and fruit division of the EU market competes with quality, so production and export should be further favoured. In addition, it is necessary to work on improving the quality of the products obtained and increasing the degree of their processing where possible. Although cereals exercise price competitiveness, it is necessary to increase the absolute value of exports and this division, while live animals, fish and tobacco products could have significant export potential due to the very high unit price of exports achieved.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Aditya, A., & Acharyya, R. (2015). Trade liberalization and export diversification. *International Review of Economics & Finance*, 39, 390-410. https://doi.org/10.1016/j.iref.2015.07.007
2. Andrei, J. V., Mieila, M., & Panait, M. (2017). The impact and determinants of the energy paradigm on economic growth in European Union. PloS one, 12(3), e0173282. https://doi.org/10.1371/journal.pone.0173282
3. Armeanu, D., Vintilă, G., Andrei, J. V., Gherghina, Ş. C., Drăgoi, M. C., & Teodor, C. (2018). Exploring the link between environmental pollution and economic growth in EU-28 countries: Is there an environmental Kuznets curve?. PloS one, 13(5), e0195708. https://doi.org/10.1371/journal.pone.0195708
4. Balassa, B. (1965). Trade liberalization and revealed comparative advantage. Manchester: *The Manchester School of Economics and Social Studies Journal*, 33(2), 99-123. https://doi.org/10.1111/j.1467-9957.1965.tb00050.x
5. Birovljev, J., Matkovski, B., & Ćetković, B. (2015). The competitiveness of the Serbian agri-food products on the market of countries in the region. *Annals of the Faculty of Economics in Subotica,* 51(33), 61-78. [*in Serbian*: Бировљев, Ј., Матковски, Б., & Ћетковић, Б. (2015), Конкурентност пољопривредно-прехрамбених производа Србије на тржишту земаља региона. *Анали Економског факултета у Суботици*].
6. Bojnec, Š., & Fertő, I. (2017). The duration of global agri-food export competitiveness. *British Food Journal*, 119(6), 1378-1393. https://doi.org/10.1108/BFJ-07-2016-0302
7. Bozduman, E. T., & Erkan, B. (2019). Sectoral Competitive Advantages in Kazakhstan's Foreign Trade as a Rising Star of Central Asia, *7th SCF International Conference on "The Future of the European Union and Turkey-European Union Relations"*, Usak/Turkey, 11-13th April 2019, 160-168.
8. Božić, D., & Nikolić, M. (2016). Characteristics of Serbian foreign trade of agricultural and food products. *Marketing*, 47(4), 293-304. [*in Serbian*: Božić, D., & Nikolić, M. (2016), Obeležja spoljnotrgovinske razmene poljoprivredno-prehrambenih proizvoda Srbije. *Marketing*]. https://doi.org/10.5937/markt1604293B
9. Božić, D., & Nikolić, M. (2019). Foreign trade and comparative advantages of agrarian sector of Serbia and neighbouring countries. *Economics of Agriculture*, 66(3), 737-753.
10. Brülhart, M. (1994). Marginal intra-industry trade: measurement and relevance for the pattern of industrial adjustment. *Review of World Economics*, 130(3), 600-613.

11. Clark, D. P., Fullerton Jr, T. M., & Burdorf, D. (2001). Intra-industry trade between the United States and Mexico: 1993-1998. *Estudios económicos*, 167-183.
12. Drăgoi, M. C., Andrei, J. V., Mieilă, M., Panait, M., Dobrotă, C. E., & Lădaru, R. G. (2018). Food Safety and Security in Romania–An Econometric Analysis in the Context of National Agricultural Paradigm Transformation. *Amfiteatru Economic*, 20(47), 134-150.
13. Gayá, R., & Michalczewsky, K. (2014). South American Intra-regional trade: export pattern and intra-industry flows, Washington: Inter-American Development Bank. [*en español:* Gayá, R., & Michalczewsky, K. (2014), *El comercio Intrarregional sudamericano: patrón exportador y flujos intraindustriales*. Washington: Banco Interamericano de Desarrollo]. Retrieved from http://www.iadb.org/ (September 30, 2019)
14. Grubel, H. G., & Lloyd, P. J. (1971). The Empirical Measurement of Intra- Industry Trade. *Economic Record,* 47(120), 494-517. https://doi.org/10.1111/j.1475-4932.1971.tb00772.x
15. Grubel, H. G., & Lloyd, P. J. (1975). Intra-industry trade. *The theory and measurement of international trade in differentiated products*. 19, 71-117. London.
16. Henao Rodríguez, C., Lis Gutiérrez, J. P., Viloria, A., & Laverde, H. (2016). Synthesis of the Indices used to Measure Intra-industry Trade. *International Journal of Control Theory and Applications*. 9(44), 427-434.
17. Ignjatijević, S., Čavlin, M., & Đorđević, D. (2014). Measurement of comparative advantages of processed food sector of Serbia in the increasing the export. *Economics of Agriculture*, 61(3), 677-693. https://doi.org/10.5937/ekoPolj1403677I
18. Jefferson Institute (2003). *Competitiveness of Serbian economy* [*in Serbian*: Džeferson institut (2003), *Konkurentnost privrede Srbije*]. Retrieved from https://www.nbs.rs/internet/latinica/90/90_0/konkurentnost_privrede_srbije.pdf (23 October, 2019)
19. Jefferson Institute (2006). *Competitiveness of Serbian economy* [*in Serbian*: Džeferson institut (2006), *Konkurentnost privrede Srbije*]. Retrieved from https://issuu.com/jeffersoninstitute/docs/konkurentnostweb_1_ (19 October, 2019)
20. Jovović, D., & Jovović, D. (2018). Competitiveness of food manufacturing of Republic of Serbia. *Economics of Agriculture*, 65(1), 49-64. https://doi.org/10.5937/ekoPolj1801049J
21. Lee, H. (2004). *Regime Selection as an Alternative to Grubel Lloyd Index*. Seoul: Konkuk University.
22. Marković, M. (2019). Analysis of comparative advantages of Serbian exports at the sectoral level. *Ekonomika,* 65(3), 55–64. https://doi.org/10.5937/ekonomika1903055M
23. Marković, M., Marjanović, I. (2019). Export competitiveness of Serbian agri-food sector in the Western Balkan countries. In Krstić, B. (Ed). *Improving Macroeconomic Competitiveness* - Thematic collection of papers of international significance. Niš: Faculty of Economics, University of Niš, 79-97.

24. Maslova, V., Zaruk, N., & Avdeev, M. (2019, May). The impact of the competitiveness of Russian agri-food products on the dynamics of Russian foreign trade. In *IOP Conference Series: Earth and Environmental Science* (Vol. 274, No. 1). IOP Publishing. https://doi.org/10.1088/1755-1315/274/1/012026
25. Matkovski, B., Lovre, K., & Zekić, S. (2017). The foreign trade liberalization and export of agri-food products of Serbia. *Agricultural Economics (Czech Republic)*, 63(7), 331-345. https://doi.org/10.17221/345/2015-AGRICECON
26. Mališek, I. (2012). Measurement and evaluation of macroeconomic results of foreign trade. *Economic Review,* 41(4), 439-451. [*in Slovak*: Mališek, I. (2012), Meranie a hodnotenie makroekonomických výsledkov zahraničného obchodu. *Ekonomické rozhľady*].
27. Milićević, S., Nikolić, M., & Cvetanović, S. (2017). The competitiveness of wood processing industry in the Republic of Serbia during the period 1995-2015. *Industrija*, 45(3), 131-150. https://doi.org/10.5937/industrija45-14579
28. Milutinović, S. (2015). The importance of intra-industry trade in the contemporary world economy. *Economics: Theory and Practice*, 8(1), 35-46. [*in Serbian*: Milutinović, S. (2015), Značaj intra-industrijske trgovine u savremenoj svetskoj privredi. *Ekonomija: teorija i praksa*]. https://doi.org/10.5937/etp1501035M
29. Mitrović, V., & Mitrović, I. (2014). Raising of competitiveness of export-oriented industries: Economic priorities of national importance. *Ekonomika*, 60(3), 263-283. [*in Serbian*: Митровић, В., & Митровић, И. (2014), Подизање нивоа конкурентности извозно оријентисане индустрије – економски приоритет од националног значаја. *Економика*].
30. Mrdalj, V. (2015). The Competitiveness of Agroindustry Sector of the Republic of Srpska in International Trade. *Agro-knowledge Journal*, 16(1), 21-31. [*in Serbian*: Mrdalj, V. (2015), Konkurentnost agroindustrijskog sektora Republike Srpske u međunarodnoj razmjeni. *Agroznanje*]. http://dx.doi.org/10.7251/AGRSR1501021M
31. Petrović, P. (2005). Structural characteristics of trade between Serbia and the European Union. *Economic Annals,* 166, 109-128. [*in Serbian*: Petrović, P. (2005), Strukturne karakteristike robne razmene Srbije i Evropske unije. *Ekonomski anali*].
32. Raičević, V., Ignjatijević, S., & Matijašević, J. (2012). Economic and legal determinants of export competitiveness of the food industry of Serbia. *Industrija*, 40(1), 201-226.
33. Simonović, Z., Cvijanović, D., & Hamović, V. (2010). The role of agrarian sector in economic growth of Serbia. *Ekonomika*, 56(4), 73-82.
34. Statistical Office of the Republic of Serbia (2019). Foreign Trade Database. [*in Serbian*: Републички завод за статистику (2019), База података о спољној трговини], Retrieved from https://data.stat.gov.rs/Home/Result/170302?languageCode=sr-Cyrl (October 18, 2019)
35. Stanojević, N., & Kotlica, S. (2018). Globalization and methodology of researches in international trade. *Industrija*, 46(2), 21-38. https://doi.org/10.5937/industrija46-15888

THE IMPACTS OF THE INVESTMENTS IN AGRICULTURE ON ECONOMIC GROWTH IN RURAL COMMUNITIES IN ROMANIA

Ionut Laurentiu Petre [1], Raluca Andreea Ion[2],

**Corresponding author E-mail: laurpetre15@gmail.com*

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ABSTRACT

This paper seeks to analyze the impact of agricultural investments on economic growth in rural communities in Romania. It answers the question: are the investments in agriculture a determinant of economic growth in rural communities, and if yes, what is their impact on economic growth? The objectives are to identify, through linear regression models, the intensity and meaning of the relationships between the value of investments and the main indicators that can express economic growth in rural areas. In this purpose, the level of relationships between the value of investments in agriculture and the value of GDP in predominantly rural areas, the value of GDP in agriculture and the value of the agricultural production are analyzed. The main results show that the variables chosen are influenced by the value of the investments in different proportions, so the hypothesis that investment in agriculture has a positive and medium impact on rural economic growth is true. The most significant relationship is obtained between the value of agricultural investments and the value of agricultural production.

Introduction

The rural space in Romania holds significant shares of area and population: 67.8 per cent of the total territory and 53.8 per cent of the total population (European Commission, 2017). Accordingly, a special attention is given to the development of rural areas and considerable funds are oriented to finance investments in rural space.

The rural development in Romania subscribes to the rural development policy of the European Union. Known as the second pillar of the Common Agricultural Policy, the rural development policy comes to complement the market measures and financial allocations through direct payments. The European Union's rural development policy

1 Ionut Laurentiu PETRE, PhD Student, Bucharest University of Economic Studies, 6 Piata Romana, 1st district, Bucharest, 010374 Romania, +40213191900, laurpetre15@gmail.com, ORCID ID (https://orcid.org/0000-0002-2360-6844)

2 Raluca Andreea ION, Associate Professor, PhD., Bucharest University of Economic Studies, 6 Piata Romana, 1st district, Bucharest, 010374 Romania, +40213191900, raluca.ion@eam.ase.ro, ORCID ID (https://orcid.org/0000-0001-7182-5809)

is funded through the European Agricultural Fund for Rural Development, worth €100 billion from 2014 to 2020. The financial allocation for Romania, for the same period, is € 8128 million (European Commission, 2015).

The rural development is assessed using a set of indicators, reported annually in the European Commission publication: Rural Development in the EU – Statistical and Economic Information. Since 2014, this report has been replaced by the annual CAP context indicator. It comprises numerous indicators, among them, the socio-economic ones show the economic situation in rural areas. The GDP per capita reached € 29,100 in terms of Purchasing Power Standards (PPS), as shows the latest report (European Commission, 2017). Over the period 2012-2014, rural areas had on average the lowest level of GDP per capita (72.9 per cent of the EU-28 average). Urban regions had the highest rate (120.8 per cent of the EU average).

In 2016, the GDP per capita was €8,600 in Romania, €5,122 in rural areas and €16,170 in urban areas. The difference of €7,570 indicates the socio-economic gaps between urban and rural. The improved economic situation in urban areas explains their attractiveness for population willing to live and work in urban areas. Thus, the population density in urban areas is 415.9 inhabitants/km2, while in rural areas it is 68.7 inhabitants/km2.

The labor productivity is lower in rural areas, €10,761, as compared to urban areas, €28,917. On average, the labor productivity in Romania is €18,015, three times lower than the average of the European Union €57,417.

Considering the socio-economic situation in rural areas, the questions arising are: what are the determinants of the rural development? Are the investments in agriculture a determinant of economic growth in rural communities, and if yes, what is their impact on economic growth?

The objective of this piece of research is to establish whether there is a relationship between investment in agriculture and economic growth in rural communities, bearing in mind that agriculture is the main economic activity in rural areas.

In pursuing this, the data corresponding to investments in agriculture and those corresponding to economic growth, GDP in predominantly rural regions, GDP in agriculture and the value of agricultural production, have been retrieved from the National Institute of Statistics of Romania database and Eurostat. The data were analyzed using SPSS program, and the models resulted express the relationships between investments and economic growth.

The paper is organized as follows. In Section 2, a brief of literature review is presented in order to establish the study hypothesis in Section 3. Section 4 gives an overview on the data and the methodology used to analyze the relationship between investments and economic growth. In Section 5, the findings are presented and discussed. Finally, in Section 6, conclusions are drawn and their implications are outlined.

Literature review

There is abundant literature on the impact of investments on economic growth. Benfica et al. (2018) analyzed the links between agricultural investment and the growth or poverty of the Mozambican economy. They have carried out econometric analyses at both household and national level on the impact of investment on farm productivity and growth. At a macroeconomic level, Mozambique's agricultural investment plan aimed at increasing the share of resources allocated for irrigation and subsidies, and the author's research concluded that the extension of agriculture is not based only on these two elements, so it can be explained the rather modest accelerations of economic growth and poverty reduction. The authors recommend higher priority and increased efficiency of public investment to develop economic growth.

On a similar theme, the impact of investment, Dillon et al. (2011) estimated this impact of rural investment in Nepal, realizing a "quantitative assessment of the impact of access to rural road, irrigation, and extension services" in Nepal. The author claims that "future planning and more efficient resource allocation can help improve rural welfare". To quantify the impact of rural investment, different methodologies have been used, so rural investment has an effect on improving household welfare, being quantified by land value, increasing consumption, reducing poverty or increasing farm incomes.

An impact analysis has been also proposed by Aït-Youcef (2018), who estimated the influence of investment indices on commodities. The author stated that it is essential to identify the financing channel for agricultural products to understand the dynamics of agricultural prices. At the same time, the author admits the links between capital and agriculture and the interactions between them. "This study highlights a reinforcement of the integration between agricultural commodities and equity indices when agricultural returns are remarkably extreme". The author believes that research into how agricultural product financing affects the development of poverty in developing countries needs to be explored.

It should also be noted that investments in the agricultural sector are also influenced by economic situation. For example, Tamasila et al. (2018) tested through a research the relationship between the cash flow and the investment decision of the companies in the agricultural sector in Romania. The authors investigated the relationship between investment and cash flow for 739 Romanian companies operating in the agricultural sector, considering this connection quite controversial. Authors' research shows that the level of investment is in a bidirectional causal relationship with cash flow, but when considering the dynamics of the investment, the causal link is less significant. Thus, the main conclusion is that the importance of cash flow is significant in supporting short-term investments, which is favorable for the agricultural sector.

Another external factor that can influence investment is studied in the paper of Nolte et al. (2017), analyzing the employment effects of large-scale agricultural investment. The authors have assumed that "the largest generation of direct net employment is expected for investments that do not entail massive crowding out of former income-generating activities and cultivate labor-intensive crops under contract farming schemes", but this

scenario applies to a reduced share of purchased land. "This implies that crowding out of former smallholder farmers is a serious issue. We find a massive loss of employment, with the highest losses stemming from the cultivation of capital-intensive crops". The authors believe that "the employment effects of LSAIs depend on the specific project".

A fairly controversial topic is foreign direct investment, and in the literature there are quite varied opinions about the influence of these investments on economic growth. An approach in this respect was made by Maizura Abdul Rashind et al. (2016) when examining the determinants of foreign direct investment in the agricultural sector, based on economies in OIC countries. For this, five factors have been chosen that could influence foreign direct investments, namely market size, inflation, poverty, exchange rate and infrastructure index. These variables have been statistically correlated with the dependent variable (foreign direct investment) and the authors' main conclusions refer to the decision-makers that should focus and pay attention to all the determinants, especially with regard to poverty reduction and the size of the market in the agricultural sector. These two determinants were the most important in terms of their influence on foreign direct investment in the agricultural sector in OIC countries.

In the same sense, Antoci et al. (2015) explored the effects of external investment inflows on the development of local rural economies, given two constraints, segmentation of the capital market and environmental externalities. The author asserts that external investment can be a crucial incentive for the local economy by increasing existing capital, directly through new, revenue-generating investments, but also indirectly through the possible reinvestment in the local sector of higher wages earned by new local employees in the new sector. Foreign investment may degrade the local environment, but new activities can compensate by reducing the productivity of the primary sector. The author finds a direct link between external investment and the welfare of the local population.

On the other hand, in the literature, there are also slightly different views on how foreign direct investment affects economic growth. Thus, Alvarado et al. (2017) examined the effect of foreign direct investment on economic growth in 19 Latin American countries. Using econometrics, it has been shown that the foreign direct investment effect on economic growth is not statistically significant in aggregate form. Foreign direct investments have a positive and significant effect on the product in high-income countries. The results of the authors' research show that foreign direct investments are not an appropriate mechanism for accelerating economic growth in Latin America, with the exception of high income countries.

Makiela et al. (2018) found a similar idea, namely, that foreign direct investments conclusively affected economic development through the accumulation of inputs, but not the channel of factor productivity growth, respectively research results suggest that other factors, in addition to foreign direct investment, would have helped to increase productivity in developing countries.

The results of the research by Iamsiraroj et al. (2015) suggest that, while foreign direct investment is increasing, the full benefits of foreign direct investments may

not be realized in the absence of well-functioning financial markets and higher levels of international trade. However, Iamsiraroj (2016) also investigated the associations between foreign direct investments and income growth per capita, using simultaneously a system of equations in 124 transnational data. The results of the estimate indicate that the overall effects of foreign direct investments are positively associated with higher rates of growth and vice versa.

Considering all the arguments above, our intention in this paper is to investigate the relationship between investments and economic growth in rural areas in Romania, by analyzing the correlations between the values of investments and the values of GDP in agriculture and GDP in predominant rural areas.

Study hypothesis

The results of previous research described above drive to the need of answering the question: Are the investments in agriculture a determinant of economic growth in rural communities, and if yes, what is their impact on economic growth? This piece of research starts from the premise that investments are a vector of rural development and, as such, contribute to the economic growth. The hypothesis tested is:

H1: Investments in agriculture have a positive and medium impact on economic growth in rural areas.

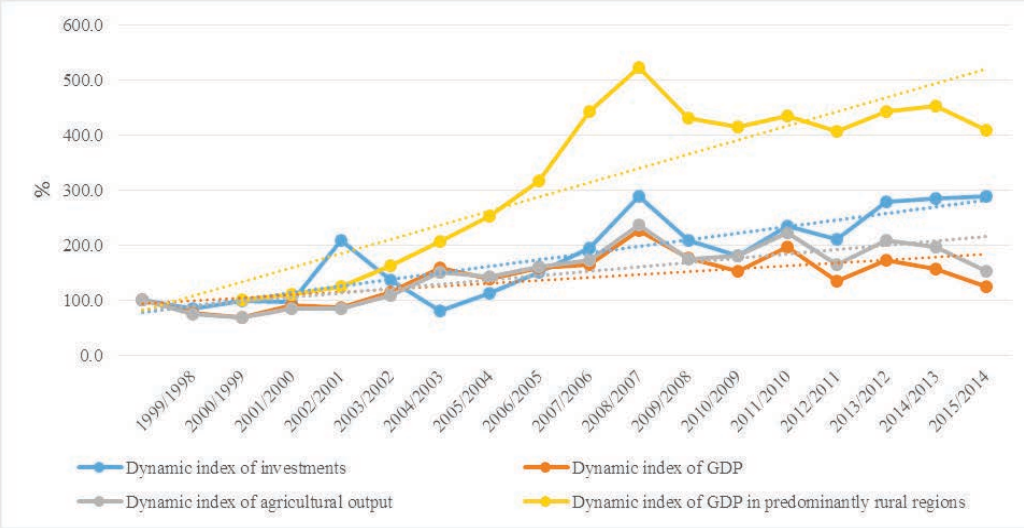
The hypothesis is sustained by other researchers Adams (2009), Belloumi and Alshehry (2018), showing that investments are positive and significantly correlated with economic growth. Alvarado (et al. 2017) argued that foreign direct investment has a positive and significant effect on product in high-income countries, while in upper-middle-income countries the effect is uneven and non-significant. Rashid (et al. 2016) found that the agriculture sectors react as important keys in the expansion of any economy growth to eliminate the poverty issues. Tamasila (et al. 2017) showed that investment in fixed assets in agriculture enhances the cash flow level for the subsequent period.

Data and Methodology

The investigation of the relationship between GDP and direct investments is based on the model of growth where economic output (GDP) is determined by the economic input (investments). For analyzing the direction and the intensity of this relationship, one variable has been considered for the input – the value of investment in agriculture, and three variables have been considered for the agricultural output – GDP in predominantly rural areas, GDP in agriculture, and the value of agricultural production.

The data have been retrieved from the National Institute of Statistics of Romania and they refer to the period 1998-2015. The data referring to the GDP in predominant rural areas have been retrieved from Eurostat. The dynamic indices of the values of investments, GDP in agriculture, GDP in predominantly rural areas and the value of the agricultural production are presented in Figure 1.

Figure 1. The dynamic indices of investments in agriculture, GDP in agriculture, GDP in predominantly rural areas and the value of the agricultural production, in Romania, 1998-2015



Source: own calculations based on data from the National Institute of Statistics of Romania and Eurostat

The trends of all indicators show increases of their values. Significant amounts of money have been allocated to agriculture from 2008 forward, after Romania accession to the European Union. The year 2007 opened new financial opportunities and allocations through National Program for Rural Development. The value of investments in agriculture increased three times in 2008 compared to 2007, achieving $1,330 million. Significant growths registered in the period 2013-2015, where the values of investments increased 2.8 times as compared to the previous year, and the investments reached, anew, the value of $1,330 million.

The values of the agricultural production, GDP in agriculture and GDP in predominantly rural areas increased over the period under analysis. They reached a peak in 2008, when the GDP in agriculture registered $13,557 million, 2.2 times higher as compared to the previous year, and the value of production reached $26.3 million, 2.3 times higher than its value in 2007. The GDP in predominantly rural areas constantly increased and reached the highest value of $84,300 million, in 2008.

Results

The variables used to investigate the relationship between investments and economic growth have been analyzed using SPSS 22. The results of the regression models are presented in Table 1 and Figure 2. The graphs in Figure 2 show linear correlations between the variables. The models are statistically significant since the values of Sig. are below .05. Significant correlations have been found between the value of investments in agriculture and GDP in predominantly rural regions (R2=.615) and between the value

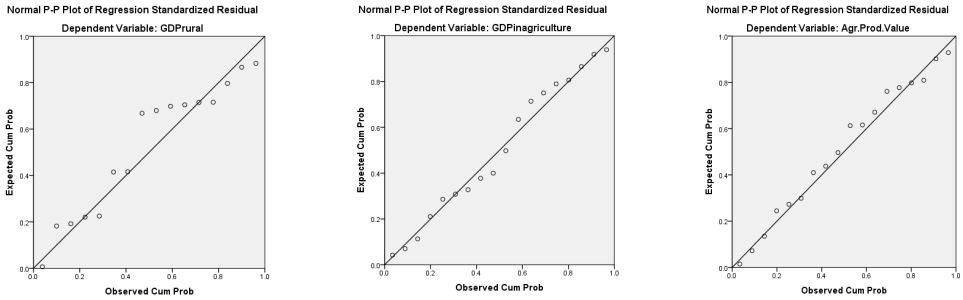
of investments and the value of the agricultural production (R2=.545), and weaker correlation between the value of investments and GDP in agriculture (R2=.365). It means that the level of GDP in agriculture is influenced by other significant factors out of investments – the agricultural land potential, the labor etc.

Table 1. The influence of investments on the values of GDP in predominantly rural regions, GDP in agriculture, and the value of the agricultural production

Variable	Coefficients of correlation (R Square)	Coefficients of regression function	Sig.
GDP in predominantly rural regions	.615	.784	.000
GDP in agriculture	.365	.604	.008
Value of the agricultural production	.545	.738	.000

Source: Results of the regression model

Figure 2. The correlations between investments and the values of GDP in predominantly rural regions (a), GDP in agriculture (b), and the value of the agricultural production (c)



(**a**) (b) (**c**)

Source: Results of the regression model

The relationships between investments and GDP in predominantly rural regions are analysed using the simple regression model. The results are presented in Table 1. The coefficient of correlation between investments and GDP in predominantly rural regions is .615, showing a medium and direct relation between the two variables. The model which shows the relationships between investments and GDP in predominantly rural regions is: y=0.784x, meaning that a change by one unit in the level of investments leads to a change with 0.784 of the GDP in predominantly rural areas. The values of Sig.is .000, below .05, meaning that the model is valid. The interval for B value do not contain the value 0, meaning, again, that the model is valid. The results are provided with a standard error of 11.5. The high level of the standard error is a limit of the research.

The relationships between investments and GDP in agriculture are presented in Table 1. The coefficient of correlation between investments and GDP in agriculture is .365, showing a weak and direct relation between the two variables. The function which shows the relationships between investments and GDP in agriculture is: y=0.604x,

meaning that a change by one unit in the level of investments leads to a change with 0.604 of the GDP in agriculture. The values of Sig.is .008, below .05 and the interval for B value do not contain the value 0, meaning that the model is valid. The results are provided with a standard error of 1.49. The high level of the standard error is a limit of the research.

The relationships between investments and the value of the agricultural production are analysed using the simple regression model. The results are presented in Table 1. The coefficient of correlation between investments and the value of the agricultural production is .545, showing a medium and direct relation between the two variables. The model which shows the relationships between investments and the value of the agricultural production is: y=0.738x, meaning that a change by one unit in the level of investments leads to a change with 0.738 of the value of the agricultural production. The values of Sig. is .000, below .05 and the interval for B value do not contain the value 0, meaning that the model is valid. The results are provided with a standard error of .003.

Conclusions

It was found that investments in agriculture impact the levels of the GDP in predominantly rural regions, GDP in agriculture, and the level of the agricultural production. The hypothesis "Investments in agriculture have a positive and medium impact on economic growth in rural areas" is confirmed and a final answer to the research question is that investments in agriculture represent a determinant of economic growth in rural communities.

Among the models analyzed, the relationship between the level of investments in agriculture and the value of the agricultural production is the most significant. The results of the regression model show that investments influence the value of the agricultural production, with an impact of .738, meaning that an increase of one US$ in the level of investment leads to a growth of US$ 0.738 in the level of the agricultural production.

The results of this research are expected to provide policy makers with insight into the determinants of the economic growth in rural areas and the findings may be used to develop policy initiatives to finance investments in agricultural activity for the wider development of the rural regions.

Conflict of interests

The authors declare no conflict of interest.

References

1. Adams, S. (2009). Foreign Direct investment, domestic investment, and economic growth in Sub-Saharan Africa. *Journal of Policy Modeling,* 31, 939–949
2. Aït-Youcef, C. (2019). How index investment impacts commodities: A story about the financialization of agricultural commodities, *Economic Modelling*, 80, 23-33

3. Alvarado, R., Iñiguez, M., & Ponce, P. (2017). Foreign direct investment and economic growth in Latin America, *Economic Analysis and Policy,* 56, 176-187.
4. Antoci, A., Borghesi, S., Russu, P., & Ticci, E. (2015). Foreign direct investments, environmental externalities and capital segmentation in a rural economy, *Ecological Economics*, 116, 341–353.
5. Belloumi, M., & Alshehry, Atef. (2018). The Impacts of Domestic and Foreign Direct Investments on Economic Growth in Saudi Arabia. *Economies*, 6, 1-17
6. Benfica, R. (2019). Linking agricultural investments to growth and poverty: An economywide approach applied to Mozambique, *Agricultural Systems*, 172, 91-100
7. Dillon A., Sharma M., & Zhang X. (2011). Estimating the impact of rural investments in Nepal, *Food Policy,* 36, 250–258.
8. European Commission, (2015). Commission Delegated Regulation (EU) No.2015/791 amending Annex I to Regulation (EU) 1305/2013 of the European Parliament and of the Council on support for Rural Development. Retrieved from: https://ec.europa.eu/agriculture/sites/agriculture/files/rural-development-2014-2020/country-files/common/funding-per-ms_en.pdf
9. European Commission, (2017). CAP context indicators – 2017. https://ec.europa.eu/agriculture/cap-indicators/context/2017_en
10. Iamsiraroj, S. (2016). The foreign direct investment–economic growth nexus, *International Review of Economics and Finance*, 42, 116–133,
11. Iamsiraroj, S. Ulubaşoğlu M.A. (2015). Foreign direct investment and economic growth: A real relationship or wishful thinking? *Economic Modelling*, 51, 200–213,
12. Intan Maizura Abdul Rashida, Nor'aznin Abu Bakar, & Nor Azam Abdul Razak. (2016). Determinants of Foreign Direct Investment (FDI) in Agriculture Sector Based on Selected Highincome Developing Economies in OIC Countries: An Empirical Study on the Provincial Panel Data by Using Stata, 2003-2012, *Economics and Finance*, 39, 328 – 334
13. Leight J. (2016). Reallocating wealth? Insecure property rights and agricultural investment in rural China, *China Economic Review*, 40, 207–227
14. Makiela, K., & Ouattara, B. (2018). Foreign direct investment and economic growth: Exploring the transmission channels, *Economic Modelling*, 72, 296–305
15. Nolte, K., & Ostermeier, M. (2017). Labour Market Effects of Large-Scale Agricultural Investment: Conceptual Considerations and Estimated Employment Effects, *World Development*, 98, 430–446
16. Tămăsilă M., Miclea S., Vartolomei M., Pascu D., & Albulescu C.T. (2018). Cash flow and investment decision: an application on the Romanian agriculture sector, *Social and Behavioral Sciences*, 238, 704 – 713

A TWO-STAGE DEA MODEL TO EVALUATE AGRICULTURAL EFFICIENCY IN CASE OF SERBIAN DISTRICTS

Aleksandra Marcikic Horvat[1], Boris Radovanov[2], Gheorghe H. Popescu[3], Casen Panaitescu[4]*

**Corresponding author E-mail: radovanovb@ef.uns.ac.rs*

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ABSTRACT

Since the efficient agricultural sector is one of the most important drivers of country's economic development, the main objective of this paper was to examine relative technical efficiency of agricultural production in 25 Serbian districts using two-stage data envelopment analysis. Results of this research indicate that the efficiency score values lie between 70% and 100%, therefore it can be concluded that the agricultural sector of Serbia performs at a high level of efficiency, with the average efficiency score of 90%. The lowland region of Vojvodina is characterized with the highest efficiency scores, while districts in the southeastern part of Serbia have the lowest efficiency score values. Furthermore, the Tobit regression model was applied that one may examine the drivers of technical efficiency scores. The results show the significance of agricultural training among farm managers, land irrigation and age of farm holders in altering agricultural efficiency among Serbian districts.

Introduction

Agricultural productivity and technical efficiency of agriculture are some of the main drivers of the overall economic development of the country (Zamanian, 2013; Ciric et al., 2019). Agriculture has a crucial position in the economy of every country, including Serbia. Nowadays, in current extremely competitive environment, "efficiency is one

1 Aleksandra Marcikic Horvat, Assistant Professor, University of Novi Sad, Faculty of Economics Subotica, Segedinski put 9/-11, 24000 Subotica, +381 24 628027, amarcikic@ef.uns.ac.rs, ORCID ID: https://orcid.org/0000-0002-4199-4238

2 Radovanov Boris, Assistant Professor, University of Novi Sad, Faculty of Economics Subotica, Segedinski put 9/-11, 24000 Subotica, +381 24 628027, radovanovb@ef.uns.ac.rs, ORCID ID: https://orcid.org/0000-0002-4728-7286

3 Gheorghe H. Popescu, PhD. Prof., Dimitrie Cantemir Christian University, Bucharest 030134, Romania, popescu_ucdc@yahoo.com

4 Casen Panaitescu, PhD. Lecturer, Petroleum-Gas University of Ploiesti, B-dul Bucharest, No. 39, 100680 Ploiesti, Romania, c.panaitescu@gmail.com, ORCID ID: https://orcid.org/0000-0001-9381-0915

of the most frequently applied terms to help identify the strengths and weaknesses of the evaluated units" (Kocisova, 2015). Studies which analyse efficiency of agricultural sector of Serbia on regional level are rare. Because of that, our paper is trying to expand the literature in this field and analyse technical efficiency of agriculture of Serbian districts, by application of two-stage DEA model. In that context, the main objective is to determine the efficiency of agriculture in 25 Serbian districts and to evaluate the impact of different factors on technical efficiency. This paper tends to explore the possible sources of inefficiency and to suggest the ideas of improving efficiency in this important sector.

The DEA has become a very popular non-parametric method for efficiency analysis and it can be successfully applied in different fields and on various levels. The DEA method is designed to accept multiple different input and output parameters in order to determine the effectiveness of different decision-making units (Ilić & Petrevska, 2018). There is a wide academic literature of application of this method in agriculture. This paper accentuates a unique approach of the observation of agricultural units. Most of the papers, that analyses the efficiency of agriculture, considers as decision making units farms (for example Ghaderi et al., 2019; Lekic et al., 2018; Popovic, 2018; Galluzzo, 2017; Fazekaš et al., 2017; etc.), agricultural enterprises or countries (Moreno-Moreno et al., 2018; Kocisova, 2015; Bojnec, 2012; etc). In this research we will use districts as decision making units, which is the novelty of this research. It is noteworthy to mention some studies that motivated the research presented here. Group of authors (Toma et al., 2015) in their paper applied DEA at regional level to analyze the performance of agricultural production in plain, hill and mountain areas in 36 Romanian counties. The technical efficiency of areas was calculated using input oriented CRS and VRS DEA model with three input variables and production value at the side of output variables. Results showed that only 14 counties operate at their optimal scale. Spicka (Spicka, 2014) analyzed the efficiency and its factors of mixed crop and livestock farming among the 101 EU regions. Results showed that efficient regions had higher level of land, labor, energy and capital productivity and productivity of contract work than less efficient regions. Another interesting application of DEA on regional level is presented by group of authors (Bagchi et al., 2019). They analyzed growth in agricultural productivity in 19 Bangladeshi regions for 23 years period using a bootstrapped DEA procedure. Noteworthy is also to mention the study conducted by the group of authors (Pang et al., 2016) that examines eco efficiency in Chinese regions by application of DEA and the Theil index approach.

The second stage in DEA analysis was proposed by Ray (Ray, 1988) through the adjustment of a linear regression model where dependent variable is presented as estimated DEA efficiency scores. Many authors (Silva et al., 2019; McDonald, 2009) propose an application of Tobit model in order to involve and assess the influence of different factors on technical efficiency. A Tobit model is suitable in the second stage of DEA analysis when the dependent variable is either censored or corner solution outcomes. A corner solution outcomes is continuous and restricted from above or below and takes the results from those boundaries with a positive probability (Hoff,

2007). Second stage analysis provides separate statistical evidence of the impact of different variable sets on the efficiency scores that is why it can be appropriate for governmental regulators (Silva et al., 2019). Yan (Yan, 2019) applied two stage DEA model to analyze the efficiency of agricultural enterprises in China. The results of DEA model show the low level of efficiency at the observed agricultural enterprises. In the second stage, Tobit regression model was applied to identify the factors that influence the efficiency. Another authors (You, Zhang, 2016) from China also applied an input-oriented DEA model to analyze eco efficiency in 31 provinces of China in case of intensive agricultural production, where only six provinces can be considered as fully efficient. Furthermore, they used a Tobit model specification to detect the regressors of significant influence on the eco efficiency.

Methodology

The main goal of this research is to examine the relative technical efficiency of agriculture in Serbian districts using DEA, as well as to provide a further analysis on factors that influence the efficiency score by application of Tobit regression model. On the contrary to the parametric statistical approaches, DEA compares the efficiency of each decision making unit with the highest efficiency score in the observed sample, rather than the mean value. This method does not require preliminary assumption about the analytical form of the relation between input and output variables. All the variables in the model can be presented by various types of metric. The results of the DEA model are relative efficiency measures, since they depend on the number of decision making units involved in the analysis, as well as the number and the choice of input and output variables. Results of DEA method show how many decision making units (DMUs) are ineffective, compared to the effective ones. From the results of DEA it is also possible to recommend the necessary reduction or increase of the observed inputs and outputs, in order to improve the efficiency.

In this paper, the output-oriented DEA model with a variable return to scale is applied to examine the technical efficiency of agriculture in Serbian districts. The analysis is carried out by solving the model (Banker, Charnes, Cooper, 1984) for each district:

$$\max \phi \qquad (1)$$

$$s.t. \sum_{j=1}^{n} x_{ij}\lambda_j \leq x_{io} \quad i = 1, 2, \dots, m;$$

$$\sum_{j=1}^{n} y_{rj}\lambda_j \geq \phi y_{ro} \quad r = 1, 2, \dots, s;$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0$$

where n is the number of DMUs and DMU_o represents the district under evaluation. Assume that we have *s* output variables and *m* input variables. Observed output and input values are y_r and x_i respectively, thus y_{ro} is the amount of output *r* used by DMU_o, while x_{io} is the amount of input *i* used by DMU_o. λ is the DMU's weight and the efficiency score is ϕ.

A detection of the drivers of the technical efficiency results by applying a regression model is the main goal of the second stage of DEA analysis. The standard linear regression model with no constraints is not suitable for such an analysis, because of the fact that estimated or predicted values of efficiency scores can be found beyond the unit interval boundaries. The basic idea of a Tobit model is to censor the dependent variable by determining the threshold of the latent dependent variable. The general formulation of the model is given as follows (Greene, 2003):

$$y_i^* = x_i'\beta + \varepsilon_i, \qquad (2)$$

$$y_i = 0 \text{ if } y_i^* \leq 0$$

$$y_i = y_i^* \text{ if } y_i^* \geq 0$$

Where y_i^* is the latent dependent variable of the technical efficiency result, related to the ith region, x_i' is the vector of regressors and ε_i is the error term.

Results and Discussion

This study assessed the relative technical efficiency of agriculture for 25 Serbian districts in 2018. The term "relative" explains the efficiency obtained within the observed group of DMUs under the given set of inputs and outputs. Therefore, it is necessary to define input and output variables used in this research. Based on an extensive review of previous studies in this field and available data, three input variables were selected for our DEA model:

- Utilized agricultural area, measured in hectares
- Livestock unit, expressed in number of heads
- Labor, presented by the number of annual working units directly employed by holding. Annual working unit representing the equivalent of one person's full time working day of 225 days a year.
- On the side of outputs, only one variable has been included in the DEA model:

- Economic size of farm, represented as a value of the standard output of agricultural production (in millions of euros).

The data was retrieved from the Statistical Office of the Republic of Serbia database (2019). The descriptive statistics are presented in the Table 1.

Table 1. Descriptive statistics

	Utilized agricultural area	Livestock unit	Annual working unit	Economic size of farm
Min	46595.00	16752.00	8928.97	36.00
Max	314579.00	190294.00	57282.32	403.00
Average	139035.68	77353.56	25829.32	194.40
St. Dev.	71973.68	41399.53	12377.11	99.57

Source: Author's calculations

The MaxDEA 8 Basic software has been used to calculate the efficiency scores. In this case, the district is observed as one decision making unit and its relative efficiency is calculated by solving a linear programming model (1). Table 2 shows the results of output-oriented BCC DEA model with variable return to scale.

Table 2. Efficiency score of DEA model

District	Efficiency Score
Beogradska district	0.961
Zapadnobacka district	1.000
Juznobanatska district	1.000
Juznobacka district	1.000
Severnobanatska district	0.927
Severnobacka district	1.000
Srednjobanatska district	1.000
Sremska district	1.000
Zlatiborska district	0.849
Kolubarska district	0.873
Macvanska district	1.000
Moravicka district	0.854
Pomoravska district	0.764
Rasinska district	1.000
Raska district	0.729
Sumadijska district	0.766
Borska district	0.911
Branicevska district	0.707
Zajecarska district	0.716

District	Efficiency Score
Jablanicka district	0.999
Nisavska district	0.761
Pirotska district	1.000
Podunavska district	0.820
Pcinjska district	0.793
Toplicka district	1.000

Source: Author's calculations

The presented results show that the agricultural sector of Serbia performs with a high efficiency, with the average efficiency score of 90%. Ten Serbian districts operate under the maximum efficiency, while eight district achieved efficiency score between 80% and 100%. Seven districts, mainly located in the southeastern part of the country, obtained the lowest efficiency scores between 70% and 80%. The lowest efficiency, within the analyzed group of districts, is achieved at Branicevska district with the efficiency score of 70.7%. Our results show that in the lowland region of Vojvodina six districts achieved the maximum technical efficiency of 100% and only Severnobanatska district has efficiency score lower than maximum value (92.7%).

Furthermore, second stage analysis is performed in order to identify the drivers of the technical efficiency scores. Assuming the potential drivers on technical efficiency from literature review and available data in case of Serbian regions, this paper introduces four independent variables:

- Percentage of utilized agricultural area
- Percentage of irrigated agricultural area
- Percentage of farm managers with full agricultural education
- Percentage of farms led by managers under 45 years old.

Table 3. Estimated coefficients of the TOBIT model

Variable	Coefficient	z-Statistic
Constant	0.7539***	12.6302
Percentage of farm managers with full agricultural education	13.5785***	4.5502
Percentage of irrigated agricultural area	1.0043**	2.0939
Percentage of farms led by managers under 45 years old	0.6961**	-2.2269

*Notice: *** and ** indicate the significance at the level of 1% and 5%*
Source: Author's calculations

The Table 3 presents the results of an estimation of the Tobit model coefficients. The backward coefficient selection procedure is utilized to eliminate insignificant variables from the model. The results show the significance of agricultural training and education among farm managers, land irrigation and age of farm managers in affecting the

agricultural technical efficiency among Serbian regions. All three involved variables have positive impact on the level of technical efficiency.

As expected, the level of fully trained and educated farm managers had a positive impact on the agricultural technical efficiency. The education obviously plays important role in achievement of higher level of technical efficiency. Even tough, the percentage of fully educated farm managers does not exceed 20% in any particular region. Likewise, another authors (Raheli et al., 2017; Shanmugam & Ventkataramani, 2006) show that education is powerful driver of efficiency at the district level in the long term. Nevertheless, there are some studies (Novak et al, 2015; Idris et al, 2013) claiming that the level of training and education is not related with the agricultural efficiency.

The technical efficiency is significantly and positively affected by the land irrigation. The problem is very poor network of irrigation systems that do not covering more than 10% of agricultural area in any particular region. Yuya (Yuya, 2014) also revealed that farms involved in irrigation practice have an improvement in technical efficiency compared to those farms have not such a practice.

Although some studies (Nowak et al, 2015) emphasized the experience as an important efficiency driver, farm managers under 45 years old show some innovative approach and better energy towards improvement in agricultural technical efficiency. Another group of authors (Saiyut et al., 2017) indicated that younger farmers reduce the technical inefficiency in Thai agricultural production. The eliminated variable from the model is the percentage of utilized agricultural area which is more or less similar among observed regions.

Conclusions

Since the efficient agricultural sector is one of the most important drivers of countries economic development, the importance of examining the relative technical efficiency of the agricultural production in 25 Serbian districts took place. In order to attain presented aim of the paper, we attempt to answer the following research questions: “Is the agricultural sector of Serbia performing efficiently? What are the main drivers of technical efficiency and is there any way of improving the efficiency of agricultural production in Serbian districts?”

We applied the output oriented DEA model under the assumption of variable return to scale, with three input variables (utilized agricultural area, livestock and labor) and one output variable (economic size of farm). The results show that the efficiency score values lie between 70% and 100%, therefore it can be concluded that the agricultural sector of Serbia performs with the average efficiency score of 90%. The lowland region of Vojvodina is characterized with the highest efficiency scores, while the southeastern part of Serbia has the lowest efficiency score values.

Furthermore, the Tobit regression model was applied with the intention of investigation of the causes that significantly affect the achieved technical efficiency scores. The results

show the significance of agricultural training and education among farm managers, land irrigation and age of farm managers in affecting the technical efficiency of agricultural production among Serbian districts. The model results should be able to recommend some decision policies towards agricultural efficiency. In other words, the future investment process in agriculture needs to be directed towards technical modernization and staff education, but also in promoting young people working on lands.

The outcomes of this paper can be updated by various choice of variables, since the results of DEA efficiency scores significantly depend on the selection of input and output variables. The further analysis in case of Serbian districts may also took advantage from the application of DEA models over a longer period of time, which would allow to track the possible trends and cyclic movements in the efficiency of agricultural production of this geographic area.

Conflict of interests

The authors declare no conflict of interest.

References

1. Bagchi, M., Rahman, S., & Shunbo, Y. (2019). Growth in Agricultural Productivity and Its Components in Bangladeshi Regions (1987–2009): An Application of Bootstrapped Data Envelopment Analysis (DEA). *Economies*, 7(2), 1-16. DOI: 10.3390/economies7020037
2. Banker R.D., Charnes A., Cooper W.W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*, 30(9), 1078–1092.
3. Bojnec S., Ferto I., Jambor A., & Toth J. (2012). Determinants of technical efficiency in agriculture in New EU Member States from Central and Eastern Europe. *Acta Oeconomica*, 64(2), 197-217. doi:10.1556/AOecon.64.2014.2.4
4. Ciric, Z., Stojic, D., Sedlak, O., Marcikic Horvat, A., Kleut, Z. (2019). Innovation Model of Agricultural Technologies Based on Intuitionistic Fuzzy Sets. *Sustainability* 2019, *11*(19), 5457; https://doi.org/10.3390/su11195457
5. Fazekaš, T.; Bobera, D.; Ćirić, Z. (2017). Ecologically and Economically Sustainable Agricultural Transportation Based on Advanced Information Technologies. *Economics of Agriculture*, 64(2), 739–750. https://doi.org/10.5937/ekoPolj1702739F
6. Galluzzo N. (2017). Efficiency Analysis in Different Typologies of Farming in Italian FADN Dataset. *Economics of Agriculture*, 64(2), 451-466.
7. Ghaderi, Z., Menhaj, M. H., Kavoosi-Kalashami, M., & Sanjari, S. M. (2019). Efficiency analysis of traditional tea farms in Iran. *Economics of Agriculture*, 66(2), 423-436. doi:10.5937/ekoPolj1902423G

8. Greene, W.H. (2003). Econometric Analysis: Fifth Edition. Prentice Hall, New Jersey
9. Hoff, A. (2007). Second Stage DEA: Comparison of Approaches for Modeling the DEA Score. *European Journal of Operational Research*, 181(1), 425-435.
10. Idris, N.D.M., Siwar, C., & Talib, B. (2013). Determinants of Technical Efficiency on Pineapple Farming. *American Journal of Applied Sciences*, 10(4), 426-432.
11. Ilić, I., & Petrevska, I. (2018). Using DEA method for determining tourism efficiency of Serbia and the surrounding countries. *Hotel and Tourism Management*, 6(1), 73-80. doi: 10.5937/menhottur1801073I
12. Kocisova K. (2015). Application of the DEA on the measurement of efficiency in the EU countries. *Agricultural Economics – Czech, 61*(2), 51-62. doi:10.17221/107/2014-AGRICECON
13. Lekic N., Savic G., Knezevic S., & Mitrovic A. (2018). The efficiency analysis in small wineries in the Republic of Serbia. *Economics of Agriculture*, 65(4), 1529-1544. doi:10.5937/ekoPolj1804529L
14. McDonald, J. (2009). Using Least Squares and Tobit in Second Stage DEA Analysis. *European Journal of Operational Research*, 197(2), 792-798.
15. Moreno-Moreno J., Velasco Morente F., & Sanz Díaz M.T. (2018). Assessment of the operational and environmental efficiency of agriculture in Latin America and the Caribbean. *Agric. Econ. – Czech*, 64(2), 74-88.
16. Nowak, A., Kijek, T., & Domanska, K. (2015). Technical Efficiency and Its Determinants in the European Union Agriculture. *Agricultural Economics*, 61(6), 275-283.
17. Pang J., Chen X., Zhang Z., & Li H. (2016). Measuring Eco-Efficiency of Agriculture in China. *Sustainability*, 8(4), 398; doi.org/10.3390/su8040398
18. Popovic R., & Panic D. (2018). Technical efficiency of Serbian dairy processing industry, *Economics of Agriculture*, 65(2), 569-581. doi:10.5937/ekoPolj1802569P
19. Raheli, H., Rezaei, R.M., Jadidi, M.R., & Mobtaker, M.B. (2017). A Two-Stage DEA Model to Evaluate Sustainability and Energy Efficiency of Tomato Production. *Information Processing in Agriculture*, 4(4), 342-350.
20. Ray, S. (1988). Data Envelopment Analysis, Nondiscretionary Inputs and Efficiency: An Alternative Interpretation. *Socio-Econ. Plann. Sci.*, 22(4), 167-176.
21. Saiyut, P., Bunyasiri, B., Sirisupluxana, P., & Mahathanaseth, I. (2017). The Impact of Age Structure on Technical Efficiency in Thai Agriculture. *Kasertsat Journal of Social Sciences*, 1(2017), 1-7.
22. Shanmugam, K., & Ventkataramani, A. (2006). Technical Efficiency in Agricultural Production and Its Determinants: An Exploratory Study at the District Level. *Indian Journal of Agricultural Economics*, 61(2), 169-184.

23. Silva, A.V., Costa M.A., Lopes, A.L.M., & Carmo, G.M. (2019). A Close Look at Second Stage Data Envelopment Analysis Using Compound Error Models and the Tobit Model. *Socio-Economic Planning Sciences*, 65(2019), 111-126.
24. Spicka J. (2014). The regional efficiency of mixed crop and livestock type of farming and its determinants. *Agris On-line Papers in Economics and Informatics*, 6(1), 99–109.
25. Statistical Office of the Republic of Serbia, Retrieved from http://www.stat.gov.rs/ (September 1, 2019)
26. Toma, E., Dobre, C., Dona, I., & Cofas, E. (2015). DEA Applicability in Assessment of Agriculture Efficiency on Areas with Similar Geographically Patterns. *Agriculture and Agricultural Science Procedia*, 6(2015), 704-711. doi:10.1016/j.aaspro.2015.08.127.
27. Yan L. (2019). Evaluation of Operating Efficiency of Agricultural Listed Enterprises Based on DEA-Tobit Two Stage Model. *Advances in Intelligent Systems Research - Proceedings of the 2019 International Conference on Modeling, Analysis, Simulation Technologies and Applications (MASTA 2019)*, 168: 47-53. Retrieved from https://www.atlantis-press.com/proceedings/masta-19/125913191
28. You H. & Zhang X. (2016). Ecoefficiency of Intensive Agricultural Production and Its Influencing Factors in China: An Application of DEA-Tobit Analysis. *Discrete Dynamics in Nature and Society*, 5(2016), 1-14, doi:10.1 155/2016/478609
29. Yuya, B. (2014). Comparative Analysis of Technical Efficiency of Smallholder Irrigated and Rain-fed Farm Production. *Journal of Agricultural Economics, Extensions and Rural Development,* 2(5), 52-62.
30. Zamanian Gh.R., Shahabinejad V. & Yaghoubi M. (2013). Application of DEA and SFA on the measurement of agricultural technical efficiency in MENA1 Countries. *International Journal of Applied Operational Research*, 3(2), 43–51.

LONG-TERM TRENDS IN FOOD CONSUMPTION: COMPARISON BETWEEN SERBIA AND GREECE

Tatjana Brankov[1], Theodoros Markopoulos[2], Stavros Kontakos[3]

**Corresponding author E-mail:brankov.tatjana@gmail.com*

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ABSTRACT

This study analyses the relationship between food consumption and income, taking the consumption (per capita) of different food categories and GDP (per capita) as indicators. It presents the time series trends and compares the food consumption patterns for two countries – Serbia and Greece - an upper-middle income country outside of the EU and a high-income EU member country, respectively. The analysis showed that consumption of all food groups in Serbia (except milk) over two decades (1994-2016) is significantly affected by the changes in the GDP; while in Greece, only consumption of meat, fruits, grains, and sweetened products was positive or negative influenced by GDP. Trend analysis of the consumption of the different food categories showed huge differences between the two countries.

Introduction

Dietary changes associated with economic growth have been extensively studied in many countries (Monteiro *et al*., 2004; Popkin, 2001; Popkin, 2002; Popkin, 2006; Lipoeto *et al*., 2004; Janhs *et al*., 2003; Ghassemi *et al*., 2002; Kim *et al*., 2002; Gerbens-Leenes *et al*., 2010; Madanat *et al*., 2008; Burggraf *et al*., 2015). However, there is insufficient research available on nutritional changes in countries heavily affected by economic transitions (Ivanova *et al*., 2006), wars, disintegration and political crisis.

Thus, the first country we selected for the analyses was Serbia - a very particular case of middle-income countries: its economy has halved concerning the early 1990s. It is one of the economies in Central and Southeastern Europe (CEEs), whose system radically

1 Tatjana Brankov, PhD, Assistant Professor, University of Novi Sad, Faculty of Economics, Segedinski put 9-11, 24000 Subotica, Serbia, Phone: +381641021696, E-mail:brankov.tatjana@gmail.com ORCID ID 0000-0002-3675-6788

2 Theodoros Markopoulos, PhD, Department of Oenology and Beverage Technology, Eastern Macedonia and Thrace Institute of Technology; Ag.Loukas, 65404 Kavala, Greece, E-mail: thamarkopoulos@yahoo.gr, ORCID ID 0000-0002-2745-7129

3 Stavros Kontakos, PhD, Department of Social Administration and Political Science, Democritus University of Thrace, 69100-Komotini, Greece, E-mail:skon2915dt@gmail.com, ORCID ID 0000-0001-9287-1775

changes from the centrally planned to the market economy after the 1990s; country that indirectly experienced civil war (1991-1999), NATO bombing (March-June 1999), international economic sanctions (several rounds - 1992-1995; 1998-1999); an influx of about one million refugees, gray economy and the biggest hyperinflation after World War II (Brankov and Lovre, 2017). A severe downturn in a nation's economy and a radical increase in food prices (Lovre and Brankov, 2015) has affected a population's ability to get a healthful diet. A serious decline in dietary energy recorded: from 3,698 kcal/capita/day in 1988 to 2,890 in 2011 (Brankov, 2018). As a result, the long-term health problems reflected in increased mortality from nutrition-related non-communicable diseases (NCDs) occurred (Simic *et al*., 2010; Vujcic *et al*., 2013). Inadequate economic access to food is most probably one of the reasons for the black demographic situation: about 600,000 Serbs have left the country over the past 25 years (Brankov, 2018). Owing to the decline in domestic demand Serbia has preserved to a great extent its food self-sufficiency. There is a positive trade balance of agri-food products since 2005 (Zekic *et al*., 2013).

Contrary to Serbia, Greece joined the European Community in 1981, and since the end of the civil war in 1949, it has not experienced war on its territory (Kalaitzidis and Zahariadis, 2015). Consequently, the average dietary energy supply remains stable over time and amounts to more than 3,600 kcal/capita/day since the 1990s (FAO, 2015). According to the latest World Bank data Greece had in 2017, 3.8 times higher GDP per capita than Serbia; 23,027.4 vs 5,992.3 (constant 2010 US$).

Apart from differences, there are significant similarities among these two countries - starting from the evolution of the taxation system and institutions (Tuncer, 2017) to many cultural, and religious issues. Therefore, it seems reasonable to compare Serbia, which is under the process of accession to the EU, with Greece an 'old' EU member, for which it ties a lot.

The article explores several themes that relate to: (i) a broad overview of the dynamic shifts in diets; (ii) information that shows that the shift in stages of the nutrition transition in the developing world differs from developed world; (iii) information that shows that there are a market changes in diet concurrent with income increases.

Materials and methods

Input data collection

We used publicly accessible per capita food consumption data provided by the national statistical offices. Statistical Office of the Republic of Serbia provides estimates of quantities of consumed food and drink items in households by conducting the survey that covered the whole territory of the country (SORS, 2017). Two-stage of random sampling were used to generate a sample: first, random sampling in the districts was conducted; second, individual households were selected according to the sample plan. The survey covered between 6,457 and 8,896 households in estimated years, which correspondents to around 0.4%-0.5% of the total Serbian population. System of

assessment was executed in a standard way applied for a two-stage stratified sample, i.e. the selection procedure for the first stage was in proportion to the size and repeated, while for the second stage it was simple random non-repeated selection.

Similarly, Greek data were provided from the Hellenic Statistical Authority (HSA). Data is derived from the annual Household Budget Survey (HBS). The data regarding the years 1994-2016 and they represent the monthly average of quantities of certain items (food, beverages, tobacco, and fuel) consumed by the household in the whole country.

Data analysis

This study firstly assesses the GDP changes over time in both countries. We applied both trend analysis and a forecast for the consumption of the majority food groups at a four years period. Secondly, we evaluate the relationship between GDP and consumption of specific food groups. The major variables – *per capita* income and quantity of foods were analyzed by the linear association between these variables using linear regression models having the variable of interest as the outcome and income (continuous variable) as the explanatory variable.

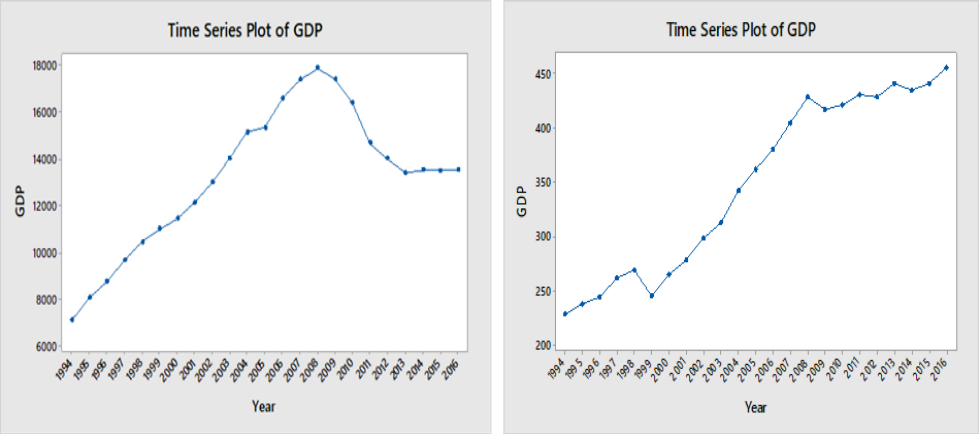
Food items selected for analysis included bread and bakery, flour and pasta, rice, fresh meat, meat products, fresh fish, fish products, eggs, milk, yogurt, white cheese, fresh fruit, processed fruit, fresh vegetables, processed vegetables, vegetable oil, animal fat, chocolate, cookies, biscuits. These items were grouped as follows: grains (i.e. bread, flour, and rice), meat (i.e. meat, meat products), milk (i.e. fresh milk, yogurt, cheese), vegetables (i.e. fresh vegetables, processed vegetables), fruits (i.e. fresh fruit, processed fruit), fats (i.e. oil, butter, margarine, lard), sweetened products (i.e. chocolate, cookies) and eggs. The data were calculated annually per capita and refers to the time frame of 1994-2016.

The autocorrelation plot was used to determine whether the time series were stationary or not. The appropriate autocorrelation plots showed that there were exist a trend in all the cases, both at Serbia and Greek time series. Thus, the appropriate model was fitted to create the forecasts for the next periods. All statistical analyses were conducted using Minitab statistical software.

Results

In Greece, we can observe that the upward trend of GDP seems to be halted in the year 2008, where it reached its peak, and after this year there is a downward trend until 2013, where it shows to be stabilized (Figure 1).

Figure 1. The evolution of the GDP in Greece (left) and Serbia (right)



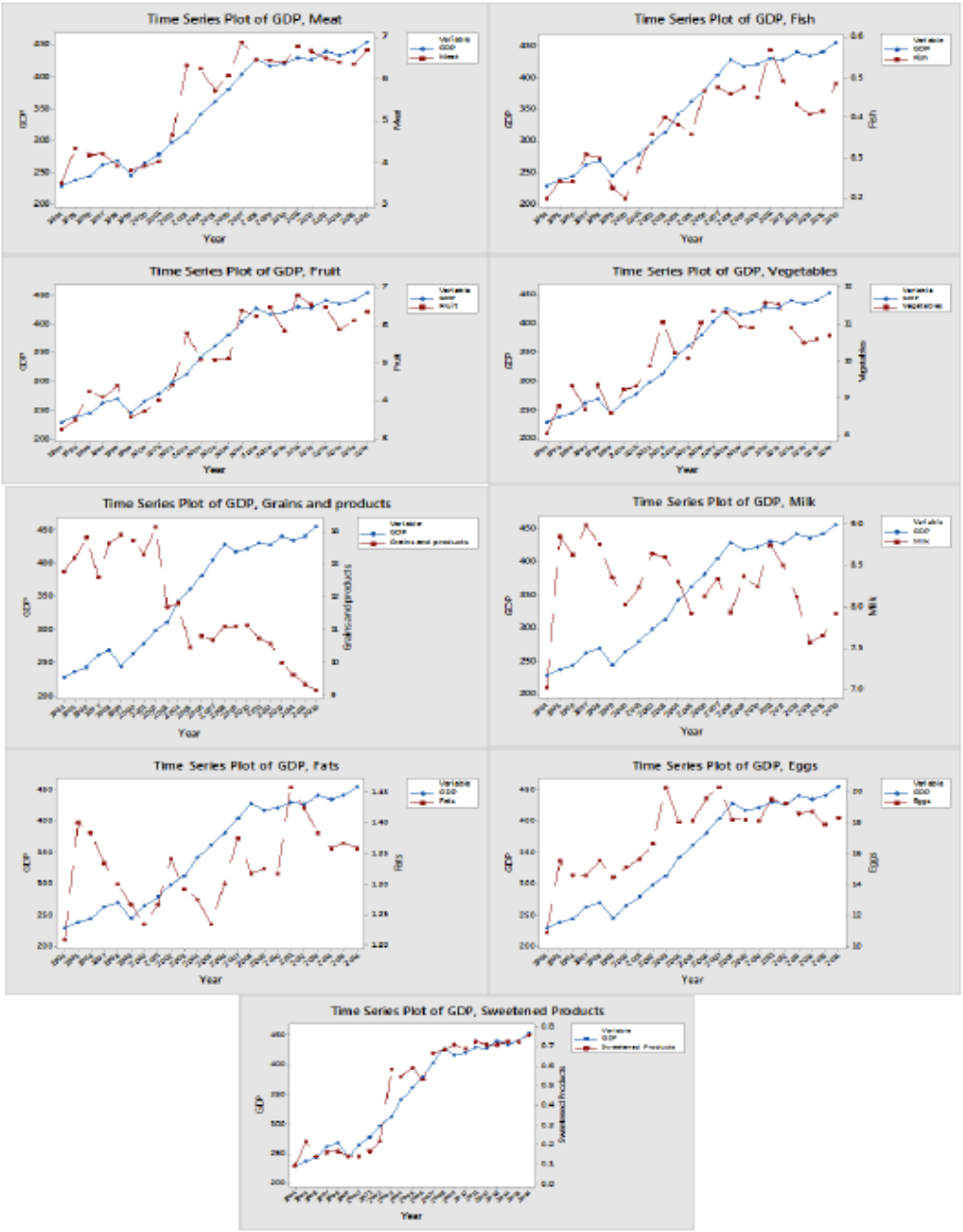
Source: Authors' calculation

Quite differently, the upward trend of GDP in Serbia can be observed until 1988, just before two years of the strong decline. After 2000 an upward trend in GDP has broken also in the year 2008, but recovery started very soon and, in the year 2011, it has outgrown the level reached in 2008. Figures 2 and 3 show the time series plot of the consumption of basic goods (in kilograms, except milk which is in liters and eggs which is the number of) compared to the time evolution of GDP in Serbia and Greece, respectively.

The numbers are referred to as the mean monthly consumption during the years 1994-2016. As could be seen from the time series plots (Figure 2) consumption of all food groups in Serbia, except grains, milk, and fats, increased by increasing GDP. This was valid until 2011 – after that period the food consumption did not correspond adequately with the increase of GDP. The issue is much clearer and more visible in the Greek case (Figure 3). The key feature of most of the time series plots is that the consumption of all the major goods is reduced about the same period in which there is a reduction of GDP. This could be explained by the fact that in this period (late 2008-2009) started in Greece the great economic crisis, which has changed dramatically many aspects of everyday life of the Greeks, one of which was the consumption of the basic foodstuffs.

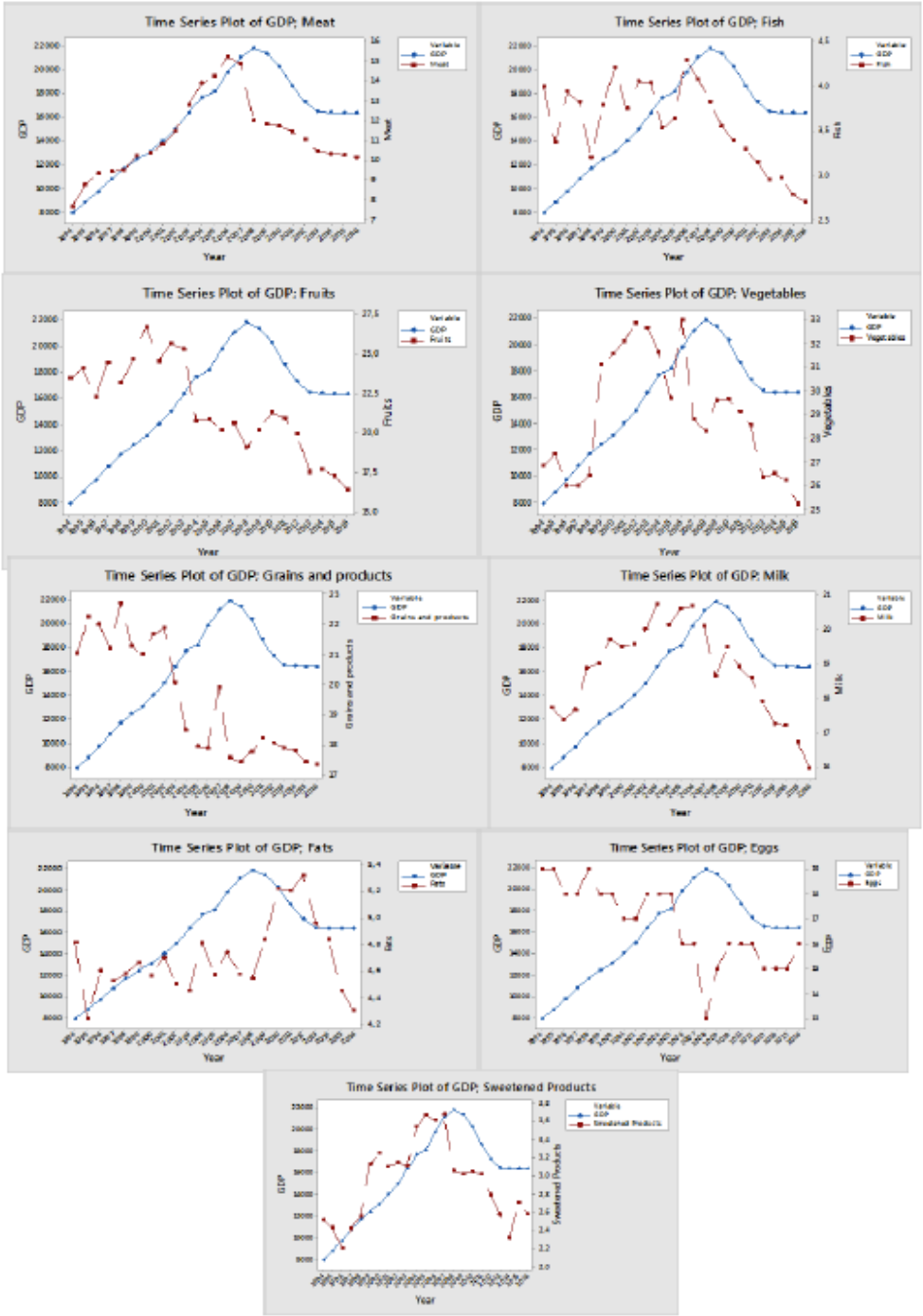
Subsequently, and taking into account the form of the initial time series, trend analysis and a forecast for the consumption of the majority food groups was applied, for both countries. These analyses are shown initially in Figures 4 and 5.

Figure 2. Relationship between GDP and food consumption in Serbia



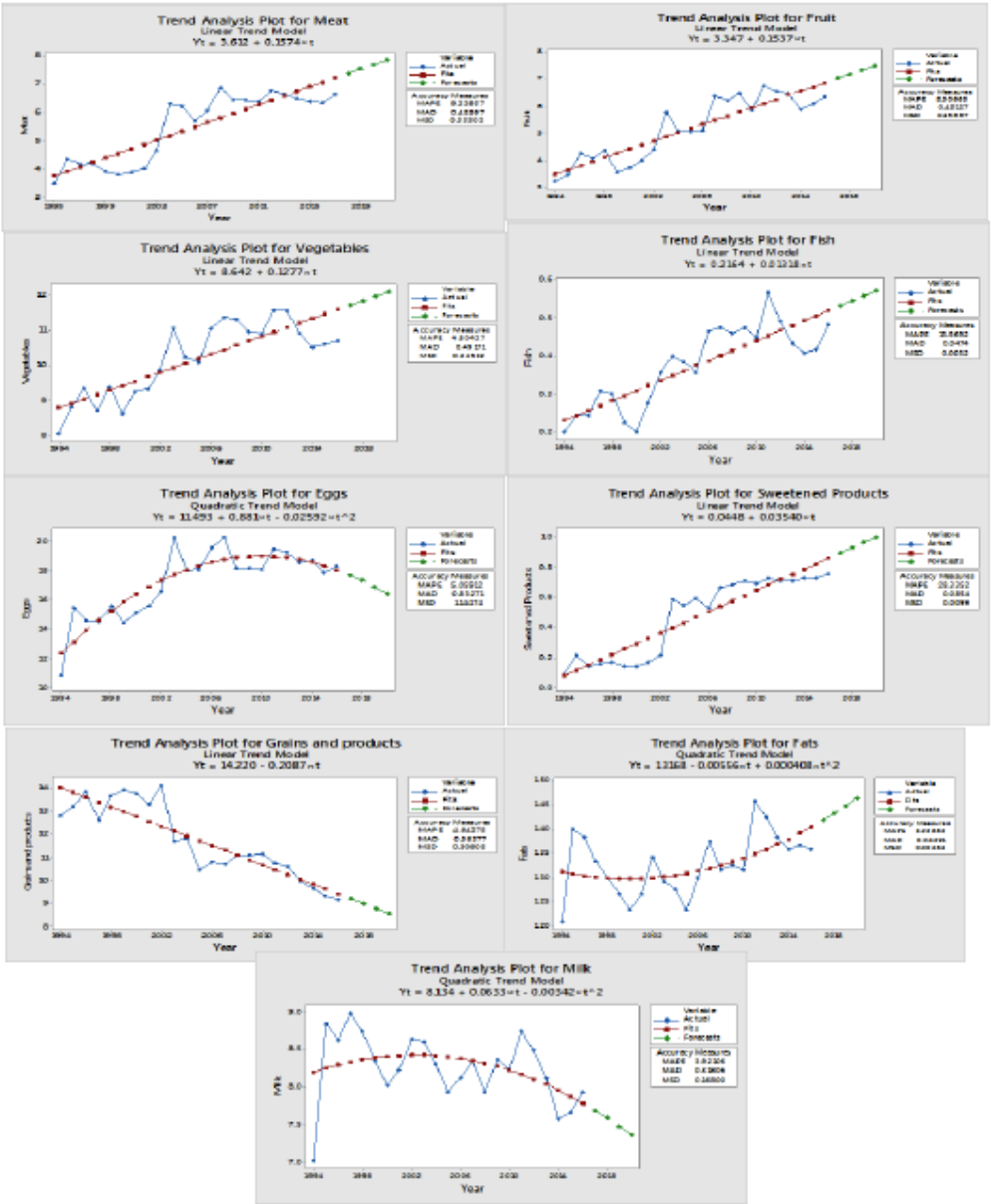
Source: Authors' calculation

Figure 3. Relationship between GDP and food consumption in Greece



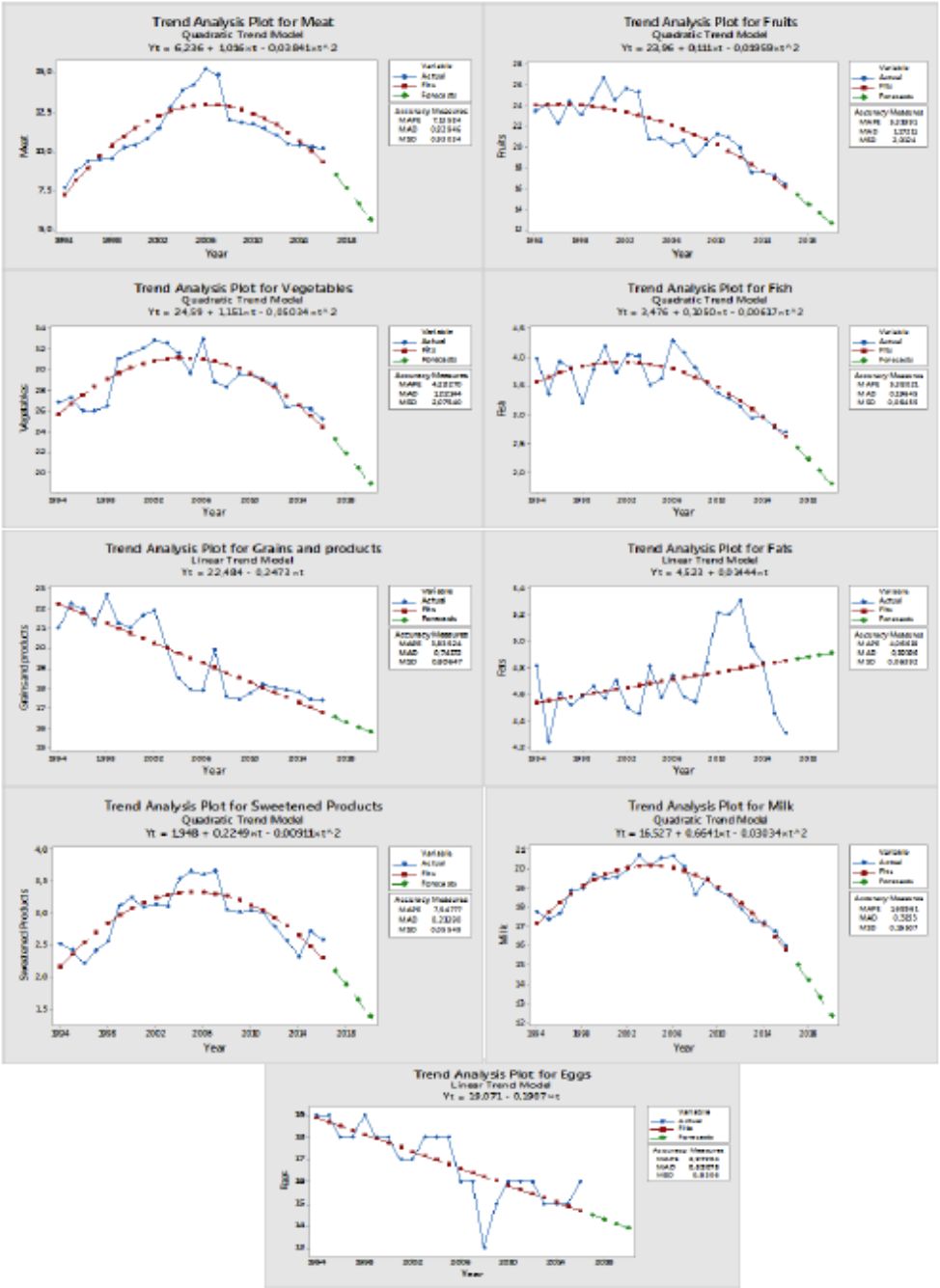
Source: Authors' calculation

Figure 4. Serbian trends in dietary patterns (average quantity consumed monthly per household member on y axis)



Source: Authors' calculation

Figure 5. Greek trends in dietary patterns (average quantity consumed monthly per household member on y axis)



Source: Authors' calculation

Moreover, to be more accurate, the exact forecast for the consumption of major food groups, for both countries, are presented in Tables 1 and 2. The forecast was made for four years, i.e. the years 2017 to 2020.

Table 1. Forecasts of the consumption of the basic products in Serbia, at a four years period (2017-2020) in monthly quantities on average, per household member (in kilograms except milk and eggs).

	Consumption of the basic products								
Year	**Meat**	**Fruits**	**Fish**	**Vegetables**	**Grains and products**	**Milk (in liters)**	**Fats**	**Eggs (pieces)**	**Sweet-ened Products**
2017	7.389	7.035	0.533	11.707	9.211	7.683	1.418	17.708	0.894
2018	7.547	7.189	0.546	11.835	9.002	7.578	1.432	17.319	0.929
2019	7.704	7.343	0.559	11.962	8.793	7.467	1.448	16.879	0.965
2020	7.861	7.496	0.572	12.090	8.585	7.349	1.464	16.386	1.001

Source: Authors' calculation

Table 2. Forecasts of the consumption of the basic products in Greece, at a four years period (2017-2020) in monthly quantities on average, per household member (in kilograms except milk and eggs).

	Consumption of the basic products								
Year	**Meat**	**Fruits**	**Fish**	**Vegetables**	**Grains and products**	**Milk (in liters)**	**Fats**	**Eggs (pieces)**	**Sweet-ened Products**
2017	8.500	15.335	2.441	23.220	16.548	14.988	4.869	14.494	2.097
2018	7.634	14.486	2.243	21.904	16.300	14.165	4.883	14.303	1.876
2019	6.692	13.598	2.033	20.488	16.053	13.283	4.898	14.112	1.636
2020	5.672	12.670	1.811	18.971	15.806	12.338	4.912	13.921	1.378

Source: Authors' calculation

The consumption of the majority of food groups - meat, fish, dairy, eggs, fruits, vegetables, and sweetened products - in Serbia increased during the observed period. A particularly large increase was reported for sweetened products (250%), fish (100%), and fruits (81.7%). Analysis of the data showed that there was a significant decrease in the consumption of grains (30.5%), while the overall consumption of fats and milk did not change. However, the overall consumption of the majority of food items in Serbia is much lower than in Greece. This trend will continue in the future also (Table 1-2). The exceptions can only be observed in the consumption of meat and eggs. It can be expected that Serbia will spend more meat and eggs per capita than in Greece shortly.

Simple linear regression analyses were used in Serbian and Greek data to determine the relationship between GDP and food consumption (Tables 3 and 4).

Table 3. Simple linear regression analyses to determine the relationship between GDP and food consumption in Serbia

Independent: GDP pc	R^2 (%)	Adj R^2 (%)	F	p	Regression equation
Dependent variable					
Meat	86.6	86.0	135.96	0.000	y=7.863 + 0.1667x
Fruits	88.8	88.3	166.96	0.000	y=6.110 + 0.1611x
Vegetables	78.1	77.1	75.03	0.000	y= 74.37 + 0.1368x
Fish	82.5	81.7	99.31	0.000	y= -0.4646 + 0.01422x
Grains	82.7	81.9	100.43	0.000	y= 214.7 - 0.2126x
Fats	21.7	18	5.83	0.025	y= 14.40 + 0.004357x
Eggs	63.5	61.7	36.46	0.000	y= 111.8 + 0.2709x
Milk	6.2	1.7	1.38	0.253	y= 104.8 - 0.01675x
Sweetened products	92.5	92.2	260.47	0.000	y= - 7.215 + 0.03684x

Source: Authors' calculation

Table 4. Simple linear regression analyses to determine the relationship between GDP and food consumption in Greece

Independent: GDP pc	R-sq (%)	R-sq (adj) (%)	F	p	Regression equation
Dependent variable					
Meat	60.45	58.57	32.10	0.000	y = 5.40 + 0.000370x
Fruits	28.97	25.28	8.56	0.029	y = 27.71 + 0.000388x
Vegetables	13.37	4.70	2.07	0.165	y= 26.02 + 0.00186x
Fish	12.10	3.31	0.17	0.687	y = 3.734 + 0.00002x
Grains	61.86	60.04	34.06	0.001	y= 25.32 – 0.00369x
Fats	12.14	7.96	2.90	0.948	y= -4.325 + 0.00024 x
Eggs	57.79	53.57	13.69	0.668	y = 20.67 - 0.011x
Milk	8.67	4.32	1.99	0.173	y = 17.26 + 0.00098x
Sweetened products	36.00	32.95	11.81	0.002	y = 1.916 + 0.0065x

Source: Authors' calculation

The analysis confirms previous expectations about the nutritional transition occurring in both developed and developing countries. But, in terms of calories arising from different major food commodities, large differences may be seen between the developing and developed countries. The overall consumption of foods in a developed country (Greece) is higher than in developing countries (Serbia). On a per-capita basis, the Greeks consume twice as much milk, fruits, and vegetables as the Serbs; they consume 3.5 times more fats and 4.5 times more fish. An exception that predicts that the Serbs will consume more meat and eggs shortly, can be explained by two facts. First, in

developed countries such as Greece, the consumption of particular food items must reach the ceiling at some point, followed by an imminent decline. Second, Serbia has traditionally been able to ensure self-sufficiency in meat production, especially in pork.

Discussions

The analysis showed (Table 3) that consumption of all food groups in Serbia - except milk- are significantly affected by the changes in the GDP. Meat, fish, eggs, fruit, vegetables, sweetened products are all positively correlated with GDP, while grains are only negatively correlated. The same analysis for Greece showed (Table 4) that only the consumption of meat, fruits, grains, and sweetened products is significantly affected by the changes in the GDP. GDP has a positive impact on the consumption of meat, fruits, and sweetened products, while GDP seems to have a negative effect on the consumption of grain products.

Although both countries have a long-standing culinary tradition, they have also its unique gastronomical tradition and coping with modernization trend by the promotion of traditional food (Barjolle *et al*., 2015; Trichopoulou *et al*., 2006). Serbian cuisine was created under influence of Greek, Turkish and Hungarian cuisine. A lot of food items is homemade including: jams, pickled food, *kajmak* (clotted cream), milk cheeses, *ajvar* (eggplant and pepeper relish), *rakija* (fruit brendy), soups etc. Also, each region having its traditional dishes. Generally, Serbs are consuming a lot of processed meat such as *meze* (an assortment of small dishes and appetizers, slices of cured meats and sausages). Greeks adopt the Mediterranean diet, with some typical products such as wild plants, figs stuffed with walnuts (Simopoulos, 2001), feta, Greek salad etc. This kind of diet implies plenty of fruits and vegetables, olive oil, whole grains, and seafood. Therefore, differences in food patterns between two countries cannot be explained just by a large difference in GDP. An important role, certainly played - tradition. However, no doubt, the economic collapse of Serbia has caused great consequences and increased poverty in this country. This article foreseen that years would pass before fruits, vegetables, fish, and fats consumption in Serbia reaches a Greek level.

Conclusions

A reference should be done to the two events that decisively influenced the two countries, namely the bombings that took place in Serbia and the economic crisis facing Greece in recent years. For Serbia is concerned, there seems to be a strong tendency to increase food consumption in all categories, since the country is getting far away from that time. While in Greece the prolonged economic crisis seems to be causing a reduction in food consumption.

Consumption of food categories is influenced to some extent by other factors. In any case, the resumption of research in the future may give us a fuller picture of the evolution of food consumption in the two countries as they interact with the economic issues, the tradition of the two peoples and the evolution of consumer preferences.

These results, the first of their sort to be estimated for Serbia, could be used for policy purposes, especially to assess the implications of obligations that the Republic of Serbia undertake through the Stabilization and Association Agreement (SAA) with the European Union (EU).

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Conflict of interests

The authors declare no conflict of interest.

References

1. Barjolle D., Brecic R., Cerjak M., Giraud, G. (2015). *Traditional Food in Western Balkan Countries Consumers' Perceptions and Habits*. 145th EAAE Seminar "Intellectual Property Rights for Geographical Indications: What is at Stake in the TTIP?" Parma, Italy.
2. Brankov T., Lovre, I. (2017). Food security in the former Yugoslav republics. *Economics of Agriculture*, 64(2): 701-721.
3. Brankov T. (2018). Food Policy in the Republic of Serbia. *Reference Module in Food Science*. Elsevier, 1–4. DOI: http://dx.doi.org/10.1016/B978-0-08-100596-5.22394-9.
4. Burggraf C., Kuhn L., ZHAO Q.R., Teuber R., Glauben T. (2015). Economic growth and nutrition transition: an empirical analysis comparing demand elasticities for foods in China and Russia. *Journal of Integrative Agriculture*, 14(6): 1008-1022. DOI: https://doi.org/10.1016/S2095-3119(14)60985-0.
5. FAO, 2015. FAO Statistical Pocketbook. Rome, Italy.
6. Gerbens-Leenes P.W., Nonhebel S., Krol M.S. (2010). Food consumption patterns and economic growth. Increasing affluence and the use of natural resources. *Appetite*, 55(3): 597-608. DOI: https://doi.org/10.1016/j.appet.2010.09.013.
7. Ghassemi H., Harrison G., Mohammad K. (2002). An accelerated nutrition transition in Iran. *Public health nutrition*, 5(1a): 149-155. DOI: https://doi.org/10.1079/PHN2001287.
8. Jahns L., Baturin A., Popkin B.M., (2003). Obesity, diet, and poverty: trends in the Russian transition to market economy. *European journal of clinical nutrition*, 57(10): 1295-1302.

9. Ivanova L., Dimitrov P., Ovcharova D., Dellava J., Hoffman D. J. (2006). Economic transition and household food consumption: a study of Bulgaria from 1985 to 2002. *Economics & Human Biology*, 4(3): 383-397. DOI: https://doi.org/10.1016/j.ehb.2006.08.001.
10. Kalaitzidis A., Zahariadis N. (2015). Greece's Trouble with European Union Accession. *Cahiers de la Méditerranée*, 90: 71-84.
11. Kim S., Moon S., Popkin B.M. (2000). The nutrition transition in South Korea. *The American journal of clinical nutrition*, 71(1): 44-53. DOI: https://doi.org/10.1093/ajcn/71.1.44.
12. Lipoeto N. I., Wattanapenpaiboon N., Malik A., Wahlqvist M.L. (2004). Nutrition transition in west Sumatra, Indonesia. *Asia Pacific journal of clinical nutrition*, 13(3): 312-316.
13. Lovre K., Brankov T. (2015). The supermarket revolution in the Balkan countries: The case of Serbia. *Agroeconomia Croatica*, 5(1): 1-10.
14. Madanat H.N., Troutman K.P., Al-Madi B. (2008). The nutrition transition in Jordan: the political, economic and food consumption contexts. *Promotion & education*, 15(1): 6-10. DOI: https://doi.org/10.1177/1025382307088092.
15. Monteiro C.A., Moura E.C., Conde W.L., Popkin B.M. (2004). Socioeconomic status and obesity in adult populations of developing countries: a review. *Bulletin of the World Health Organization*, 82: 940-946.
16. Popkin B.M. (2001). Nutrition in transition: the changing global nutrition challenge. *Asia Pacific journal of clinical nutrition*, 10: S13-S18. DOI: https://doi.org/10.1046/j.1440-6047.2001.0100s1S13.x.
17. Popkin B.M. (2002). The shift in stages of the nutrition transition in the developing world differs from past experiences! *Public health nutrition*, 5(1A): 205-214.
18. Popkin B.M. (2006). Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases–. *The American journal of clinical nutrition*, 84(2): 289-298. DOI: https://doi.org/10.1093/ajcn/84.2.289.
19. Simić S., Milićević M. Š., Matejić B., Marinković J., Adams O. (2010). Do we have primary health care reform? The story of the Republic of Serbia. *Health policy*, 96(2): 160-169. DOI: https://doi.org/10.1016/j.healthpol.2010.01.015.
20. Simopoulos, A.P. (2001). The Mediterranean diets: what is so special about the diet of Greece? The scientific evidence. *The Journal of nutrition*, 131(11): 3065S-3073S. DOI: https://doi.org/10.1093/jn/131.11.3065S.
21. Trichopoulou A., Vasilopoulou E., Georga K., Soukara S., Dilis, V. (2006). Traditional foods: Why and how to sustain them. *Trends in Food Science & Technology*, 17(9): 498-504. DOI: https://doi.org/10.1016/j.tifs.2006.03.005.

22. Tuncer A.C. (2017). Conditionality, Fiscal Rules and International Financial Control in the European Periphery before 1914. In: Cardinale, I., Scazzieri, R. (Eds.). *The political economy of the Eurozone*. Cambridge University Press, Cambridge, 96-129.
23. Vujcic I.S., Sipetic S.B., Dubljanin E.S., Vlajinac H.D. (2013). Trends in mortality rates from coronary heart disease in Belgrade (Serbia) during the period 1990–2010: a joinpoint regression analysis. *BMC cardiovascular disorders*, 13(1): 112.
24. Zekic S., Gajic M., Matkovski B. (2013). Serbian agriculture in the regional and European integratons. In: Tomic, D., Sevarlic, M., Lovre, K., Zekic, S. (Eds.), 135 EAAE Seminar Challenges for the Global Agricultural Trade Regime after Doha. DAES, Belgrade, 369–376.

PERCEPTION OF SMALL FARMERS IN SERBIA REGARDING THE USE OF ICT AND POSSIBILITIES OF ORGANIC AGRICULTURE

Tatjana Ilić-Kosanović [1], Brankica Pažun [2], Zlatko Langović [3], Srđan Tomić [4]

**Corresponding author E-mail: zlangovic@kg.ac.rs*

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ABSTRACT

During the last two decades there is a growing awareness of the importance of introducing organic agricultural production in Serbia due to issues of health, environmental protection and need for more sustainable agriculture. There is a need for education of small farmers on the possibilities of organic production and significance of information technologies for education, production and marketing. This paper aims to examine the perception on the possibilities of organic production and ICT use concerning their level of education. The study has included 143 farmers from Raška district, municipality Kraljevo. The statistical ANOVA analysis has been done by using the software package SPSS18 to explore an impact the education has on the perception of small farmers on the use of information technologies in education, production, and marketing of agricultural products. The results show statistically significant difference in the perception of small farmers on the usage of information technologies regarding their level of education.

1 Tatjana Ilić-Kosanović Ph.D., Assistant Professor, University "Union - Nikola Tesla", School of Engineering Management, Vojvode Mišića Boulevard no. 43, 11000 Belgrade, Serbia, Phone: +381 11 41 40 420, e-mail: tatjana.ikosanovic@fim.rs, ORCID ID (https://orcid.org/0000-0001-9813-7379)

2 Brankica Pažun Ph.D., Associate Professor, University "Union - Nikola Tesla", School of Engineering Management, Vojvode Mišića Boulevard no. 43, 11000 Belgrade, Serbia, Phone: +381 11 41 40 423, e-mail: brankica.pazun@fim.rs, ORCID ID (http://orcid.org/0000-0002-9452-5064)

3 Zlatko Langović Ph.D., Associate Professor, University of Kragujevac, Faculty of Hotel Management and Tourism, Vojvodjanska bb, 36210 Vrnjacka Banja, Serbia, Phone: + 381 36 515 0024, E-mail: zlangovic@kg.ac.rs, (https://orcid.org/0000-0002-0248-0453)

4 Srđan Tomić Ph.D., Associate Professor, "University - Union Nikola Tesla", School of Engineering Management, Vojvode Mišića Boulevard no. 43, 11000 Belgrade, Serbia, Phone: +381 11 41 40 420, E-mail: srdjan.tomic@fim.rs, ORCID ID (https://orcid.org/0000-0002-6145-6947)

Introduction

The need for the better-quality agricultural products is on the rise, for both conventional and organic products. And one of the main questions that worry today's population is: are we eating healthy agricultural products (Tasiopoulou et al., 2007). Thus, the need for organic agricultural products is increasing not only in the developed countries, but in the emerging markets, as well.

During the last two decades, in many countries, there is a growing awareness of the importance of introducing organic agricultural production due to the issues of environmental protection, a need for more sustainable agriculture, population health concerns, etc. Organic production, among others, includes using less or no pesticides and synthetic fertilizers, using bio fertilizers, breeding free range livestock and poultry, decreasing the pollution (Milenković, Tasić, 2013; Nikolova, 2013; Vlahović et al., 2015; Mladenovic et al., 2016; Golijan et al., 2017; Krstić et al., 2017; Yildirim et al., 2018). Organic products are richer in vitamins and minerals, and are of a better quality than the conventional ones (Komorowska, 2014; Barjaktarović et al., 2016; Nikolić et al., 2017). Selling organic agricultural products at the local markets has an impact on economic development of the region and on environmental protection as it saves energy and decreases air pollution levels (Dantsis et al., 2009).

The production of organic goods is rapidly increasing in the 21st century, thus becoming important economic factor, and the demand in the EU countries grows between 20 and 25 per cent annually and the share of organic agricultural lands increases about 10 per cent annually (Barjaktarović et al., 2016, Branzova, 2017).

Agriculture's contribution to Serbia's GDP constantly remains high. (Pažun et al., 2016a), but still is necessary adjusting economic policy due to prices and competitiveness of domestic agricultural products (Pažun et al., 2016b; Kranjac, Tomić, 2017). Officially, organic production in the Republic of Serbia has begun in the late 1980s and early 1990s (Tomaš-Simin, Glavaš-Trbić, 2016) and it is regulated by the Law on organic production from 2010 (Zakon o organskoj proizvodnji, 2010). Just in last couple years, in Serbia, the organic area increased approximately fourteen times compared to 2008, when began to keep a record of organic production. (Djelic et al., 2019)

Like in other countries in Europe (Kyrylov et al., 2018), especially developed countries, the demand for organic agricultural goods in Serbia is rapidly increasing, nevertheless the domestic organic production is not following the growing demand for the organic agricultural commodities (Ljumović et al., 2015). Overall, Serbian agriculture is in the process of adjusting to the market conditions (Langović Milićević, et al., 2014), there is diverse agriculture production in Serbia, but the share of organic agricultural products is still rather small. The most promising organic agricultural products in Serbia are fruits, namely plums, raspberries, apples, (Milenković, Tasić, 2013).

The possibilities for organic agriculture products' export are almost limitless, as many European countries (Germany, Austria, Sweden, Switzerland, and Denmark) have

a great demand for organic agricultural products (Gajdić et al., 2018). Other than environmental, climate, and market issues, the most disruptive factors for organic agricultural production are lack of funds (Ljumović et al., 2015) that would cover conversion and other costs, inexperience in products' marketing (Gajdić et al., 2018), and all of that can be applied to the Republic of Serbia.

The other problem is lack of interconnections between small agricultural producers in Serbia, as well as the communication with the processing industry representatives and the market. (Ljumović et al., 2015). Also, lack of government and local government financial aid and doubts about nongovernmental institutions and financial institutions funding plays an important role in deciding against converting into organic agricultural production of the small agricultural producers. Many countries are aware of this problem, and, for example, Turkey from 2005 has developed numerous programs of subsiding the organic agricultural producers in order to increase the economic feasibility of organic agricultural production (Konyali et al., 2018). There is a notion that the younger farmers are more likely to undertake a long and expensive project of converting to organic productions for the reasons of economic prosperity, environmental protection and health issues, so the most programs are aimed at younger population.

On the other hand, information technology is changing the world, therefore agricultural sector. Digital technologies have a strong influence on all aspects of society, therefore can offer valuable solutions to problems and thus provide various opportunities for improving the agricultural sector, both in developed and developing countries. New paradigm regarding high technology development, natural resource protection, is so called precision agriculture, which has been the main challenge for EU agriculture (European Parliament, 2014). The focus is on optimization of agricultural production and profitability.

Materials and methods

The purpose of this research is to analyse the perceptions of small farmers of Raška district, municipality Kraljevo, villages Lazac and Samaila on the possibilities of organic production and the use of information technologies in education, production, and marketing of agricultural products concerning their level of education.

The villages Samaila and Lazac are situated between towns Kraljevo and Čačak. While Samaila is situated mostly on the flat land, Lazac is in the mostly hilly area. Samaila is spreading on 23.33 km^2, and Lazac is spreading on 21.75 $km^{2.}$ (Municipality of Kraljevo, 2017). According to the Municipality of Kraljevo (2017) official documents, Samaila consists of 485 families and 1466 inhabitants and Lazac of 249 families and 695 inhabitants. The population has been decreasing during the last fifty years, according to the Serbia Survey data (Municipality of Kraljevo, 2017). The survey included 143 adult respondents of the above-mentioned population that have been fully or partially involved in agricultural production.

The research has been conducted from July 18th until August 10, 2019. The structured questionnaire has been developed via the Google forms platform. Because of the occasional disruptions in Internet connection and the often older population, the data has

been collected in three methods: in the first approach, two volunteers have been carrying laptops with the access to the forms and the participants filled the forms by themselves; in the second method, the volunteers have been reading the questions or statements and the possible answers to the participants (mostly elderly) and the participants declared the proper ones that the volunteers marked in the proper form; and in the third approach, in the areas, predominantly in Lazac village, with the insufficient access to the Internet, the volunteers have been carrying the paper forms, which the participants filled out and then the volunteers have placed them into the Google form in a exact manner.

In the first part of the survey, the participants have had the opportunity to state their opinions on the organic agriculture and its value, the most suitable products, commitment to organic agriculture and their attitudes toward organic agriculture funding and the possibility of participation in various educational programs. In the second part of the survey, the main research questions have been devised in regard to their perception of the use of information technologies in education, production, and marketing of agricultural products.

For the main research questions, the five-point Likert scale was used to assess the statements (coded as follows: 1 – I disagree completely; 2 – I disagree; 3 – I am neutral; 4 – I agree; 5 – I agree completely). The constructed scale was subjected to the test of reliability and it had strong (0.979) Cronbach's Alpha value, which indicates an excellent level of internal consistency for the scale with the specific sample used for the study.

It is assumed (H_1) that there is statistically significant difference in the opinion of small farmers in both villages, taking into consideration the level of education, regarding the use of IT in organic production, based on pre-assumption that mostly older or less educated population wants to live in rural areas and wants to work in this field. Several sub hypotheses have been developed further, stating that there is statistically significant difference in the opinion of small farmers on the usage of information technologies in assisting small farmers in:

- H_{1a}: Education on organic production methods;
- H_{1b}: Projections/analysis of the organic products' market;
- H_{1c}: Managing organic production costs;
- H_{1d}: Organic products marketing;
- H_{1e}: Inclusion in the appropriate database of certified producers.

H_0 states that there is no statistically significant difference in the opinion of farmers taking into consideration the educational level, regarding the benefits of ICT usage in order to assist in education on organic production methods; projections/analysis of the organic products' market; managing organic production costs; organic products marketing; inclusion in the appropriate database of certified producers.

Collected data were tabulated and subjected to statistical analyses by using statistical package SPSS v. 18.

Results and discussion

The total sample size has been 143 and 53.8% of the participants have been from Lazac (n=77) and 46.2% (n=66) from Samaila. Among the participants, 48.3% have been female (n=69), and 21.7% male (n=71). The participants have been divided into various age groups, as well as four educational levels, ranging from elementary education to higher education (college or university), as it can be seen at Table 1.

Table 1. The respondents' age and level of education

Respondents age (years)	Frequency	%	Highest educational level achieved	Frequency	%
From 18 to 25	15	10.5	Elementary school	20	14.0
From 26 to 35	32	22.4	Vocational high school (three years)	34	23.8
From 36 to 45	15	10.5	High school	85	59.4
From 46 to 55	20	14.0	Higher education	4	2.8
From 56 to 65	39	27.3	Total	143	
Over 65	22	15.4			
Total	143				

Source: Authors

The most of the respondents have stated that they lived in the households consisting of two to three (37.1%) and four to five (33.6%), and as much as 16.1% of the respondents have stated that they lived in the households of more than five members, which indicates that there is still the institution of extended family that gathers three or more generation. Also, 13.3% of the respondents have stated that they lived in one member homes (mostly elderly). Among the total number of household members, the most of the families have had two members involved in agriculture (38.5%), followed by 19.6% households having one and three members included in the agricultural production respectively. There is the significant number of households that included four (14.7%) or five (7.7%) members included in the agricultural production that also indicates the existence of extended family.

The most of the respondents have stated minimal use of chemical fertilizers or at least the usage with the assistance of agricultural experts or producers' instructions for use which is shown at Table 2. It is necessary to emphasize that 30.8% of the respondents have stated that they don't use or have never used chemical fertilizers.

Table 2. The usage of chemical fertilizers

The usage of chemical fertilizers	Frequency	Percent
Yes, minimal	37	25.9
According to the producer	8	5.6
According to my personal judgment	11	7.7
According to the agricultural expert	43	30.1
I don't use chemical fertilizers	30	21.0
I have never used chemical fertilizers	14	9.8
Total	143	100.0

Source: Authors

Besides the use of the chemical fertilizers, only 2.8% of the respondents have stated that they use preventive antibiotics and hormones in livestock breeding, 56.6% of the respondents have stated that they don't use preventive antibiotics and hormones and 43.4% have stated that they use only antibiotics if prescribed by the veterinaries.

The most of the respondents (42.7%) have stated that organic agriculture is difficult to implement in terms of effort and finance, and as much as 21% of the respondents agreed that organic production is "fashionable", 13.3% have stated that organic production is an excellent idea, but not implementable in Serbia, 8.4% have stated that organic agriculture is an excellent idea, but for the younger generations of the producers, and 14.7% agreed that organic production is necessary for the ecological future of the country.

As much as 98.6% of the respondents considered financial issues as the main reason for not involving in organic agriculture and 71.3% have emphasised the long period for the soil conversion. Also, the concerns have been raised in the market maturity, and there is distrust in the institutions present. From the total sample, 63.6% of respondents have stated that they would consider involvement in organic agriculture, and 65.7% have stated that they would start organic production under the assistance of state funds, 51.7% under the assistance of EU funding programs, and 44.8% under the assistance of non-governmental institutions' funding programs.

What is very interesting is that 28% of the respondents have stated that they collect herbs and wild berries. The respondents mostly recognized fruits (plums, apricots, pears, apples, blackberries, blueberries, strawberries, raspberries), garden vegetables (cucumbers, onions, tomatoes, carrots, potatoes, arugula, spinach, broccoli, radishes, squash, zucchini), and aromatic herbs (basil, oregano) as the most suitable corps for agricultural production.

Regarding the possibilities of inclusion in educational programs on the possibilities of organic production, as much as 37.8% of the respondents would be a part of a free educational program delivered at the premises of the local community centre or school, 18.2% would attend a free educational program regardless the location, 2.1% would attend a free educational program in the city of Kraljevo, 9.1% would attend an internet based free education, and only 2.1% of the respondents would pay for an educational program on organic production.

As depicted in Table 3, a majority of the farmers, 23.8%, agreed, and 28.7% of the respondents strongly agreed that ICT usage can be a useful source due to getting knowledge on organic production methods. The very similar situation is with benefits regarding projections and analysis of the organic products' market, where majority completely agreed about issue, and neutral respondents were in percent of 27.3. Farmers' opinion about the last two questions differ in some way, that is there is no strong agreement about IT benefits in marketing process as well as in inclusion in the appropriate database of certified producers.

As it can be noticed in table, despite all the associated benefits, 23.1% to 27.3% of farmers remained undecided on the effectiveness of ICT as the source of agricultural prosperity. Further, only a small segment of respondents did not agree with the usefulness of ICT tools. Possible reason could be inappropriate network infrastructure older habitants, or the lack of education. However, overall, it can be seen that technology has provided multi-dimensional benefits to the small farmers and it helps in all activities, interaction, accessibility, and quick exchange of data.

Table 3. Perceptions of farmers towards ICT usage

Statement	1		2		3		4		5	
	N	%	N	%	N	%	N	%	N	%
The usage of information technologies can assist small agricultural producers in: Education on organic production methods	15	10.5	19	13.3	34	23.8	34	23.8	41	28.7
The usage of information technologies can assist small agricultural producers in: Projections/analysis of the organic products' market	14	9.8	15	10.5	39	27.3	35	24.5	40	28
The usage of information technologies can assist small agricultural producers in: Managing organic production costs	15	10.5	14	9.8	38	26.6	38	26.6	38	26.6
The usage of information technologies can assist small agricultural producers in: Organic products marketing	16	11.2	14	9.8	36	25.2	41	28.7	36	25.2
The usage of information technologies can assist small agricultural producers in: Inclusion in the appropriate database of certified producers	16	11.2	19	13.3	33	23.1	42	29.4	33	23.1

1 – I disagree completely; 2 – I disagree; 3 – I am neutral; 4 – I agree; 5 – I agree completely; % - percentage; N – number of respondents.

Source: Authors

Before beginning One way ANOVA, the Levene's test for Equality of Variances has been carried in order to verify the assumption of equality of variance and it has shown that the assumption of equality of variance has not been violated for all research questions as Sig. values are above .05. The results are presented at Table 4.

Table 4. Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Education on organic production methods	1.451	3	139	.231
Projections/analysis of the organic products' market	1.967	3	139	.122
Managing organic production costs	1.854	3	139	.140
Organic products marketing	1.670	3	139	.176
Inclusion in the appropriate database of certified producers	.473	3	139	.702

Source: Authors

One way ANOVA has been applied to formally test the hypotheses and to explore an impact the education has on the perceptions of small farmers on the use of information technologies in education, production and marketing of organic agricultural products. Significance level (α) has been set as .05. The results are presented at Table 5.

Table 5. One Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Education on organic production methods	Between Groups	56.891	3	18.964	13.968	.000
	Within Groups	188.718	139	1.358		
	Total	245.608	142			
Projections/analysis of the organic products' market	Between Groups	53.039	3	17.680	13.907	.000
	Within Groups	176.709	139	1.271		
	Total	229.748	142			
Managing organic production costs	Between Groups	51.299	3	17.100	13.321	.000
	Within Groups	178.435	139	1.284		
	Total	229.734	142			
Organic products marketing	Between Groups	63.635	3	21.212	17.553	.000
	Within Groups	167.974	139	1.208		
	Total	231.608	142			
Inclusion in the appropriate database of certified producers	Between Groups	60.374	3	20.125	16.085	.000
	Within Groups	173.906	139	1.251		
	Total	234.280	142			

Source: Authors

The results are highly significant as p value is less than .001. It is shown that there is statistically significant difference in the perceptions of small farmers on the usage of information technologies regarding their level of education on all research questions. The similar results were conducted in research by Aldosari et al. (2017) where it is shown highly significant relationship between the education of the respondents and the application of radio as information source, but level of education of the respondents had no significant relationship with the application information received through TV. Despite small opposite results, that has been explained as that educational level gives the ability to perceive, interpret and respond to new information much faster than others with lack of education. The study done by Das (2014) has found that farmers mostly rely on ICTs sources for accessing production-related information.

Even though the conducted analysis has shown a statistically significant result, it has still been necessary to examine the effect size through calculating eta squared. The results show, according to Cohen (1988), the large effect size, ranging from .29 for statement 3 to .38 for statement 4 (the statements from the table 3).

Post hoc comparisons using Tukey test has indicated that regarding the statement 1, there is a statistically significant difference between the participants with elementary education and three-year high school (MD = -.976*, Std. Err. = .328, p = .018) and the participants with elementary education and three-year high school (MD = -.753*, Std. Err. = .236, p = .000). In terms of statement 2, there is statistically significant difference between the participants with elementary education and high school education (MD = -.1.615*, Std. Err. = .280, p = .000) in addition to three-year high school education and high school (MD = -.818*, Std. Err. = .229, p = .003). In regard statement 3, there is statistically significant difference between the participants with elementary education and high school (MD = -1.579*, Std. Err. = .282, p = .000), elementary school and three-year high school (MD = -.856*, Std. Err. = .319, p = .041) along with high school and higher education (MD = -1.679*, Std. Err. = .580, p = .022).

Concerning statement 4 there is statistically significant difference between the participants with elementary education and three-year high education (MD = -.968*, Std. Err. = .310, p = .012), elementary education and high school (MD = -1.815*, Std. Err. = .273, p = .000), three-year high school and high school education (MD = -.847*, Std. Err. = .223, p = .001), high school education and higher education (MD = -1.465*, Std. Err. = .562, p = .050). Regarding statement 5, there is statistically significant difference between the participants with elementary education and three-year high school (MD = -.859*, Std. Err. = .315, p = .036), elementary education and high school (MD = -1.682*, Std. Err. = .278, p = .000), three-year high school and high school education (MD = -.824*, Std. Err. = .227, p = .002), as well as high school education and higher education (MD = -1.882*, Std. Err. = .572, p = .007).

Conclusion

Agriculture is the most important part of Serbia's economy and it facilitates development of rural areas. This research has tried to point out that even in undeveloped rural communities in Serbia, there is an awareness of the importance of using ICT. Presumption of this research has been that younger generations are more educated and that the connection between educational level and the perception of using ICT and organic production is an important insight.

We can conclude that there is statistically significant difference in the perception of small farmers on the usage of information technologies regarding their level of education on all research questions. This confirms that the hypothesis (with sub hypotheses), according to which the education of the small farmers affects their opinions on the use of information technologies in education, production, and marketing of organic agricultural products is confirmed. The results show that the main difference in perception exists between the farmers with elementary education and the farmers with further education (high school or higher education). Therefore, various funding programs for organic production can be developed for more educated population and the less educated population can benefit from educational programs on the organic production and the use of ICT.

Like the most studies, this research study has limitations too. The sample is small and additional and extensive research is needed in order to further explore the perception of small agriculture producers in Serbia in regard to the possibilities of organic production and the use of information technology. This research could include more villages in the Raška district or the other districts, as well as different forms of information communication technology, due to generating a platform not only for resolving some of mentioned challenges, but also for accelerating the efforts to achieve the Sustainable Development Goal (SDGs) by 2030.

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Conflict of interest

The authors declare no conflict of interest.

References

1. Aldosari, F., Al Shunaifi, M.S., Ullah, M.A., Muddassir, M., Noor, M.A. (2017). Farmers' perceptions regarding the use of Information and Communication Technology (ICT) in Khyber Pakhtunkhwa, Northern Pakistan. *Journal of the Saudi Society of Agricultural Sciences*, 18(2), 211-217 (http://dx.doi.org/10.1016/j.jssas.2017.05.004)

2. Barjaktarović, M., Kuzman, B., & Žarković, S. (2016). Family Holdings Profitability in the Organic Food Production in the Republic of Serbia. *Economics of Agriculture,* 1309–1322. doi:10.5937/ekoPolj1604309B
3. Branzova, P. (2017). Organic Production in the Europian Union and Bulgaria - Main Crop. *Trakia Journal of Sciences*, 15 (Supp1), 51–55. (https://doi.org/10.15547/tjs.2017.s.01.009)
4. Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ. Erlbaum.
5. Golijan, J., Živanović, L., & Kolarić, L. (2017). Organic Production of Industrial Crops in Serbia. *Field & Vegetable Crops Research/ Ratarstvo i Povrtarstvo*, *54*(2), 68–72. (https://doi.org/10.5937/ratpov54-13251)
6. Dantsis, T., Loumou, A., & Giourga, C. (2009). Organic Agriculture's Approach towards Sustainability; Its Relationship with the Agro-Industrial Complex, A Case Study in Central Macedonia, Greece. *Journal of Agricultural & Environmental Ethics,* 22(3), 197–216. (https://doi.org/10.1007/s10806-008-9139-0)
7. Das, B. (2014). ICTs Adoption for Accessing Agricultural Information: Evidence from Indian Agriculture. *Agricultural Economics Research Review*. 27(2). 199-208. DOI: 10.5958/0974-0279.2014.00024.X
8. Djelic, A.T., Neskovic, S., Ketin, S., Lutovac, M., Popovic, Z., Mirkovic, M. & Secerov, P. (2019). Economic and Environmental Context of Organic Agriculture and Farms in Serbia - Case Study. *Fresenius Environmental Bulletin*, 28(1). 87-92. Retrieved from: https://www.prt-parlar.de/download_feb_2019/
9. Gajdić, D., Petljak, K., & Mesić, Ž. (2018). An Exploration of Distribution Channels: Challenges and Opportunities for Organic Food Producers in Croatia. *Economics of Agriculture, 65*(4), 1461–1482. (https://doi.org/10.5937/ekoPolj1804461G)
10. Golijan, J., Popović, A., Dimitrijević, B., Kolarić, L., & Živanović, L. (2017). The Status of the Forage Organic Production in the Republic of Serbia. *Agriculture & Forestry/ Poljoprivreda i Sumarstvo*, 63(3), 177–187. (https://doi.org/10.17707/AgricultForest.63.3.18)
11. European Parliament (2014). *Precision Agriculture: An Opportunity for EU farmers – Potential Support with CAP 2014-2020*. Brussels
12. Komorowska, D. (2014). Development of Organic Production and Organic Food Market in Europe. *Acta Scientiarum Polonorum. Oeconomia*, 13(4). 91–101. Retrieved from: http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=100723530&site=ehost-live
13. Konyali, S., Başaran, B., & Oraman, Y. (2018). Support Policies for Organic Farming in Turkey. *New Knowledge Journal of Science / Novo Znanie*, 7(2), 55–62. Retrieved from: http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=132203903&site=ehost-live

14. Skupština grada Kraljeva. (2017). Osnovne karakteristike. Retrieved from: www.kraljevo.rs/wp-content/uploads/2017/11/01.Osnovne-karakteristike.pdf [*in English*: Kraljevo Assembly. (2017). Basic information]

15. Kranjac, M., & Tomić, S. (2017). Clustering in Vojvodina (Serbia). *Serbian Journal of Engineering Management*, 2(2), 14-19. doi:10.5937/SJEM1702014K

16. Krstić, B., Petrović, J., Stanišić, T., & Kahrović, E. (2017). Analysis of the Organic Agriculture Level of Development in the European Union Countries. *Economics of Agriculture,* 64(3), 957–971. https://doi.org/10.5937/ekoPolj1703957K

17. Kyrylov, Y., Thompson, S. R., Hranovska, V., & Krykunova, V. (2018). The World Trends of Organic Production and Consumption. *Management Theory & Studies for Rural Business & Infrastructure Development*, 40(4), 514–530. (https://doi.org/10.15544/mts.2018.46)

18. Langović Milićević, A., Tomašević, V. & Isaković, S. (2014). The Importance of Successful Project Team Communication in Agribusiness, *Economics of Agriculture,* 61(2), 367-379. COBISS.SR-ID 27671. doi:10.5937/ekoPolj1402367M

19. Ljumović, I., Viduka, B., & Cvijanović, J.M. (2015). Access to finance for organic producers in Serbia: demand side. *Economics of Agriculture***,** [S.l.], 62(4), 989-1002, ISSN 2334-8453. doi:10.5937/ekoPolj1504989L

20. Milenković, S., & Tasić, J. (2013). Organska Hrana Kao Perspektivni Proizvod Srbije. *Economic Themes*, 51(2), 411–424. Retrieved from: http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=93425446&site=ehost-live) [*in English*: Milenković, S., & Tasić, J. (2013). Organic food as perspective product of Serbia. *Economic Themes*, 51(2), 411–424]

21. Mladenovic, J., Pavlovic, N., Ugrinovic, M., Pavlovic, R., & Zdravkovic, J. (2016). Analysis and Forecasting of Profit by Using Simulation Models for Growing Pea in Conventional and Organic Plant Production in Serbia. *Economics of Agriculture/ Ekonomika Poljoprivrede*, 63(3), 987–995. doi:10.5937/ekoPolj1603987M

22. Nikolić, S. R., Vuković, P., & Grujić, B. (2017). *Measures to Support the Development of Organic Farming in the EU and Serbia*. Economics of Agriculture/ Ekonomika Poljoprivrede, 64(1), 323–337. https://doi.org/10.5937/ekoPolj1701323R

23. Nikolova, M. (2013). Challenges to Organic Agriculture in Bulgaria. *Economic Themes*, 51(1), 191–207. Retrieved from: http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=88917638&site=ehost-live)

24. Republika Srbija. (2010). *Zakon o organskoj proizvodnji*. ("Sl. glasnik RS", br. 30/2010 i 17/2019 - dr. zakon)

25. Pažun, B., Langović, Z., & Langović Milićević, A. (2016a). Econometric Analysis of Exchange Rate in Serbia and its Influence on Agricultural Sector, *Ekonomika poljoprivrede - Economics of Agriculture*, Institute of Agricultural Economics, Belgrade, Serbia, vol. 63(1), 47-60. (doi:10.5937/ekoPolj1601047P)

26. Pažun, B., Langović, Z. & Langović Milićević, A. (2016b). Equilibrium Real Exchange Rate Assessment of the Serbian Dinar: The MB approach. *Journal for Economic Forecasting, Institute for Economic Forecasting*, 19(1), 76-87. Retrieved from: http://www.ipe.ro/rjef/rjef1_16/rjef1_2016p76-87.pdf

27. Tasiopoulou, S., Chiodini, A.M., Vellere, F. & Visentin, S. (2007). Results of the monitoring program of pesticide residues in organic food of plant origin in Lombardy (Italy). *Journal of Environmental Science & Health, Part B -- Pesticides, Food Contaminants, & Agricultural Wastes*, 42(7), 835–841. doi: 10.1080/03601230701555054

28. Tomaš-Simin, M., & Glavaš-Trbić, D. (2016). Historical Development of Organic Production. *Economics of Agriculture/ Ekonomika Poljoprivrede*, 63(3), 1083–1099. (https://doi.org/10.5937/ekoPolj1603083T)

29. Vlahović, B., Puškarić, A., & Šojić, S. (2015). Research into Agricultural Producers' Motives for Engaging in Organic Production in the Republic of Serbia. *Economic Insights - Trends & Challenges*, 67(2), 31–39. Retrieved from: http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=110030112&site=ehost-live

30. Yildirim, P., Ercan, E., & Türker, G. (2018). Organic Aquaculture Production in Turkey: A Brief Review. *New Knowledge Journal of Science/ Novo Znanie*, 7(2), 137–140. Retrieved from: http://search.ebscohost.com/login.aspx?direct=true&db=bsu&AN=132203913&site=ehost-live

INFLUENCE OF FINANCIAL TECHNOLOGY (FINTECH) ON FINANCIAL INDUSTRY

Ismail Musabegovic[1], Mustafa Özer[2], Sladjana Djukovic[3], Stefan Jovanovic[4]

**Corresponding author E-mail: ismail.musabegovic@bba.edu.rs*

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ABSTRACT

The financial technology (hereinafter: fintech) industry is growing rapidly which is supported by the fact that it received more than $20 billion in investment last year alone. This article surveys historical development of fintech and its influence on market structure in banking industry, efficiency, strategic plans of participants, and stability of financial market. Based on World Bank database, the paper tests the fundamental premise – whether there is a relationship between country GDP and population and usage of new technology and smartphones in financial transactions and payment processing.

The results of the study provide evidences of statistically significant positive relationships between per capita GDP and usage of new technology and smartphones in financial transactions and payment processing. Also, they indicate statistically significant positive relationships between per capita GDP and payment of utilities and received wages through a mobile phone. Thus, the results of study should be taken into consideration when forming the policies regarding the use of new technology and smartphones in financial transactions and payment processing.

Introduction

In the past, the financial market was strictly divided between players like banks, insurance companies, private hedge and equity funds etc. The technology rapid develop and drastically alter the Internet (Angeloska-Dichovska & Petkovska-Mirchevska,

1 Ismail Musabegovic PhD, associate professor, Belgrade Banking Academy, Zmaj Jovina 12 Belgrade, Serbia, ismail.musabegovic@bba.edu.rs +381 63 525150, https://orcid.org/0000-0001-8137-8918

2 Mustafa Özer PhD, full professor, Anadolu Üniversitesi: Eskisehir, Turkey, +90 (222) 335 0580 / 3373 https://orcid.org/0000-0001-9852-8441

3 Sladjana Djukovic B.Sc Econ. M.Sc. Econ. Banker, Sberbank AD Belgrade, Serbia, sladjanadjukovic@yahoo.com, +381 69 3 93240, https://orcid.org/0000-0002-5043-9869

4 Stefan Jovanović B.Sc Econ. M.Sc. Econ. CFO, Balkan Polymers, Serbia, steffy_jov@hotmail.com, +381 60 2229848, https://orcid.org/0000-0003-2797-3016

2017). The most important fact was that this market remained largely unaffected. But recently this all changed with the breakthrough of the companies that use technology for different financial solutions such as banking, payments, and personal financial management. These firms are called fintech firms.

Fintech refers to financial services based on new processes and products that become available thanks to digital technological advancements. More precisely, the Financial Stability Board defines fintech as "technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services".

"The main areas where fintech companies are expending rapidly, according to European economy banks, regulation, and the real sector publication (Pazzolo, 2017) are:

- Payment systems (payments, clearing and settlement);
- Funds management (deposit, lending, capital raising and investment management);
- Insurance.

All services mentioned above are typically offered by banks, who are assumed as traditional financial institutions. But the main reason why fintech companies are able to impact on these services comes from cost reductions implied by digital technology advancements, improved and new products for clients and limited burden from regulators. European economy banks, regulation, and the real sector publication Pazzolo, (2017) defines that, with technological advancements, fintech operators benefit from:

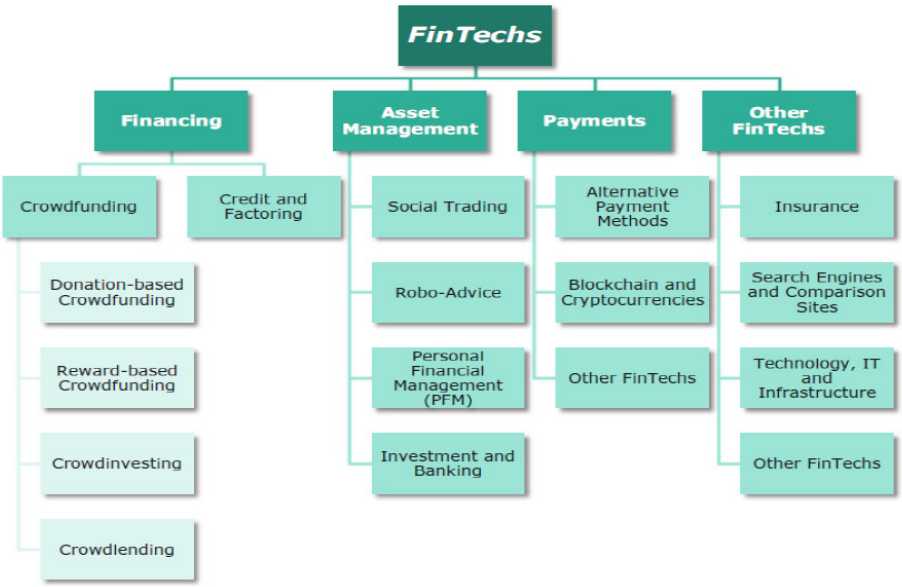
- Lower costs of search that enable more effective matching in financial markets,
- Economies of scale in collecting and manipulating large bunches of data,
- Cheaper and more secure transmission of information,
- Lower costs of verification."

According to Pierrakis and Collins (2013): "Such innovations can disrupt existing industry structures and blur industry boundaries, facilitate strategic disintermediation, revolutionize how existing firms create and deliver products and services, provide new gateways for entrepreneurship, democratize access to financial services, but also create significant privacy, regulatory and law enforcement challenges"

Fintech worldwide

Having in mind that this is a new field, there is no official agreement or segmentation of this industry. Based on Dorfleitner et al. (2017) "companies in the Fintech industry can be divided into four major segments in accordance with their distinctive business models":

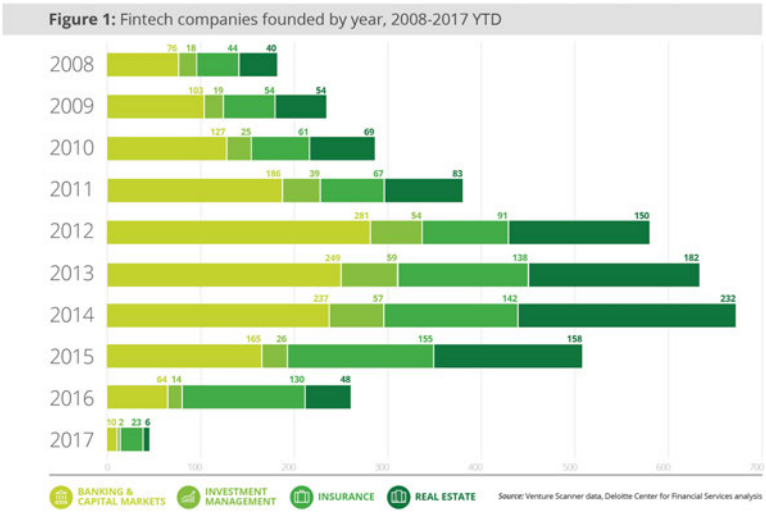
Figure 1: Segments of the Fintech industry



Source: "Fintech In Germany" Dorfleitner, G., Hornuf, L., Schmitt, M., Weber, M

The number of new companies this industry in period 2008-2010 was modest, but in the period of 2011-2014 the total number of companies more than doubled:

Figure 2: Fintech companies founded by year, 2008-2017

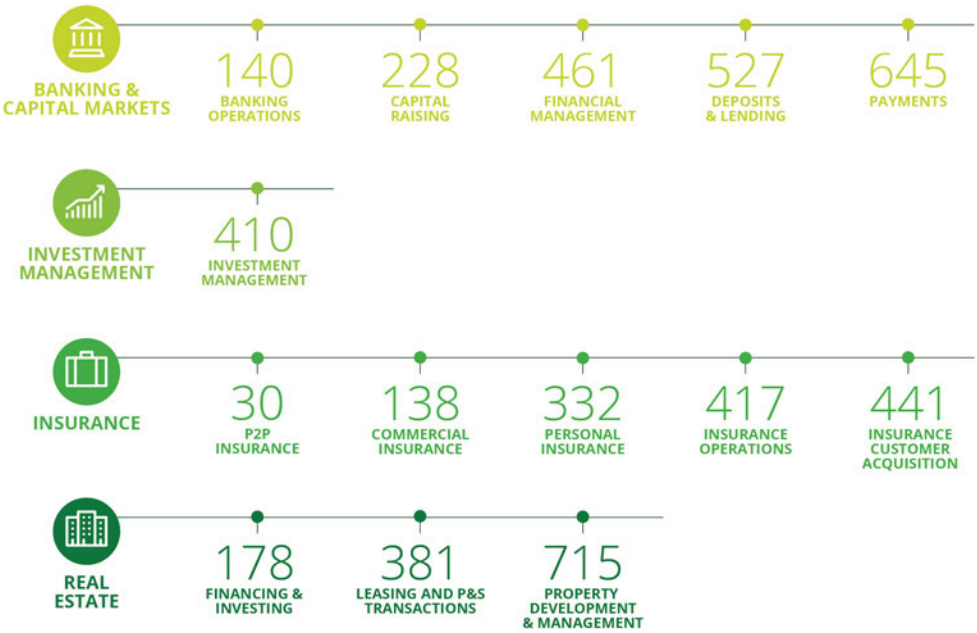


Source: Venture Scanner data, Deloitte (2018)

In the graph above we can observed that not all fintech categories have generated the same number of startups. Deloitte analysis (Fintech by the numbers) points out that "within banking and capital markets, payments is the clear leader, followed by deposits

and lending and financial management. The study also confirms the impact of the growth in robo-advisors, as investment management fintechs are also relatively large in number".

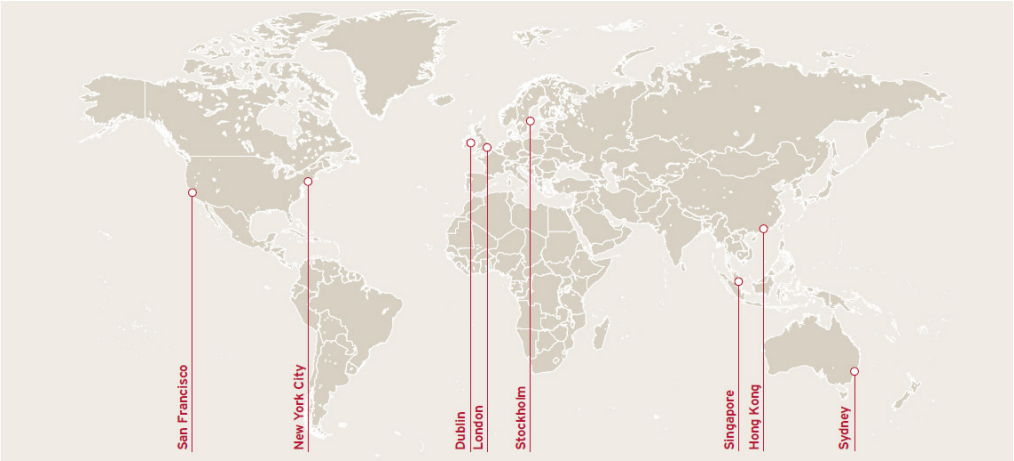
Figure 3: Number of companies by category



Source: Venture Scanner data, Deloitte (2018)

Despite the global expansion and worldwide presence, there are cities in the world that are considered to be IT hubs and homes of largest part of fintech companies:

Figure 4: Global Fintech hubs



Source: Fintech in CEE, Deloitte

Banks and fintech - symbiosis

The growth of claims of the Banking Sector and the decline in the International Investment Position of the Republic of Serbia is conditioned by the illiquidity of the public sector (Durkalić & Ćurčić, 2019). Authors Furtula, Todorović & Durkalić (2018) concluded that performance of banking sector increased and changed in period 2008 to 2016.

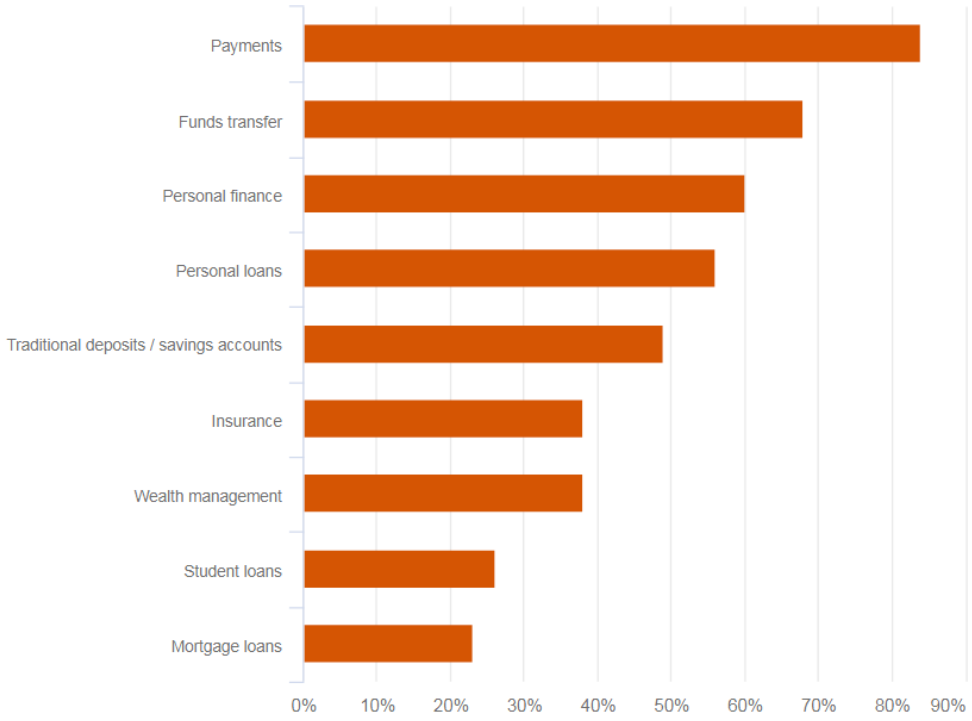
By definition, banks are financial institution licensed to receive deposits and make loans. In order to do this, they have to perform three activities:.

- Transforming the features of financial assets and liabilities
- Providing payment services,
- Gathering and interpretation data

The first function is related to maturity transformation, the practice by financial institutions of borrowing money on short terms and then lending money out. This function is very important to economic system, since it provides long term investments which lead to increasing productivity of one country. As main provider of liquidity to their customers, banks are also well placed in offering payment services. Data gathering and interpretation includes all the activities related to clients and their needs, monitoring of their behavior, with main goal to create and manage a diversified portfolio that will maximizes the return and the bank's earnings. Banks also provides a lot of other services; such as Investment management, M&A advice, security underwriting and brokerage, but three activities mentioned above consider being core of banking business and crucial for banks' existence.

In order to understand the influence of Fintech on the banks and the whole industry, we need to look deeper into each of these three key activities of the bank. According to a survey conducted by PWC between banks and other participants on financial market, the main financial activities that are already conducted by their customer with fintechs are payments and fund transferring:

Figure 5: The main financial activities conducted with fintechs



Source: PwC's Global Fintech Survey, 2017

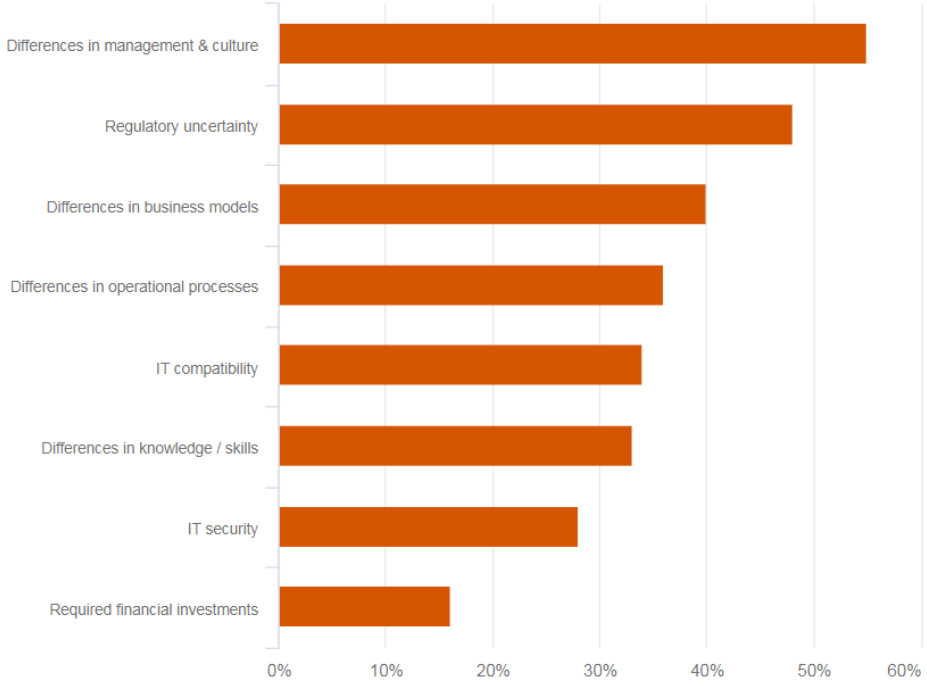
This also coincides with the fact that the lending, payment systems and information processing are the main areas of development in the application of digital technology, which leads us to conclude that these are the main areas where we can see influence and impact from fintech companies on banking industry.

Transforming the characteristics of financial assets and liabilities

We have to repeat one more time that one of the main tasks of banks is transforming the maturity characteristics of financial assets and liabilities. According to the article from Pazzolo in 2017 through maturity transformation banks use short term deposits and based on them grant long term loans. This is essential in providing liquidity services to clients.

In this segment of business, the main advantage of fintech is possibility to lower the intermediation costs and increase access of unserviced parts of the population and less developed countries to financial services. The biggest advantage of these companies lies in the fact that they can overcome information asymmetries, which are one of the main stones of the banking industry. According to PWC survey, when working with traditional financial companies, the main challenges that customers are facing with are difference in management and culture and regulatory uncertainty:

Figure 6: The main challenges working with traditional financial companies



Source: PwC's Global Fintech Survey 2017

Having in mind that they have no legacy technology to deal with, fintech companies have larger innovation capacity than traditional financial institutions like banks.

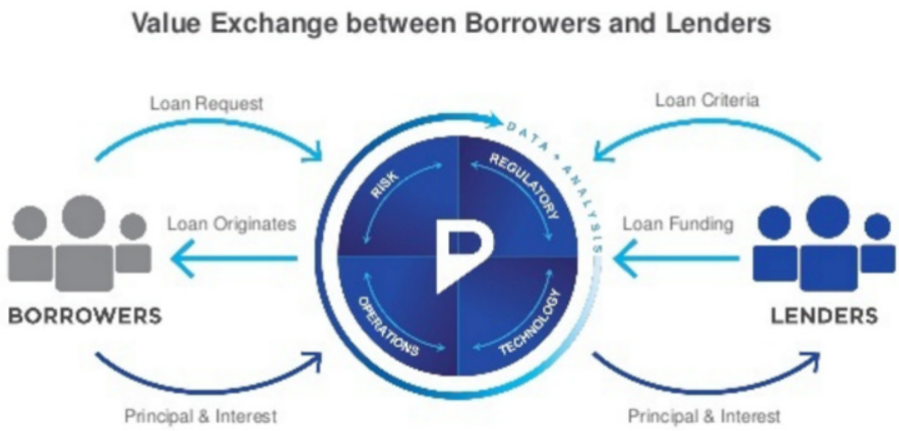
Online alternative financing platforms are one of the ways that fintech companies approach this part of the banking business. Known as Crowd funding, these solutions are consider to be one of the fastest growing industries developments in recent years.

Peer-to-peer (P2P) lending

As substitutes in providing credit, peer-to-peer (P2P) lending platforms connect people looking to invest money with potential borrowers who need loans for their business. They perform the role of an intermediary, matching borrowers and lenders directly and transfer money between them. Because there's no traditional financial institution acting as a middleman, and therefore none of the overheads associated with banking, parties in this agreement could benefit from more favorable interest rates.

Also, based on Bruton et al. 2014 "peer-to-peer lending can also include platforms similar to micro financing in that individuals directly provide capital to other individuals".

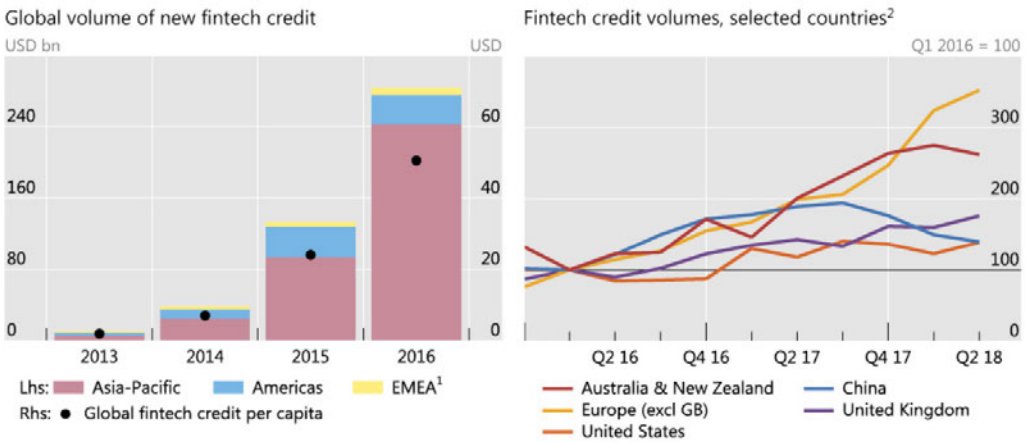
Figure 7: The way how P2P works:



Source: Kate J.; (2019) - What do investor should look before investing in p2p lending

Available data from Kate (2019) show that "fintech credit activity has expanded rapidly in many countries over recent years. Estimates from the CCAF indicate that $284 billion in such credit was extended globally in 2016, up from $11 billion in 2013. In absolute terms, China was by far the largest market in 2016; the United States and the United Kingdom followed at a distance, with other large advanced economies further behind." According to PWC survey in 2016, the potential market indicates that the projected market of P2P market in USA will be USD150 billion by 2025.

Figure 8: The expansion of fintech credits:



[1] Europe, Middle East and Africa. [2] Data are based on two platforms for Australia and New Zealand, all platforms covered by WDZJ.com for China, 32 platforms for Europe, 30 for the United Kingdom and six for the United States.

Source: BIS - Fintech credit markets around the world

Equity Crowd Funding (ECF)

Equity crowd funding (ECF) is similar to stock investment. It is a mechanism that enables broad groups of investors to provide funds for small businesses and startup companies in return for equity. The potential reward of this type of investment includes capital gain (if investors sell shares) and dividend, while risk is the bankruptcy of company and losing all the invested funds. This mode of Fintech firms used to be limited to venture capitalists and angel investors.

Based on Cumming & Zhang (2016) ECF has provided the small investors good opportunity to equity investing in private companies. A smaller size of the companies involved in these platforms in comparison to those typically associated with a public securities offering considered as a great addition of these platforms, it provides investors and entrepreneurs an access to an online marketplace where they can change ownership stakes for new financing.

Bearing in mind new ways of transforming the characteristics of financial assets and liabilities, the main question is whether these new Fintech players can provide the same level and quality of service as banks do.

The answer to this question is very difficult to determine. Fintech company can collect money and put them in a pool, from which borrowers can make withdrawals when needed. New technologies that are developed by fintech firms enhance efficiency in this process, while banks are cannot adopt new technologies so quickly due to the regulatory requirements. Because of that, banks rely on old IT infrastructure systems, which gives fintech firms competitive advantage. One of the main potential advantages of the new entrants in these market lies in using the mistrust that millennials have towards banks at the same time that they offer digital services with which the younger generation is at ease.

An opposite look at the Fintech asserts that advances in financial technology have failed to reduce intermediation costs. Certain studies from Federal Deposit Insurance Corporation indicate that Fintech lenders in fact offer higher interest rates than non-Fintech lenders. Based on Pazzolo, 2017, “two competitive advantages of retail banks which may be eroded by the new entrants are:

- banks can borrow cheaply with their access to cheap deposits and explicit or implicit insurance by the government, and
- they enjoy privileged access to a stable customer base that can be sold a range of products”.

The presence of deposit insurance can make it easier for new competitors to enter this market as banks, but in this case participants will have to pay for the banking license and compliance expenditures.

Due to maturity transformation, banks also separate each loan they lend from funding of each individual depositor, thus obtaining a much better portfolio diversification than what

a single depositor can achieve. New solutions like peer-to-peer (P2P) or crowd funding lending cannot offer any diversification to potential investors. If they do, then platforms will have to take some of their risk on their books (hence, subject to banking regulations) or act as issuers of securities (and then become subject to security regulations).

These facts indicate that entering into an intermediary business with new technologies will largely depend on how regulation and government guarantees are applied. As far as banks also adopted new information management technologies and regulatory arbitrage is excluded, the threat to their business from this channel seems limited.

Providing payment services

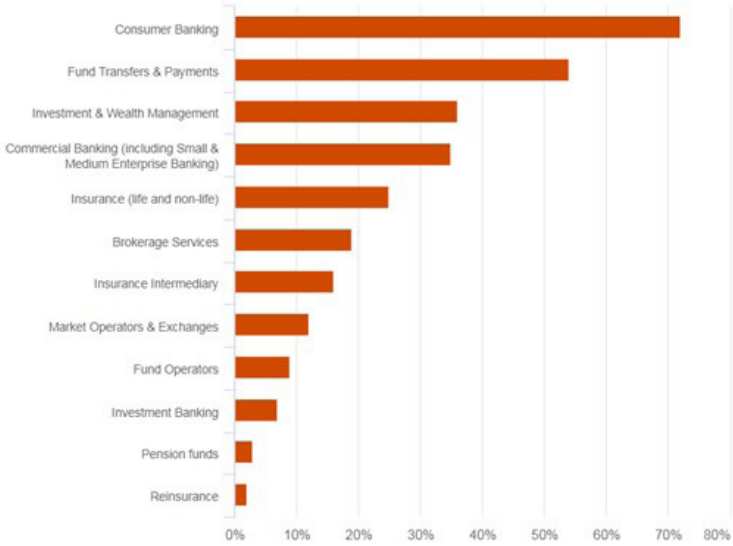
Banks, together with credit cards providers such as Visa and MasterCard, are still the owners of transactional payments market. It is not a secret that customers facing liquidity issues can benefit from making payments directly from deposit account, and this is supported by some strong economies.

The unexpected thing here is that this need of customers is more and more covered by nonbanks such as PayPal, Apple, Google, Amazon etc.

Number of non-banking financial companies are emerging, from payment institutions to electronic money providers. In some countries, also non-financial corporation, such as telecommunication companies, are entering the market of payment services, taking advantage of its large customer base.

Not only that new payment providers are entering the scene, but disruption of known payment systems can also be caused by crypto currencies – such as Bitcoin. Supported by block chain technology, crypto currencies are most often generated in limited amount or under limited circumstances as encrypted vessels of value. They enable direct transactions, without need to know personal details of involved sides while offering total transparency of payment potential so any type of fraud can be avoided. It encourages the trust and safety, which is one more additional value besides real time and low cost transactions. Bank, having the intermediation function in transactions system, loses the reason to exist under these circumstances.

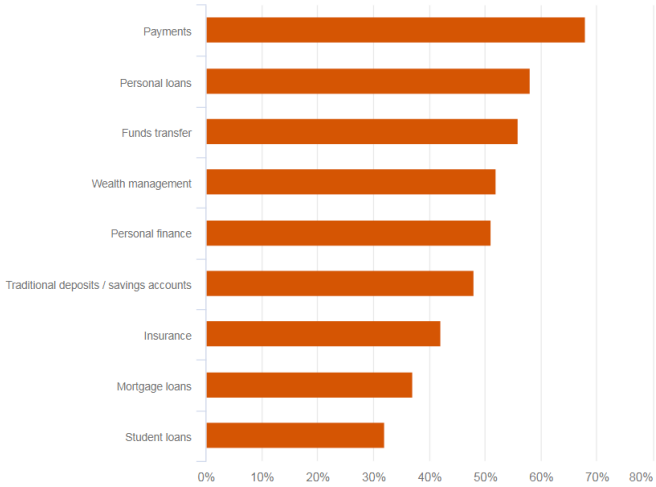
Figure 10: Parts of the financial sector that are likely to be the most disrupted by Fintech



Source: PwC's Global Fintech Survey 2017

The same survey shows that payment system is the financial activities that are most at risk in moving to a Fintech company over the next 5 years:

Figure 11: Financial activities that are most at risk of moving to Fintech

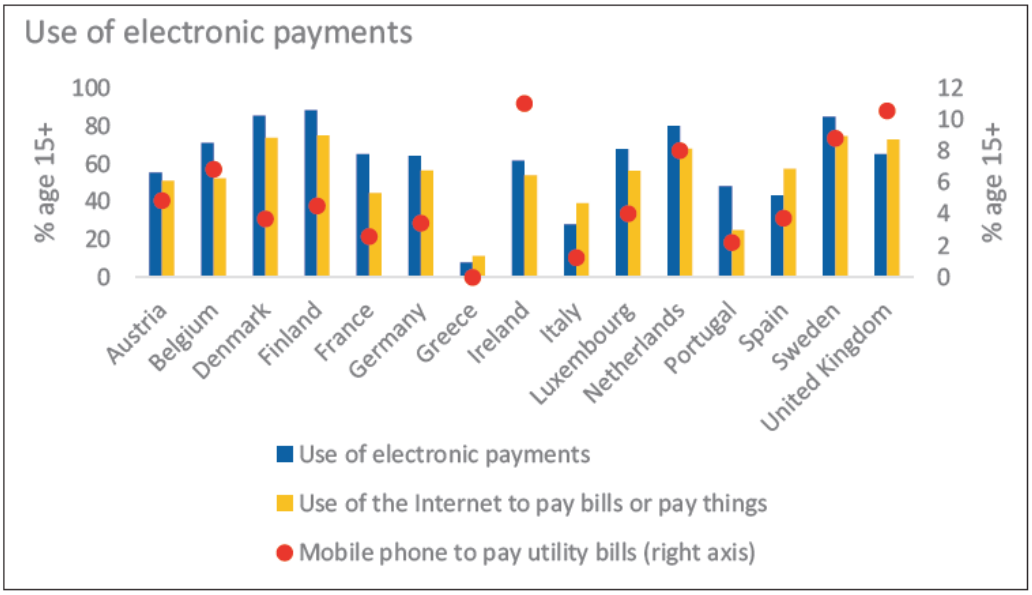


Source: PwC's Global Fintech Survey 2017

Market trends are something that also goes on hand with fintech development in payments systems. Millennials are using more and more their electronic devices for everyday activity, among which are paying bills using electronic payment systems. As

we can see on the graph below, the use of electronic payment technologies is highly heterogeneous across European countries:

Figure 12: Use of electronic payments



Source: http://www.worldbank.org/en/programs/globalfindex

Econometric Analysis of usage of new technology and smartphones in financial transactions and payment processing

To analyze the effects of new technology and smartphones in financial transactions and payment processing on Per capita GDP, we estimate two cross-sectional regressions including data from 150 countries. In the first cross-sectional regression, we use the 2017 per capita GDP as an dependent variable and Used the internet to pay bills or to buy something online in the past year (% age 15+) (indpvar1), Used the internet to pay bills or to buy something online in the past year, female (% age 15+) (infpvar2) and Used the internet to pay bills or to buy something online in the past year, male (% age 15+)(indvar3) as separate independent variables to show the effects of use of internet on per capita GDP. Also, by estimating separate cross-sectional regressions for male and female, we try to determine if results differ across gender. In the second regression, we try to analyze the effects of different use of mobile phone on per capita GDP. For this purpose, we analyze the effects of Paid utility bills by using a mobile phone (% age 15+)(PAIDUTILITY), Received wages through a mobile phone (% age 15+)(RECWAGES) and Received government transfers through a mobile phone (% age 15+)(RECGOVTRAN). Table 1 shows the results of these regressions.

Table 1: Results of the cross-sectional regressions

	Male and Female	Male	Female	Usage of mobile phones-1	Usage of mobile phones-2	Usage of mobile phones-3
INDPVAR1	612.578*** (31.713)	618.985*** (31.987)	600.5716*** (31.716)			
INDPVAR2	-	-	-			
INDPVAR3	-	-	-			
PAIDUTILITY	-	-	-	1570.690*** (305.305)	1407.443*** (305.668)	1622.436*** (292.839)
RECGOV-TRAN	-	-	-	2139.026 (3409.065)	-3045.640 (2676.107)	-2187.977** (853.4361)
RECWAGES	-	-	-	-2642.515** (1121.917)	-	
constant	-2248.040* (1225.398)	-1324.031 (1189.508)	-3025.431** (1276.580)	13958.74*** (3285.641)	12604.63*** (3325.629)	14025.21*** (3271.465)
R^2	0.713	0.713	0.705	0.282	0.232	0.279

Note: Each column shows results from an ordinary least-squares regression in which the dependent variable is *GDPPC2017*. Standard errors are in parentheses. Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The results in Table 1 indicate that except for Received government transfers through a mobile phone (% age 15+)(RECGOVTRAN), all other independent variables do have statistically significant effect on per capita GDP. But, the effect of Received wages through a mobile phone (% age 15+)(RECWAGES) on per capita GDP is negative. The main reason is that, according World Bank Global Findex (FINDEX 2017), governments make several types of payments to people—paying wages to public sector employees, distributing public sector pensions, and providing government transfers to those needing social benefits. Globally, about 100 million unbanked adults receive such payments in cash. For crucial importance in this context is an adequate cash flow management (Knežević et al., 2018).

These include 60 million women as well as 55 million adults in the poorest 40 percent of households within economies. These numbers suggest the potential for increasing account ownership by moving these payments into accounts

Technological progression enables short term wins for the new market players – tech savvy companies are faster in any business plan execution (from creation of the desired product to making it available all over the world). But very few survive long enough to make a deeper market impact, mostly due to lack of basic industrial and regulatory knowledge – we can describe it as most of them is not well prepared for the challenges brought by the most regulated industry in the world. On the other side, those few that have gone from few interested customers to thousand, even million users, such as Atom bank, Monzo and Revolut, are the ones writing new banking history and showing that knowing the each and every customer needs is the crucial for sustainability on the market.

Traditional banks can transform, no doubt about it. Data that can be found in banking systems, years and years of customer behavior, is the most valuable source of power for this transformation. While new banks had to start from scratch – finding customers, gathering their data, building products, learn about limitations by trying and failing – traditional banks have already done all of that. One can argue that this is the legacy that make the transformation slow and painful, while in fact this is a step a head compared to the all-new banks to come.

The one thing that can't be influenced but makes all the difference is time. Traditional banks have to decide how they want to be positioned in the eyes of the future generations and start act on it. Not only to match fintechs, but also to stay visible besides all-in-1 global players such as Amazon, Apple and Google.

The motive to support payment services, transactional services and all other financial services came from the need to support full cycle service from selection over purchase to payment for what is selected. Further on having AI support for tailoring specific offer per customer requires constant data enrichment in order to make better models from day to day…and even thought people today are very comfortable with enclosing private stuff to the public eye, financials were kept a secret very much. So, what better data to use in order to really get to know your customer and how better to pack the collection of those sensitive data then asking them as a side thing while customer is buying something extraordinary.

Gathering and processing data

As stated previously, data collections under the umbrella of financial sector can be used as a step up for the banks compared to new market players. Banks are built on them and newest technological advancements are changing the way these data is managed. For example, with cloud technology, high speed processing of big data volume is achievable at much lower prices – no heavy servers and specially designed and secured physical spaces with the backup of the same size and cost. Also, internet provides low cost data transfer but also data availability.

When you look at it a little closer fintechs are generally using all of the mentioned opportunities to march ahead in the new customer acquisition, because with tech evolution society also became digital and more transparent in doing any type of business (from e-commerce to bank accounts opening and management).

Now again, banks are in the position of the large data collection – but in what shape. How "clean are those data, are they kept at the same system, are they even entirely in the system or there is still something left in the "bottom drawer". So sorting this out and making it usable in a way fintechs are using these same data would require some effort.

On the other hands, fintechs are on the market for some short time, compared to the traditional banks, but if we assume that they are using the knowledge about the industry from the industry professionals it would be safe to assume that they have avoid this data quality issue at least on some level.

If they didn't then we wouldn't be noticing such a huge difference in the processes optimization. While traditional banks are working their way towards digital transformation, new market players are already using forecast models and machine learning algorithms to personalize customer approach from defining the best channel of communication to best financial product for each individual from their portfolio. Besides building the tools to bust up the sales, fintechs are also using same technology for score cards and application processing which further goes to having end-to-end loan application processing without any interference with human.

The role of regulator

It is by far popular that banking industry is the most regulated industry and for a good reason – banks manage two most important things for people: their personal data and money.

Regulator on this new market is quite challenged to maintain stability, protect customers and promote innovation at the same time. With technology penetrating the traditional system cyber security is more and more popular subject. Cyber security issue broth new security standards that are strict in the sense of protecting both data and operations (ISO 27001 standard and GDPR, for example).

Based on Demertzis et al. (2017) the "European approach is to have the same rules and supervision for the same services independently of who is providing them". This comes from the fear of the systemic problems that might come in case of institutions fall. Latest initiatives such as PSD II and Open Banking concept as a bridge between fintechs and Banks that will enable fintechs to investigate and experiment while Banks will benefit from their actions are showing promising results. They support the innovation in somewhat controlled conditions so the regulators can also observe and decide on the appropriate regulatory enforcement to be applied on the new market players.

Permanent resolution will be hard to achieve here because regulators will have to pace up and constantly follow technological development and evolve equally fast as the innovation itself. Ideal goal would be creating the environment of choices and data control for consumers, with support for innovation development for both fintech and banks and without disturbing financial stability.

Opportunities vs threats

Various research studies discussed the number of opportunities and threats of Fintech for the financial industry from different perspectives. The main idea of these studies is to provide a comprehensive look at the expected outcomes that these potential threats and opportunities from FinTech provides for the financial markets and banking sector. The benefit of opportunities and the degree of exposure to the risks depends on many factors as the local environment, management, and global environment changes.

Opportunities

According to the global specialized reports and studies (BCBS, 2017; Financial Stability Board, 2017; IOSCO, 2017; Peters & Panayi, 2016) the main opportunities are:

- Greater access to capital: the new solutions in providing financing like P2P and ECF platforms, offers easier way of landing money to borrowers, especially SMEs, who do not have access to bank loans and opening new possibilities of access to equity finance.
- Cost improvement: fintech firms offer same services as the banks, but with lower transaction costs and in faster and more customized way for the clients.
- Tailored banking services: fintech companies have developed products that are based on customer experience, which leads to tailored service that these companies can offer to the market.
- Enhancement in security: new technologies like block chain and other FinTech platforms creates various methods to protect anonymity and prevent information leakage
- Increase competition: New market players competing with existing banks could eventually fragment the banking market and reduce systemic risk, leading to increased financial stability.

Threats

The Fintech risks and threats come mainly from concerns about the operational risk, compliance, liquidity and volatility of bank funding sources, and the severe competition. Based on BCBS, 2017; Financial Stability Board, 2017; IOSCO, 2017; Peters & Panayi, 2016 the main threats are:

Risk of collapse, fraud or malpractice – "these actions can occur on the platform or some by some of its users. For example fraud can occur with parties selling (and buying) securities on the platform"

Systemic risk – "The entrance of fintech firms to the banking industry increases the complexity of the system and introduces new players which may have limited expertise and experience in managing IT risks. IT interdependencies between market players and market infrastructures could cause an IT risk event to escalate into a systemic crisis."

Operation risk – "innovative products and services may increase the complexity of financial services, making it more difficult to manage and control operational risk."

Difficulties in meeting compliance requirements – "The higher level of automation and distribution of the product or service among banks and fintech companies can result in less transparency on how transactions are executed and who has compliance responsibilities. This can create potential issues and problems especially in Anti-money laundering and countering the financing of terrorism AML/CFT obligations".

Data privacy: "The risk of not complying with data privacy rules may increase with the development of big data, more outsourcing due to tie-ups with fintech firms, and the associated competition for ownership of the customer relationship".

Conclusion

Technology has always been at the service of the banks, but the new age sees the banking system is one of the channels for selling new technological solutions.

Bottom line is that fintech companies improve competition in financial markets, provide services that traditional financial institutions do less efficiently or do not do at all, and increase the pool of users of such services. In most cases, competition will enhance efficiency, bringing in new players on the market. According to Pazzolo, (2017) fintechs provide a more efficient way to do the same old things.

On the other side, this new competition strengthens the resilient incumbents, able to play the new game. Traditional banks are well placed to adopt technological innovations and do the old things in the new way themselves. But they will certainly have to change how they operate and do business, if they want to stay in the market that has been changing and improving day by day.

The change of the financial market as we know it is inevitable. Bottom line might very easily be that both fintechs and the traditional banks are not the ones dictating the trajectory of the future development of services in this area. New generations inventing new ways of communication every day might be the one and only variable we should look into in order to predict the future of financial or any market.

According to World Bank data (Global Findex - Opportunities for expanding financial inclusion through digital technology) "many unbanked adults receiving government payments in cash—whether government transfers or public sector wages or pensions—have the basic technology needed to receive these payments in digital form. Of the 60 million unbanked adults worldwide, who receive government transfers in cash, two-thirds have a mobile phone. Majority of these adults are females, which can lead to a conclusion that the process of digitalization of state government will contribute to gender equality and increase number of females receiving various type of payments in digital form.

Global Findex data (World Bank 2017) reveal many opportunities to increase account ownership among the 1.7 billion adults who remain unbanked. The data also point to ways to leverage new products and technologies to boost the use of accounts among those who already have one".

Speed of adoption of new technologies and products depends entirely on raising the interest about it among young people that are now able to connect and communicate to each other without ever physically seeing one another. Interests of young people and their perspective of the world might be the very force that will dictate the rise and fall of many industries and markets. With the force of online communities which removed limitations such as different continents and languages any new idea can get the massive support and grow from idea to basic necessity for large groups of people in just a few hours.

At the end, fintechs will change their services faster for sure, but whatever the traditional banks decide to do they should not forget about the power of the new generation to promote and push their needs and visions until they get whatever will make their lives better. And those are the people whose voices should be heard on the path of digital transformation.

Conflict of interests

The authors declare no conflict of interest.

References:

1. Angeloska-Dichovska, M., & Petkovska-Mirchevska, T. (2017). Challenges of the Company in the New Economy and Development of E-business Strategy. *Strategic Management*, 22(2), 27-35.
2. Bruton, G., Khavul, S., Siegel, D., & Wright, M. (2015). New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer-to-peer innovations. *Entrepreneurship Theory and Practice*, 39(1), 9-26.
3. Cumming, D., & Zhang, Y. (2016). Alternative investments in emerging markets: A review and new trends. *Emerging Markets Review*, 29, 1-23.
4. Deloitte (2018) - Fintech by the numbers, available at: https://www2.deloitte.com/content/dam/Deloitte/ru/Documents/financial-services/fintech-by-the-numbers.pdf
5. Deloitte (2016) - FinTech in CEE, available at: https://www2.deloitte.com/ce/en/pages/about-deloitte/articles/fintech-cee-region.html
6. Demertzis, M., Mombelli, G., & Wolff, G. B. (2017). Capital Markets Union and the fintech opportunity. Bruegel Policy Contribution Issue n° 22| September 2017
7. Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2017). *FinTech in Germany*. Cham: Springer International Publishing.
8. Durkalic, D., & Curcic, M. (2019). Mutual influence of the international investment position and the net government position with the banking sector of the Republic of Serbia. *Ekonomika, Journal for Economic Theory and Practice and Social Issues*, 65(1350-2019-2799), 95-106.
9. EY (2019) - Global FinTech Adoption Index, available at: https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-global-fintech-adoption-index.pdf
10. Financial Stability Bord - Monitoring of FinTech, available at: http://www.fsb.org/what-we-do/policy-development/additional-policy-areas/monitoring-of-fintech/
11. Kate J.; (2019) - What do investor should look before investing in p2p lending, available at: https://www.quora.com/What-do-investor-should-look-before-investing-in-p2p-lending
12. Knežević, S., Mitrović, A., & Sretić, D. (2018). Specifics of reporting on cash flows in insurance companies. *Hotel and Tourism Management*, 6(2), 21-33. doi: 10.5937/menhottur1802029K

13. Peters, G. W., & Panayi, E. (2016). Understanding modern banking ledgers through blockchain technologies: Future of transaction processing and smart contracts on the internet of money. *In Banking beyond banks and money* (pp. 239-278). Springer, Cham.
14. Pierrakis, Y., & Collins, L. (2013). Crowdfunding: A new innovative model of providing funding to projects and businesses. Available at SSRN 2395226.
15. Pozzolo, A. F. (2017). Fintech and banking. Friends or foes?. European Economy–Banks, Regulation, and the Real Sector, Year, 3.
16. PWC (2016) - How FinTech is shaping Financial Services, Global FinTech Report
17. PWC (2017) – Global Fintech Survey, available at: https://www.pwc.com/gx/en/industries/financial-services/fintech-survey/report/data-explorer.html
18. Todorović, V., Furtula, S., & Durkalić, D. (2018). Measuring performance of the Serbian Banking sector using CAMELS model. *TEME*, 961-977.
19. World Bank (2017) - Global Findex database, available at: www.worldbank.org/en/programs/globalfindex
20. World Bank (2017) - Global Findex - Opportunities for expanding financial inclusion through digital technology, available at: https://globalfindex.worldbank.org/chapters/opportunities-expanding-financial-inclusion-through-digital-technology

THE COMPETITIVENESS OF TOURISM IN ROMANIA AFTER EU ACCESSION – REGIONAL ANALYSIS

Elisabeta Rosu[1], *Dan-Marius Voicilas*[2]

**Corresponding author E-mail:* dmvoici@yahoo.com

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ABSTRACT

Tourism is dependent on the existence of natural and antrophic resources. Because Romania is characterized by great variety and diversity of these type of resources, we want to study the evolution and attractiveness of tourism and how it was influenced by the EU accession. The analysis is focused on two important touristic regions of Romania, namely Nord-Est and Sud-Est. For this approach, we use the comparative analysis, in dynamics, of the main indicators used in tourism activity, based on statistical data at regional and national level. The results of the analysis will highlight the potential and attractiveness of tourism and the advantages of Romania's EU membership.

Introduction

With balanced relief and accessible geographic location, Romania meets all the conditions to become a competitive tourist attraction not only at regional level, but also at international level. In Romania, "there are rich natural and anthropic resources, with various and diverse objectives of national and international interest, with special landscape areas, with natural reserves and protected areas" (Voicilas, 2017). The various forms of relief give Romania a great variety of natural tourist attractions. "The complexity of natural tourism potential and attractiveness are closely correlated with the particularities of topography and climate" (Niță, Niță, 2008). In the same time, there are different antrophic attractions in all its regions, with different historical influences that make them attractive. "The anthropic tourism potential of a tourism destination sums up people's achievements throughout the history, materialized into elements of culture, history, art and civilization, which are attracting tourist flows" (Stănciulescu, Micu, 2009). There are cultural and architectural influences, or other kind of influences from

1 Elisabeta Roşu PhD, Senior researcher, Romanian Academy, Institute of Agricultural Economics, Bucuresti, Romania, Calea 13 Septembrie no.13, sector 5, betty_rosu@yahoo.com, ORCID ID: 0000-0003-2100-3481

2 Dan-Marius Voicilaş, Assoc. Prof. PhD, Senior researcher, Romanian Academy, Institute of Agricultural Economics, Bucuresti, Romania, Calea 13 Septembrie no.13, sector 5, dmvoici@yahoo.com, ORCID ID: 0000-0003-3411-8958

Slavic world in East regions of Romania, Germanic world influences in West regions of Romania or Balkan and Turkish influences in South regions of Romania. With all of these conditions, the Romanian tourism after 1989 did not progressed "despite its high potential for tourism, Romania is not yet able to develop an efficient tourism" (Popescu, 2016). There were many factors that influenced the decline. Among them, we want to mention the lack of investments and marketing and "the absence of a general policy for tourism sector management and orientation" (Romanian Government, 2007).

The transition process from state-controlled tourism to private business was a challenge for the entrepreneurs from many points of view, in a very competitive world. There are strengths and weaknesses, but also opportunities and challenges that the Romanian entrepreneurs must face. Slowly, since 2000, after Romania started the European Union (EU) accession negotiations, tourism industry received much more importance, both from investors and state administration points of view, as well "potential exists, but without the involvement of central and local authorities it is not possible to develop a well-defined tourist accommodation network" (Stanciu, 2007). A positive influence in this process had the possibility for entrepreneurs to access the pre-accession funds for tourism activities. It was a very useful period for start-up business and diversification and modernisation of existing investments, a welcomed preparation for the next stages, the EU membership and the tough competition from the EU member-states.

The objective of this paper is to analyse the tourism activity after Romania joined the EU, as the EU membership has created new development possibilities. We want to identify the main factors of influence of the tourism activity in Romania and for the purpose of this study, we chose two regions, which differ from each other and are much diversified from the tourism point of view, namely Nord-Est (North-East, NE) and Sud-Est (South-East, SE), considered representative. In the same time, we want to identify the main measures that are necessary to improve the present state of the sector, which are the best practices, policies and strategies that can help the sector to reach a competitive level in EU.

Materials and methods

The methodology comprised the statistical analysis of primary data using Excel quantitative analysis program as working tool. The statistical data on which the analysis was based were national data and data for two development regions: NE and SE, which covered the period 2007-2015 and had the following sources: i) statistical data from the National Institute of Statistics (INS) available online - www.tempo-online; ii) the web sites of the North-East and South-East Regional Development Agencies; iii) other official sources. The first part of the study contains a brief characterization of the two development regions, and we focus on the natural and anthropic potential; the second part contains the analysis of the main indicators of the tourism activity: tourist receival structure, tourist accommodation capacity in operation, tourist arrivals and overnight stays. On the basis of these synthetic indicators of tourism activity we calculated:

a. net utilization index of the tourist accommodation capacity in operation, according to the formula: $I_n = (N/C_f) \times 100$, where: I_n is the net utilization index of the tourist accommodation capacity in operation; N is the number of overnight stays in a certain period; C_f is the tourist accommodation capacity in operation;

b. average length of stay, according to formula: DM = (Nin/Ns), where: Nin is the number of overnight stays, and Ns is the number of tourist arrivals in a certain period.

The study also starts from the authors' previous research works, among which we would like to mention Kravtsiv, Borshchevskyy, Voicilaş, Rusu, 2015, Voicilaş, 2017 and Roşu, 2016.

Results

The analysis of specific indicators for the tourism activity in the two regions of Romania in the period 2007-2015 highlighted the evolutions registered and led to a series of conclusions. The two regions, with extremely different natural and anthropogenic potentials, have evolved from a different tourism point of view. Thus, from the point of view of the analysed indicators, in many cases the South-East Region has evolved in the opposite direction to the North-East Region, having most often a positive trend. The same opposite and positive trend were also noticed as compared to the evolution of the same indicators at national level, which justifies us to say that this region has some clear comparative advantages. Moreover, the two indices calculated at the end of the article (net use index of accommodation capacity and the average length of stay) come to tally with the conclusions outlined above. What factors influenced these developments, also in which way and proportion, will be analysed and detailed in the chapters of this article.

Discussions

Tourism potential of the development regions North-East and South-East

Description of regions

The North-East Region borders on Ukraine in the north, on the South-East Region in the south, on the North-West Region in the west and on Republic of Moldova in the east. Its total area is 36,800 km^2 and consists of 6 counties: Bacău, Botoani, Iai, Neamț, Suceava and Vaslui. It is the largest among the eight development regions of Romania, both in terms of area (15.5% of Romania's total area) and of population, accounting for 16.5% of the country's total population in 2015 (INS).

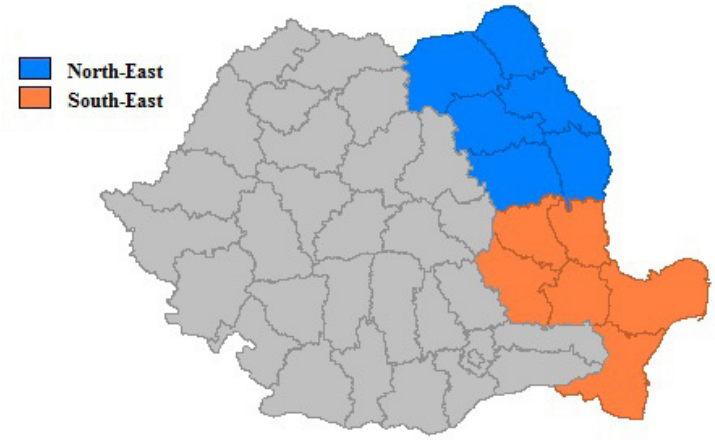
The relief of the region is characterized by a mix of three relief units: about 30% mountains, 30% hills and 40% plateau. The different relief units create climate areas with significant differences between the mountainous, hilly and plain areas.

The hydrographical network consists of eight major water courses, among which the largest hydrographical basins are those of the Siret and Prut rivers, the latter

forming a natural border between Romania and the Republic of Moldova (North-East ARD, 2014).

The region South-East borders on the North-East Region in the north, on the Centre Region in the west, on the Sud-Muntenia Region and Bucharest-Ilfov Region in the south-west and on the Republic of Moldova, Ukraine and the Black Sea in the east. Its total area is 35,762 km^2, covering 15% of the country's total area; it is the second largest region in the 8 development regions of Romania. The region has 6 counties in its componence: Brăila, Buzău, Constanța, Galați, Tulcea and Vrancea. In the year 2015, the region's population accounted for 12.5% of Romania's population (INS).

Figure 1. Map of North-East and South-East Regions



Source: own representation based on GIS software GeoDa

All the relief units can be found in the South-East Region: river plain (the Danube River Plain), plain (Bărăgan Plain), plateau (Dobrogea Plateau), mountains (the Carpathians Mountains – the Carpathians and the Curvature Sub-Carpathians, Măcinului Mountains). The region's climate is of temperate continental type, yet with significant variations depending on the relief. The region is crossed by Danube River and it is bordered by the Black Sea coast in its eastern part, with a length of 245 km. At the place where the Danube flows into the Black Sea, the Danube Delta was formed, which, together with the Black Sea, are specific only to this region (South-East ARD, 2014).

Natural potential in the two regions

In the North-East Region the history, culture and tradition complement the extremely attractive natural environment.

There are many natural reserves and nature monuments in this region, protected natural areas of national interest, and 3 out of the 13 national parks of Romania, namely: National Park "Călimani Mountains", National Park "Cheile Bicazului-Hăşmaş",

National Park "Ceahlău". The natural reserves and nature monuments from the region North-East, 126 in number, lies on 49,183 ha. The ecologic network "Natura 2000" comprises 55 natural areas.

The climate of the region North-East is suitable for therapeutic treatments, including areas with a tonic, sedative and saline bioclimate. The balneary factors are valorised by numerous sources of therapeutic mineral waters used in internal and external cures, the therapeutic gases (used for the treatment of cardio-vascular diseases) and the saltwater springs (Vatra Dornei, Slănic Moldova, Târgu Ocna, Sărata Băi, Durău, Câmpulung Moldovenesc, Gura Humorului, etc), which add to the existence of two salines (Târgu Ocna and Cacica) that enjoy a specific microclimate for the treatment of respiratory diseases.

The North-East Region has a rich vine growing tradition, recognized both nationwide and worldwide, with renowned vineyards (Cotnari, Bucium, Huşi), wine tasting centres and wineries (North-East ARD, 2013).

The South-East Region has a very rich natural heritage comprising protected areas, the only seaside and delta areas from Romania, therapeutic lakes and springs, together with unique natural sites in Europe (the Danube Delta and the Muddy Volcanoes).

The South-East Region ranks first in Romania as regards biodiversity conservation: on one hand, it is the region with the largest natural protected areas from Romania (45% of total natural protected areas), and on the other hand 35% of the region's area is covered by natural protected areas. There are 144 natural protected areas of national interest on the region's territory, including a biosphere reserve (Danube Delta Biosphere Reserve), a national park (National Park "Măcinului Mountains") and 3 natural parks (Natural Park "Balta Mică a Brăilei", Natural Park "Prutul de Jos" and Natural Park "Putna-Vrancea"). The Danube Delta has a triple status: Biosphere Reserve, Ramsar Site and World Natural and Cultural Heritage Site. The Community Network "Natura 2000" comprises 133 sites, out of which 80 Special Areas of Conservation - SCI and 53 Special Protected Areas - SPA.

The region's climate is suitable for different therapeutic cures, starting from the Black Sea coast adequate for the treatment of rheumatic diseases and ending up with the mountain area in its northern part, with a clean and tonic bioclimate adequate for the treatment of respiratory and nervous system diseases. The mineral water springs with different properties, together with the therapeutic mud from lakes (Balta Albă, Lacul Sărat) represent important natural curative factors.

The most renowned vineyards and wine centres from Romania are located on the region's territory (Murfatlar, Odobeşti, Panciu, Nicoreşti, Pietroasele, etc), the region ranking first in Romania as regards the area under vines on bearing.

Anthropic potential of the two regions

The North-East Region has 4003 historical monuments[3] that include archaeological sites, buildings of historical and archaeological interest, memorial houses, and religious monuments. There are quite an impressive number of churches and monasteries in the region, which besides a religious and cultural value also have a great historical and architectural value, preserving their beauty after more than 450 years. Eight churches on the region's territory are in UNESCO world heritage. Besides these, we can also find in the region: fortresses (Seat Fortress of Suceava, Neamț Citadel), princely courts (Princely Court of Suceava, Princely Court of Piatra Neamț), palaces (Ghica Palace, Princely Palace of Alexandru Ioan Cuza, Sturza Palace, Duke Palace), manor houses (Cantacuzino manor house) and princely houses (North-East ARD, 2006).

The South-East Region is part of a space with a very rich history, which left behind a heritage of cultural vestiges and gave birth to a specific ethnical and cultural diversity. 3000 historical monuments are located here[4], the cultural heritage consisting of: historical vestiges (the Getic citadel Troesmis, the Roman fortress Dinogeția, Argamum citadel, the Roman citadel Halmyris, the Roman castrum Noviodunum, Enisala citadel, the Roman castra Carsium and Capidava, the Roman citadel Tropaeum Traiani, the Greek citadel Histria, the oldest attested town on Romania's territory, the archaeological site Tomis, the Greek citadel Calatis), religious establishments (Orthodox, Catholic, Greek-Catholic, Armenian, Evangelical churches, Orthodox monasteries and hermitages, mosques and synagogues,) as well as cultural establishments, monuments and museums (South-East ARD, 2014).

Due to the natural conditions, beautiful places, mainly in the mountains, together with the rich cultural, historical and religious heritage, which add to the folk traditions and customs, specific cuisine, tasting of wines from the regions' vineyards, both regions have high tourism potential, but "the essential requirement is that, this potential is best put into value by the suppliers of tourism products and services" (Rosu, 2016).

Indicators of tourist circulation

In this chapter, we investigate the main indicators of tourist circulation, and on this basis, we briefly outline the tourist trends in the two regions and the main factors that have determined the respective evolutions. Among the existing indicators, we selected the following: tourist receival structures, tourist accommodation capacity in operation, Romanian and foreign tourist arrivals, Romanian and foreign tourist overnight stays, net utilization index of accommodation capacity and average length of stay.

3 Grouped into two categories according to Romania's legislation into effect: historical monuments of national or universal value (category A) and historical monuments representative for the local cultural heritage (category B), according to the Ministry of Culture and National Identity, List of Historical Monuments, Order of the Minister of Culture no. 2828 of 2015.

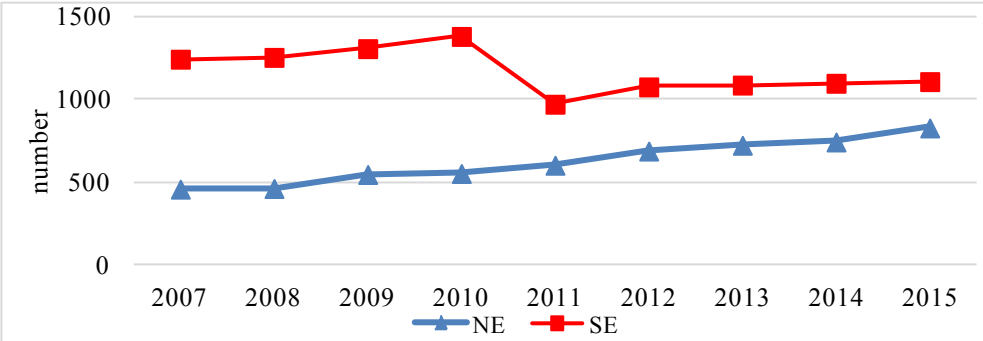
4 Order of the Minister of Culture no. 2828 of 2015.

In the investigated period, the number of tourists' receival structures was lower in the North-East Region than in the South-East Region, with an increasing trend for North-East and a decreasing trend for the South-East.

This decrease, which was manifested only in the year 2011, is explained by the effects of the legislative changes in that year regarding meeting the criteria of obtaining the (re)accreditation/ authorizations as tourism operators. These changes mainly affected the agro-tourism boarding houses, bungalows, tourist house-lets, motels, tourist villas, children camps that are mainly found in the Black Sea shore area.

In the year 2007, the tourist receival structures in the two development regions together accounted for 36.3% of total tourist receival structures at national level, while in the year 2015 they accounted for 28.5%.

Figure 2. Tourist receival structures with accommodation functions in the two regions



Source: based on INS data, www.tempo-online (TUR101D)

In the period 2007-2015 in the North-East Region the number of tourists receival structures significantly increased for all types of structures, except for camping and school camps. In the tourist receival structures, the tourist and agro-tourist boarding houses had the highest share, 61% of total in the year 2007; in the year 2015, their share increased by 4%.

The existence and mainly the increase in number of tourist and agro-tourist boarding houses in the North-East Region reveals the development of entrepreneurial spirit in the tourism sector. The tourist boarding houses and agro-tourist boarding houses in particular are in the rural area, and tourism activity in the rural area represents an economic alternative for the rural people. The existence of a great number of tourists' receival structures in the year 2007 is a consequence of accessing the European pre-accession programs (SAPARD). The fact that in the year 2015 the number of these categories of tourist receival structures grew significantly is a consequence of Romania's EU membership and of using the non-refundable financing for the tourism sector development.

In the investigated period, even though in the South-East Region the total number of tourists receival structures followed a decreasing trend, the number of hotels, hostels,

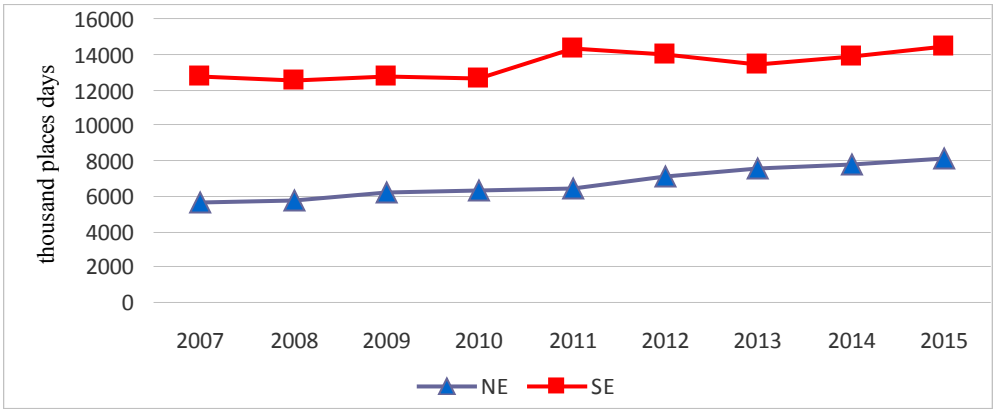
motels and tourist halting places increased. The remaining tourist receival structures decreased in number, except for the number of inns and holiday villages that remained constant in the investigated period.

In the South-East Region, the hotels prevailed in the tourist receival structures, accounting for 32.2% in the year 2007 and 37.6% respectively in 2015 in total structures. The tourist villas followed next, accounting for 28.6% in 2007 and 24.3% in 2015 of total tourist receival structures.

The accommodation spaces on river and sea vessels, along the Danube riverbanks, are specific to the South-East Region. The bungalows, made from wood or masonry, are tourism structures operating on seasonal basis. The great number of such structures, usually located on the Black Sea shore and in the Danube Delta, reveals the specificity of tourism practiced in these areas, namely summer tourism.

The tourist accommodation capacity in operation, representing the number of accommodation places put at the disposal of tourists, taking into account the number of days when the respective units are open, had positive evolutions in both development regions.

Figure 3. Tourist accommodation capacity in operation



Source: based on INS data, www.tempo-online (TUR103B)

In the North-East Region, under the background of the increase in the number of tourists receival structures and of the number of places in these structures, the tourist accommodation capacity in operation was by 31% higher in 2015 as compared to the year 2007.

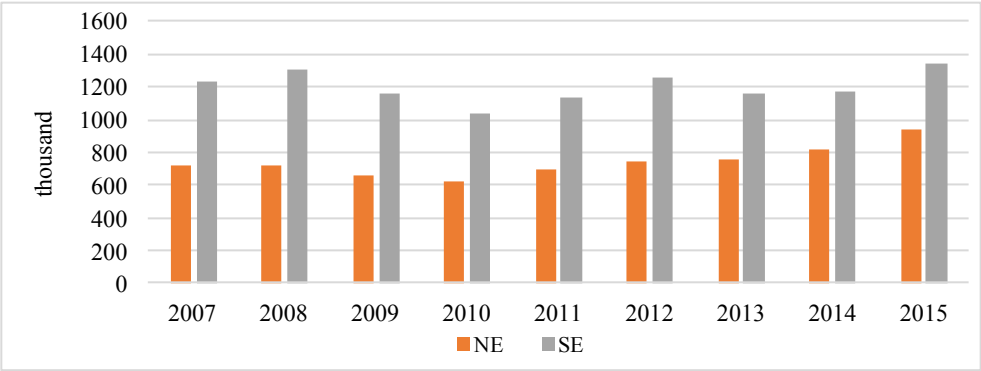
It is worth mentioning that in the South-East Region, even though the number of tourist receival structures and the number of places in these structures had a negative trend, the tourist accommodation capacity in operation in the period 2007-2015 had a positive evolution, which reveals that the tourist accommodation capacity has been more efficiently used in this region.

In the year 2015, the tourist accommodation capacity in operation was by 12% higher than in 2007 in the South-East Region.

The number of tourists who arrived in the South-East Region was higher than the number of tourists who arrived in the North-East Region. This is explained by the presence of the Black Sea and the Danube Delta, as tourist attraction points mainly in the summertime. Although fluctuating, the number of visitors was higher in the year 2015 than in 2007 in both regions.

In the two investigated regions, similarly to the trend nationwide, the number of tourist arrivals in the tourist receival structures had an increasing trend, except for the years 2009 and 2010. The economic crisis led to the compression of tourist circulation. In the year 2007, the number of tourist arrivals in the two regions accounted for 27.9% of total, while in the year 2010 this share was 23.1% of the total number of tourists at national level.

Figure 4. Tourist arrivals in Romania and in the two regions



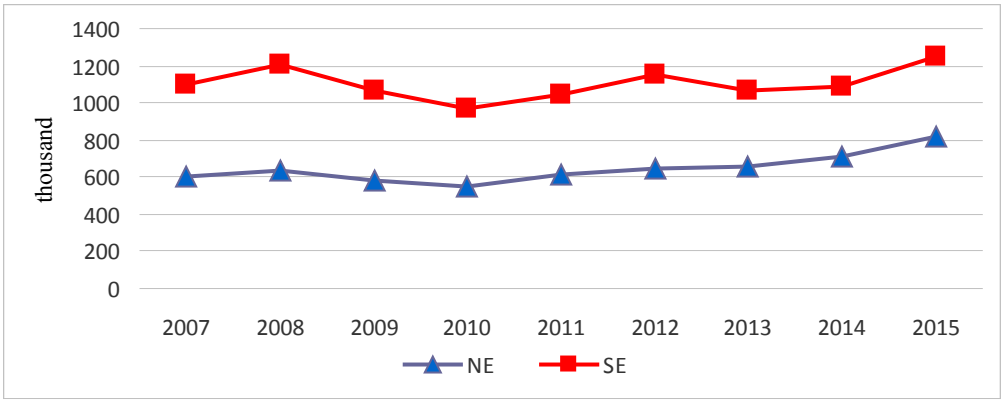
Source: based on INS data, www.tempo-online (TUR104B)

The number of the Romanian tourists who arrived in the two regions was clearly higher than the number of foreign tourists.

In the investigated period, the Romanian tourists were more attracted to visit the South-East Region than the North-East Region, which was proved by the much higher number of those who arrived at the seaside and in the delta. It is worth mentioning that the number of Romanian tourists who visited the two regions had a positive trend in the period 2007-2015, except for the years 2009-2010, when the economic crisis effects were felt.

The economic crisis also affected the flows of foreign tourists who visited Romania, with their number down by more than 40% in the period 2007-2010 in both regions under analysis.

Figure 5. Romanian tourist arrivals in the two regions

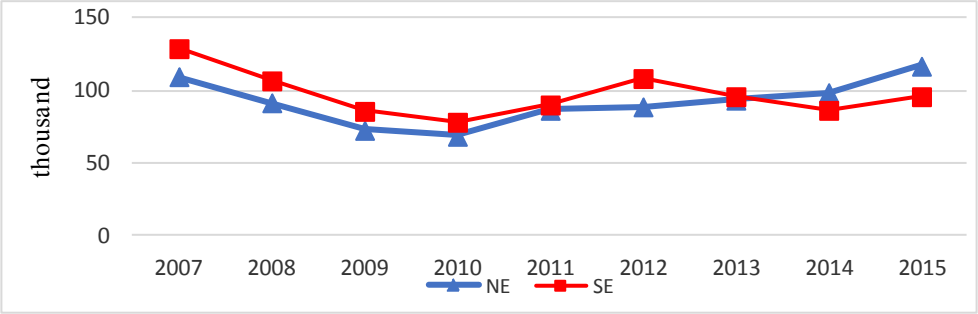


Source: based on INS data, www.tempo-online (TUR104B)

There was no significant difference between regions as regards the number of foreign tourists who chose to visit the two regions; yet we must mention that the region South-East was more attractive for these, except for the last two years, when the foreign tourist flows got reoriented from the Black Sea shore to other tourism objectives from the country, which were intensely promoted on the occasion of tourism fairs in recent years.

The number of foreign tourists who arrived in the South-East Region had an oscillating evolution, but in the year 2015 it was much lower than in the year 2007.

Figure 6. Foreign tourist arrivals in the two regions

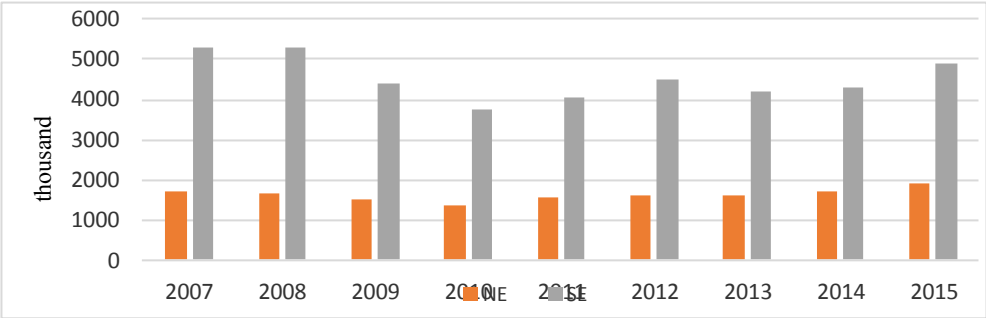


Source: based on INS data, www.tempo-online (TUR104B)

The number of tourists who stayed overnight in different tourist receival structures nationwide had an oscillating evolution; a similar evolution was also found at the level of the two development regions, in the South-East Region in particular, which has a high tourism potential, but much more exposed to fluctuations in tourists' preferences and expectations about accommodation services. Yet a difference exists. The North-East Region is less vulnerable as it has tourism attractions offered throughout the year, unlike the tourism seasonality specific to the seaside and the Danube Delta.

Throughout the investigated period, about one-third of tourists who stayed overnight in different tourist receival structures opted for the two regions, which reveals once again the tourism importance of these regions. In the year 2007, the number of tourists who stayed overnight in the two regions accounted for 33.9% of the total number of tourists at national level, and 29% in the year 2015. By comparison, a much higher number of tourists stayed overnight in the South-East Region than in the North-East Region.

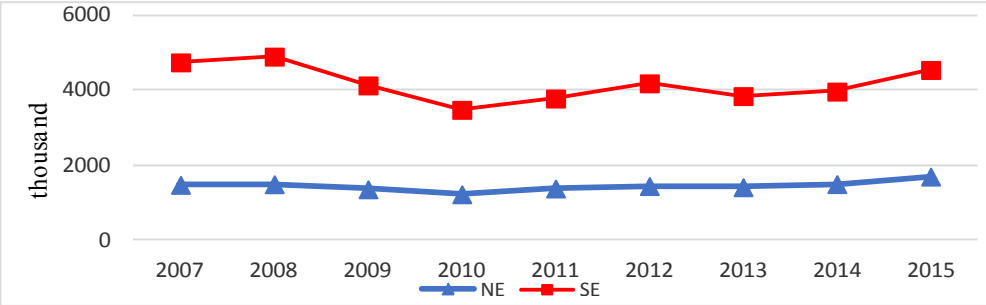
Figure 7. Overnight stays of tourists in Romania and in the two regions



Source: based on INS data, www.tempo-online (TUR105D)

The number of overnight stays of the Romanian tourists in the South-East Region was higher than that in the North-East Region. In the investigated period, in both regions, the number of Romanian tourists' overnight stays had a fluctuating evolution, significantly down mainly in 2009 and 2010, following the outbreak of the economic crisis. It should be mentioned that in the year 2015 the number of overnight stays in the South-East Region was closer to the maximum reached in the investigated period (2008), and the region North-East had the highest number, which reveals a revigoration of tourism activities.

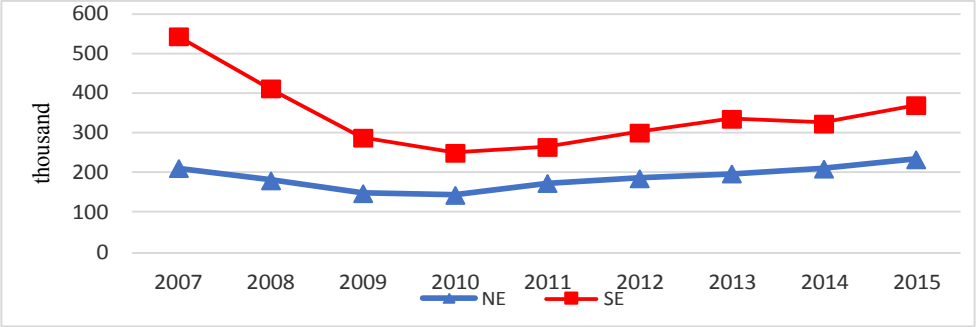
Figure 8. Romanian tourists' overnight stays



Source: based on INS data, www.tempo-online (TUR105D)

The number of foreign tourists who stayed overnight in different tourist receival structures in the South-East Region was noticeably higher than that from the North-East Region, as an effect of the richer and more attractive tourist offer, of more developed tourism structures and capacities. In the investigated period, there was an upward evolution in the North-East Region, to reach a maximum in the year 2015.

Figure 9. Foreign tourists' overnight stays



Source: based on INS data, www.tempo-online (TUR105D)

The number of foreign tourists who stayed overnight in the tourist receival structures in the South-East Region had an oscillating evolution instead, lower in 2015 as against 2007 and 2008, before the outbreak of the economic crisis. The decreasing number of the foreign tourists who opted to stay overnight in the South-East Region reveals a diminution of their interest to visit this region; the causes of this situation may be the quality of services and the relationship between the quality of services and the prices practiced.

The net use index of accommodation capacity, both nationwide and at the level of the two development regions, significantly decreased in the period 2007-2015. At national level, this index had a maximum value of 36% in the year 2007, while in the year 2015 it decreased by over 7%, to reach 28.7%. The same decreasing trend can be noticed for the net use index of accommodation capacity in the North-East Region, down by 7% (from 30.9% in 2007 23.9% in 2015) and in the South-East Region where it decreased by 7.7 % (from 41.8% in 2007 to 34.1% in 2015). This decrease of the net use index of the tourist accommodation capacity, both nationwide and at the level of the two development regions, indicates that a regress in the activities in this sector took place. The decreasing level of the net use index of accommodation capacity may be attributed to the negative effects of the economic and financial crisis that led to the diminution of population's incomes and to the contraction of demand for tourism services implicitly.

Table 1. Net use index of accommodation capacity in Romania and in the two regions (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
RO	36.0	35.0	28.4	25.2	26.3	25.9	25.1	26.1	28.7
NE	30.9	29.3	24.5	21.6	24.2	23.0	21.4	22.1	23.9
SE	41.8	42.5	34.7	29.7	28.3	32.1	31.3	30.9	34.1

Source: authors' own calculations based on INS data

In the North-East Region, the low net use index of accommodation capacity, as against the national average and the other analysed region, also indicates other causes, such as: low accessibility to certain tourism zones, poor quality of services provided in certain tourism areas, unequal modernization of existing infrastructure, poor promotion of existing tourism potential.

The net use index of tourism accommodation capacity in the South-East Region was clearly higher than that in the North-East Region throughout the investigated period. Moreover, in the South-East Region this index value was higher than the national average. The calculated values show that tourists are more attracted by the picturesque areas of this region, by the much more varied tourist offer and by the adequate conditions, which make them opt for this region as tourism destination. At the same time, the removal of inadequate structures and focusing the investments on those activities attractive for tourists led to a more efficient tourism in the region.

In the South-East Region, the average duration of tourists' stay was noticeably higher than that in the North-East Region and the national average.

The average length of stay, both nationwide and in the two regions had a decreasing trend. A short length of stay reveals a high mobility of tourists, their program including visits to several places, but with shorter stays in the same area. At the same time, this situation also has some other causes, factors that have contributed to the recent evolutions, namely: low incomes in the investigated period, poor quality of services for certain accommodation structures, diversified supply, both at national and international level, modification of tourism consumer behaviour.

Table 2. Average length of stay in Romania and in the two regions (number of days)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
RO	3.0	2.9	2.8	2.6	2.6	2.5	2.4	2.4	2.4
NE	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.8	1.8
SE	3.9	3.7	3.6	3.3	3.3	3.3	3.3	3.4	3.4

Source: authors' own calculations based on INS data

This type of stay is the equivalent of itinerant or circulation tourism. On the other hand, a longer length of stay reveals a lower mobility of tourists. This type of stay is equivalent to stay tourism and can be longer or shorter.

Conclusions

The two regions, North-East and South-East, are the largest regions of Romania in terms of surface area. On the territory of both regions there is a harmonious combination of relief forms, which gives the climatic specificity of the various areas.

In both regions, history, culture and tradition complement the natural environment, particularly attractive. Both in the North-East region and the South-East region there are numerous nature reserves and monuments, protected natural areas of national and international interest. Special factors in both regions are suitable for treating a wide range of conditions. Internally and internationally recognized viticulture areas are present in both development regions. The existence of the Black Sea coast and the Danube Delta on the territory of the South-East Development Region gives it a unique status in this region. All of this is an asset for tourism development, which is an

important activity in a region's economy because "economic and social development is combined with tourism development" (Hontus, 2014).

The analysis of the main indicators of tourist activity in the two regions, during 2007-2015, highlighted certain aspects, synthetize below.

In the North-East Region the tourist receives structures had an upward trend in the period 2007-2015, while in the South-East region the trend was like that at national level, i.e. a downward trend. By comparison with the national level, an extremely important share of tourist receives structures was found in the two regions, in the investigated period.

The analysis by types of tourist receives structures revealed significant differences between the two regions: in the North-East Region the tourist and agro-tourist boarding houses prevailed, while the hotel and tourist villa structures prevailed in the South-East Region.

In the investigated period, the tourist accommodation capacity in operation followed an increasing trend in both regions.

In the year 2015, the number of tourists who arrived in the two development regions was higher than in 2007, a similar trend to that at national level. In the South-East Region, the number of tourist arrivals was higher compared to that in the North-East Region, while the number of Romanian tourists who arrived in the two regions prevailed.

The two indices that were calculated based on statistical data revealed the following:

- The net use index of accommodation capacity in the South-East region was higher than that of the North-East region and the national index. In dynamics, this index decreased both nationwide and in the two regions.
- The average length of stay had higher values in the South-East region, by comparison with the North-East region and the national average. Yet in dynamics, this index also decreased both nationwide and in the two investigated regions.

The fact that the net use index of accommodation capacity in the South-East region was higher than that in the North-East region and even than the national one means that the tourist potential of this region was much better capitalized. The downward dynamics of this cumulative indicator for the evaluation of the results of the tourism activity show that the tourism potential was used with low efficiency during the analysed period, both at the level of the two regions and at the national level.

Tourism in the two regions was affected by the absence of a general policy of guiding the sector. In order to correct this situation, it is necessary to promote both regions as tourist destinations as effectively as is possible and, thus, measures are needed in order to increase their recognition on the domestic and international tourism market, which is mandatory in the context of a strong international competitiveness. These actions should be the responsibility of the Ministry of Tourism and its territorial agencies. A strong marketing activity using all media channels are needed. The marketing must reach specific tourists/clients (targets) having in view the type of tourism promoted

and which niche the local and national authorities choose to develop. Also, a strong marketing from investors is useful, both activities, from investors side and from state side having a synergy with the same final goal, a high level of competitiveness.

Government financial support by specific programs, coupled with EU tourism programs and private initiatives, will increase the competitiveness of the sector, both nationally and regionally.

These are the main ways that the Romanian tourism industry must follow to transform, develop and modernise itself, in a short period of time. The effects of the EU pre-accession funds and programs proved the above-mentioned ideas. The evolution of the Romanian tourism before the EU accession is a good example that, there are positive results when the investors and the authorities follow the same way and have the same objectives. In the same time, our analysis of the tourism evolution after the EU accession proves that, the positive results are directly influences only by the investors' initiatives and authorities' attitude on one side, and on the other side there are negative direct influences only from external factors' pressure, like international economic and financial crisis.

Conflict of interests

The authors declare no conflict of interest.

References

1. Hontus, A. C. (2014). Analysis of tourism demand and supply–One of the essential elements of an area in tourism planning. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, *14*(1), 147-152. http://managementjournal.usamv.ro/pdf/vol4_1/Art23.pdf
2. *INS database*. Retrieved January-March 2018 from www.tempo-online
3. Kravtsiv, V. S., Borshchevskyy, V. V., Voicilaş, D. M., Rusu, M. (2015). *Rural areas of the Ukrainian-Romanian borderland: socio-economic development*. Institute of Regional Research named after M.I. Dolishnij of the NAS of Ukraine. ISBN 978-966-02-7866-0
4. Niță, I., Niță, C. (2008). *Romania's touristic market. Realities. Mechanisms. Trends*. Economic Publishing. ISBN 978-973-709-395-0
5. *North-East ARD.* (2014). North-East Regional Development Plan 2014-2020, Retrieved February 15, 2018 from http://www.adrnordest.ro/
6. *North-East ARD.* (2006). North-East Regional Development Plan 2007-2014 (Chapter 1.6. Tourism), Retrieved February 15, 2018 from http://www.adrnordest.ro/
7. *North-East ARD.* (2013). North-East Regional Development Strategy 2014-2020, Retrieved February 20, 2018 from http://www.fonduri-structurale.ro/

8. Popescu, A. (2016). Research on the economic efficiency in Romania's tourism. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, *16*(1), 411-416. http://managementjournal.usamv.ro/pdf/vol.16_1/Art64.pdf
9. Roşu, E. (2016). The tourism potential of Suceava county. *Agricultural Economics and Rural Development*, *New Series*, *XIII*(1), 107-118. https://ideas.repec.org/a/iag/reviea/v13y2016i1p107-117.html
10. *Romanian Government, Ministry of Culture*. (2015). Order of the Minister of Culture no. 2828 of 2015, Retrieved March 10, 2018 from http://www.cultura.ro/lista-monumentelor-istorice
11. *Romanian Government. Ministry of Public Works, Development and Administration. (2007).* Master Plan for national tourism of Romania 2007-2026, Retrieved March 5, 2018 from https://www.mdrap.ro/turism/studii
12. Stanciu, P. (2007). Study of tourist accommodation in the Suceava district. *Revista de Turism*, (4), 48-53.
13. Stănciulescu, G., Micu, C. (2009). *Economy and management in tourism*. *Problems, projects and case studies*. C.H. Beck Publishing. ISBN 978-973-115-487-9
14. *South-East ARD*. (2014). South-East Regional Development Plan 2014-2020, Retrieved March 10, 2018 from http://www.adrse.ro
15. Voicilaş, D. M. (2017). Opportunities and threats in North East Romania-SWOT analysis in Suceava and Botoşani counties. *Agricultural Economics and Rural Development*, *New Series*, *XIV*(2), 175-184. https://ideas.repec.org/a/iag/reviea/v14y2017i2p175-184.html

MARKETING RESEARCH IN THE FUNCTION OF BUSINESS EFFICIENCY

Nedeljko Prdić[1], Boris Kuzman[2], Jelena Damjanović[3]

**Corresponding author E-mail: jelenaschoolofbusiness@gmail.com*

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ABSTRACT

The aim of this work paper is to suggest efficient model of business efficiency in agro industrial products commerce, by integration of marketing mix instruments – product and price. Marketing research provides solid bases for foundation of good and efficient management moment, as an assumption of good market position. Based on determined goals and research objects, using qualitative methods of marketing research, the goal is the establishment of functional model of business efficiency. Another aim is to establish efficient communication model for interested parts, on relation service provider (enterprise), retailer, buyer and consumer in agro industrial products commerce within special market institutions (wholesale markets).

Introduction

Having in mind the significance of specialized market institutions in agro industrial is complex, during determination of work papers' goals, the accent is put on strategy of using these institutions (wholesale markets) as place of meeting supply and demand of agro industrial products, emphasizing that such institutions are obsolete. The intention is to point out the development of wholesale markets in the world, since they enable efficient meeting of supply and demand of goods, and to present the possibility for creation of such market conditions on domestic market too.

The object of analysis in the sense of commerce is related to agroindustrial products commerce, primarily fruits and vegetables as most important products in commercial sense, observed from the aspect of sold quantities and also mutual dependence between employer (enterprise) – service buyer (retailer), final consumer (buyer or consumer). Having in mind

1 NedeljkoPrdić, Ph.D., Assistant Professor., JKP Tržnica, 4 Žike Popovića Street, SRB-21000 Novi Sad, Serbia, Phone: +381 63 500 818, E-mail: ekonomistdoo@sbb.rs, ORCID ID https://orcid.org/0000-0003-3199-1188

2 Boris Kuzman, Ph.D., Associate Professor, Institute of Agricultural Economics, 15 Volgina Street, SRB-11060 Belgrade, Serbia, Phone: +381 63 590 129, E-mail: kuzmanboris@yahoo.com, ORCID ID https://orcid.org/0000-0002-8661-2993

3 Jelena Damnjanović Ph.D, School of business, Novi Sad, E-mail: jelenaschoolofbusiness@gmail.com, ORCID ID https://orcid.org/0000-0001-8692-3751

the importance of wholesale markets in selling system of product, the accent is on elements of business efficiency strategy, and the influence of individual and integrated marketing mix instruments on business efficiency. The model which represents the significance of agro-industrial products commerce and its contribution to business effects, puts the marketing mix instruments in frameworks that enable efficient usage of these instruments for securing competitive market position of seller and service provider (wholesale markets) for achievement of business goals. On the other side, this model enables the satisfaction of market needs, in the function of satisfying needs of buyers and consumers. In domestic literature, there are many works that theoretically and practically deal with agro industry problems. However, there is a lack of works that strategically point out the significance of wholesale markets for increase of commerce and business efficiency of domestic enterprises.

Methods – goals and assumptions of research

The assumptions of research originate from set aims based on defined research problem. These assumptions are starting points for relevant research conduct that would lead to acceptable recommendations or conclusions. The first set hypothesis has aim to form such model of acceptable prices, renting of selling places, business offices and other objects that serve for achievement of enterprise income and interest of sellers.

H1: The more acceptable the price of selling places, the greater effects of income increase of enterprise and sellers of products.

The other hypothesis has an aim to establish efficient model of marketing communications with business space renters (sellers), service provider (enterprise) and buyers and consumers as final users.

H2: *The greater extent of communication integration between service provider (enterprise), service user (sellers) and consumers, the greater is the efficiency of business.*

The intention is to use theoretical methods of observation and marketing research methods and prove set hypotheses and achieves concise theoretical consideration of the problem, with adequate conclusions that will explain the essence of business relation employer – renter, buyer – consumer, in order to increase the sales and improve business efficiency. The aim of this work paper is to establish economic efficiency model, and model communication efficiency, which practice implementation in the sense of integration and direction to buyers, will create credible model of business efficiency.

For proving the hypothesis and to gather data of commerce state in agro industry, the data gathering is performed on retail markets and wholesale markets of agro industrial products, in order to prove set hypothesis, for increase of business efficiency using marketing mix instruments. Performed researches are based on usage of special methods of cognition and marketing research methods that are adjusted to research problem needs. Special methods used in the work are methods of analysis and synthesis, method of logical deduction and quantitative methods. In marketing research, the comparative method is used. It is composed from two methods: historic method and examination method. Historic method is used for gathering

data and information from secondary sources, professional and other public, and the author's research based on theoretical and practical experience with special market institutions (fairs, wholesale markets, bazaars), while examination method i.e. terrain investigation is used to gather qualitative data and information. The intention is to prove set hypotheses and to achieve concise theoretical consideration of problem and adequate conclusions that will explain the essence of business relation between service provider, seller and final user, for improvement of selling and communications in order to increase business results.

Basic elements of business efficiency strategy

The importance of agroindustrial product commerce

The importance of agro industrial products within total products market takes special place, due to specificity of production process in agriculture. The importance of commerce of agro industrial products is realised by distribution and sale of products within system of wholesale markets. For the relevance of analysis of agro industrial products, there is a presentation of the enterprise that rents space for commerce of these goods.

Table 1. Revenue generated from renting space on retail market

Month / year	2010	2011	2012	2013	2014	2015
1-4	17.659.071	18.546.764	19.197.896	21.652.221	20.514.728	20.832.655
5-8	24.593.225	24.852.750	26.048.494	29.231.468	25.833.324	25.591.548
9-12	19.980.434	20.167.205	22.164.321	22.032.445	20.734.782	20.648.538
Revenue	62.232.730	63.566.719	67.410.711	72.916.134	67.082.834	67.072.741

Source: "Periodic Income Statement for the period 2010-2015. year ", TKPTržnica, Novi Sad

Based on data from previous table we may conclude that income generation of actual enterprise (service provider) is on maximum in period from May to August. In this period, possibilities for commerce are increased and other circumstances are better. It is necessary to mention that result of income increase of five million dinars during 2013 is the result of renting price increase of 3%. Based on practical knowledge of author of this work paper in sense of intuition and objective observation of market conditions and competition, it is necessary to harmonise marketing instruments, product (service), acceptable prices of services (products), and different instruments of marketing communications.

Evaluation of markets is performed with the aim to gather information that may be base for creating the model of markets categorisation. Key criteria are:

- Place where market is settled, regarding its attractiveness for greater number of sellers and buyers (central market or central markets, if there is more than one),
- Size of infrastructure facilities(open or covered, finery amortisation rate, number of refrigerated cabinet, number of units, sanitary conditions, drinking fountains, parking spaces and so on)
- The number of potential users (Duvnjak, 2013).

Table 2. The most efficient forms of business income generating for service provider (enterprise)

BUILDING OF MODERN TRADE CENTRES – OPEN AND CLOSED TRADE PLACES FOR FRUIT AND VEGETABLES, AND OTHER AGROIDUSTRIALPRODUCTS – WHOLESALE MARKETS – WHOLESALES OF AGRO INDUSTRIAL PRODUCTS
Renting business and other areas by acceptable prices
Provision of adequate closed and opened areas for commerce
Efficient organisation of external and internal traffic
Building system for product preservation for longer period of time – freezing – cooling
Business strategy based on long term mutual interests

Source: Research results for requirements of this work

Economic efficiency of revenue obtaining depends of readiness of service provider to create such business conditions that may enable wholesales to sell their products (fruit and vegetables) by acceptable price with achievement of maximum income. Commerce of agro industrial products on wholesale markets, demand additional conditions that service provider has to fulfil, and that will affect the revenues of seller and satisfaction of consumer in retail sales and practical value for consumer as final user (Table 2).Modern way of trade has brought changes in the sense of organisation of wholesale markets as commerce areas, internal and external traffic as conditions for creation of greater trade centres for these products. Great competition in forms of supermarkets, big commodities centres in which sale point is possible to find fruit and vegetables and imported products, may greatly influence on domestic production survival and development of this trade form. The importance of commerce on such sale places dates from ancient times and represents the first form of commerce on public places. The market are all relations of supply and demand made for goods and services exchange, in defined time and on defined place. (Vlahović, 2013). Due to lack of financial assets, agriculture producers are often forced to sell grains strait after harvest, when the price is usually the lowest. (Zakić et al., 2014). Because of that, producers must take care about financial risk and financial assets (Kovacova & Kliestik, 2017; Valaskova, 2018; Kliestik et al., 2018)

Integration of product offers – through the development of agricultural clusters, strengthening farmers associations, the promotion of agricultural cooperatives; only by joining farmers have the ability to compensate for what each of them lacks (finance, procurement of cheaper inputs, modern machinery and technology), with a significant increase in their bargaining power – both in relation to the state, and in relation to the food industry, trade, exporters. (Paraušić et al., 2007). Wholesale market is special market institution in trading of wide spectre, primarily perishable agricultural food products and other similar products. Foreign experience in functioning has shown that the most important goods in wholesale market trading are: fruit and vegetable, meat (fresh), fish and flowers. Yet, the most often products on wholesale markets are fruit and vegetables. (Lovreta, 2008).

In market-developed countries, wholesale markets survive and develop in the context of changing market circumstances, as an essential link between production and consumption in the trade of agricultural products (Kuzman et al. 2018). With the development of trade, urban

infrastructure, competitive market, wholesale market location, and development strategies, they focus on the main roads on the outskirts of cities, for more efficient transportation, traffic congestion, pollution and noise, but also create conditions for competitive advantage over other distribution centres. (Kuzman et al. 2017). The conservation of food by freezing is performed by short and quick processing procedure, and significantly extends food durability and preserving the high quality of the food. (Vlahović et al., 2014).

All that gives the character to the wholesale market as intermediate place in trading. They are, beside producer, on the beginning of distribution chain of product placement. Wholesale market is primary agent in marketing channels of perishable goods that require special condition of storage and preservation. At the same time, it means that wholesale market as agent takes some functions in marketing channels, that are expensive to the others (since wholesale markets perform them at one place by economies of scale), or other intermediaries do not need to perform them, since they have opportunity to use wholesale markets (Lovreta, 2008). Agroindustrial products, primarily fruit and vegetables, may be incentives for agriculture sector development and one of contributors to better health of people, having in mind quality, freshness and controlled origins of products and standards that may contribute to development of more developed and specific industrial branches.

Marketing research based on marketing mix instrument concept

Research based on concept of product – service

In research for the needs of this work, the accent is on services provided by enterprises that rent business and other areas. It is their primary business and greatly contributes to their revenues. Incomes gathered by service selling make strong market position of enterprise – service provider, and also have certain influence on product sellers that use these spaces. The third, and the most important factor are buyers and consumers as product users, since their attitudes and purchases determine market position of seller and service provider. The quality is comparison the product or service to competitor's products and services, and based on familiar methods of quality checking, optimality of value and usefulness and other fact that may be useful for quality control of products and services. Quality of a product or service contribute to acceptable price that user is willing to pay for satisfaction of his or her needs. (Prdić, 2016).Safeness and quality of provided services, with all following elements, give basic conditions for selling products of high quality. The result is consumers' needs satisfaction. A consumer may buy quality product from famous and safe seller, on specific place. Product (or service) is a starting point of business efficiency model, based on marketing research that is necessary for service provider and trader of these goods.

Research based on price concept

The concept of prices as marketing instruments primarily arises because of synergy of all marketing instruments and other internal and external factors that may influence

the price as basic marketing mechanism in conversion of products (merchandise) in money. The essence of the research based on price concept originates from the fact that enterprise as market subject generates financial means planned on goals and mission of market business. Low prices enable preservation of strategic marketing position and predictable number of buyers and consumers on the market. (Prdić, 2016). Prices are one of the most important marketing mix instruments. Price presents the amount of money needed for purchase of product or service that would satisfy needs of service users and consumers, or consumers or buyers of products. When speaking about price as an element of quality products, it is necessary to mention that price level depends on product's quality and from determination of the company to keep its buyers by lower prices and to attract new buyers and consumers in order to generate higher incomes and better market position. The prices are key marketing instrument that influence product and service sales, market position and clearly defined strategy for marketing mix instrument, in order to achieve effects that contribute to efficient business. Meeting interests of service consumers and final satisfaction of buyers and consumers based on the perception and attitudes are basic roles of prices as marketing instruments, according to marketing researches. The price is one of the key marketing mechanisms that one may use to achieve marketing goals. (Cotler et al., 2008). Based on researches performed on Retail market JKP Tržnica, the most important instruments for business success of sellers are:

- Price for renting 45 %
- Location of business place 25%
- Permanent buyers 20%
- Traffic infrastructure 8%
- Other 2%

When it comes to tenants' views on the amount of rent they pay and how much it affects business efficiency, the answers are as follows:

- Yes – it affects it but it is not the most important factor 38%
- Yes - the lease price is a measure of our success 30%
- No - the most important is the customer purchasing power 25%
- Other 7%.

The importance of prices as marketing instrument is observed from the position of enterprise that sells services. Prices are also significant as a basic element of agroindustrial products sales. Marketing mix instruments are directly connected by prices as instrument that influences on revenues of the enterprise and on good communication with permanent and potential users of services and satisfaction of important interests of buyers and consumers. Given that the price of the business space has a dominant role in pricing, as well as the possibility of safe sales to permanent customers, we conclude that the price is

the dominant factor for business efficiency, that is, the hypothesis of the H1 research on the significance of the prices for business efficiency has been confirmed.

Integration of sales and prices

A good communication based on combination of high quality product and equivalent price, the efficiency in achievement of set economic and communication goals is realised. The final effect is improved business efficiency. When consumers buy a product, they exchange something valuable (price) for some other value (benefits of having or using product). The successful price determination oriented to buyers includes realization of value that consumers give to benefits of the products and determination of price suitable to such value. (Cotler et al., 2008).The most efficient instrument of marketing communication for attracting sellers to rent business places and selling points are:

- Opportunities for sellers income achievement
- Opportunities for recognition of location and product by buyers
- Strong marketing support of local printed and electronic media
- Efficiency in giving information to buyers and final consumers
- Marketing strategy of company based on the model of mutual interests of the company, seller (trader), buyers and consumers.

Selling agreement is the result of all activities and communication messages with the purpose to sell product or service, from the moment of first contact to the personal contact with seller and direct insight in products quality by the buyer and consumer that enjoys in high quality, acceptable, valuable and usable products.

Integration of sales and word-of-mouth

The most efficient selling instrument in the sense of assets invested for achievement of company's goals is service or product selling by word-of-mouth as the most direct way of communication, in the function of product or service sale on the market. The selling of agro industrial product is the most important segment of market positioning of the enterprise and the most significant indicator of business success. Personal selling directly influences on sales of the company. (Milisavljević, 2003).

The sales of products as marketing instrument, integrated with word-of-mouth in the sense of sales on selling point, is the approach in which seller and buyer determine mutual interest, based on certain quality and low prices, and also good communication that results with satisfaction of consumer as final market user.

Optimal level of price and efficiency estimation

The price level represents the market supply, and based on that we may measure and quantify the effect on sales and total business result. Price competitiveness makes relevant business strategy of "low prices" the significant factor of market advantage. If

prices are low, it is a serious competitive advantage in the sense of more sold products, and with loyal buyers contributes to positive business effects. It would not be objectively to think that measurement of product or service quality is easy to perform. It is especially hard to objectively observe quantitative and qualitative attributes that represents the product and influence its price. Measuring the success is realized by quality, structure and usefulness of the product, and by price, that represents the reflection of invested assets for obtained product.

Table 3. Economic efficiency model

ECONOMIC EFFICIENCY MODEL			
Interest of the enterprise (service provider)	Interest of seller (trader of products)	Interest of buyer (trader of products)	Interest of consumer (final user)
Effects on sales	Price of selling area	Acceptable price	Price and quality
Market positioning	High quality product	High quality product	Variety of supply
Strategic planning	Number of buyers	Repeated purchases	Location
Investments and maintenance	Quantity of sales	Sales channels	Reliable seller

Source: Research results for requirements of this work

When speaking about hypothesis that acceptable price enables income increase for the company, we may certainly argue that income increase for service provider (enterprise) contributes to strategic partnership between space renter (commodity trader) with service provider, and with higher number of retail traders, in final instance enable maximum of usage of business and other areas and income increase for the company.A solid bases and recommendations, with confirmation of research hypotheses about increase incoms of provider and user of services and costumers satisfaction,provide suggested model of economic efficiency, based on marketing researches about attitudes, perception and interests of consumers.

Research based on the concept of distribution channel (sales)

Distribution of agricultural products must be adapted to a number of changes in the market environment. The importance of the market for agricultural products as part of the overall market takes a special place due to the specific nature of the production process in agriculture. When it comes to research for the purposes of this work, the form of wholesale trade in agro-industrial products is represented by quantum markets and wholesale markets, and from the aspect of distribution channels as a marketing instrument, it will be seen as an integrated mix of marketing instruments. It should be noted that the law of supply and demand has a very sensitive function when it comes to agricultural products (Prdić, 2016). The economic interest of the company that carries out business and other premises, as a segment in the distribution of agro-industrial products, is significant from the aspect of maximum utilization of the available space.

Research based on the concept of integrated communication

A new approach to strategic management (enterprise) and consumer relationships implies the implementation of adopted generic and auxiliary strategies to keep the company in the market "game". The fact is that an increasing number of marketers in the marketplace are aware that the attitude towards consumers is very important, of strategic importance, and that it needs to be approached with great seriousness. Today there are really few retailers who do not emphasize the importance of the buyer in an effort to sell him a better product. The significance of customer orientation in markets is intensified through the concept of long-lasting cooperation in the form of loyalty and partnership with consumers (Prdić, 2014). When it comes to communication processes contained in the assumption of research, the intention is dual, theoretical, contained in elements of direct communication in the model of business efficiency, but also practical that shows the integrity, complexity, diversity and connection of the communication process among the important stakeholders contained in the elements of the business model efficiency. The effectiveness of a promotional message is achieved through the integrated approach of various marketing communication tools that make up one co-consistent and unique message to the targeted and other public. (Prdić, 2016).The intention is to work out, in fact, explain the essence of marketing communication in trade in agro-industrial products, in special or specialized market institutions such as wholesale markets, based on the adopted strategy of competitive advantage in relation to other segments of trade in these products, based on the principles and principles of marketing research and marketing communications.

Integration of sales promotion - personal sales and word-of-mouth

Sales promotion represents a systematic approach to the market based on the planned goals based on the interests of customers and consumers, after conducting research on market needs. Sales promotion is a very effective means of communication based on direct communication with relatively small assets. This type of promotion, combined with personal sales, enables the company more efficiency when it comes to sales and communication in relation to other mass communication tools. The sale is the most important instrument for the realization of the planned goals of travel marketing instruments and represents the satisfaction of the consumer or the customer for the acquired use value. It is not a rare case that terms of sale and negotiation are treated as synonyms. There is, however, the view that, although similar or even inseparable, sales and negotiation make various aspects of the sales task. (Pickton et al., 2001).Personal sales is one of the basic forms of marketing communication. At the same time, it is the only communication tool that is based on interpersonal communication. (Ognjanov, 2009). Personal sales are defined in the literature as face-to-face interaction with one or more potential customers in order to present the offer, to provide answers to questions and to obtain an order. (Kotler, 2003).Kindness to the client and efficient service can help keep clients as they build customer satisfaction and their commitment. It is estimated that client retention costs account for one fifth of the costs of acquiring a new client.

(Smith, 2002).Word-of-mouth is an instrument in the function of personal sales and sales promotion when it comes to researching this work, in the form of achieving good communication and its integration for the purpose of selling products and generating revenue to the enterprise and satisfaction of consumers when its interest is satisfied through the use of products as end users. The most important instruments that may contribute to purchase increase on Retail market, according to research performed on sample of 500 buyers in the same period, are:

- Acceptable price 43%
- Fresh and high quality product 28%
- Seller's location 15%
- High communication level with product sellers 14%

In research for this work paper, one of the most important goals is purchase of products from sellers (traders) on wholesaler forms of commerce, since that selling (personal sale, word-of-mouth) is the most important segment of seller – buyer relation. Successful communication (personal sale and word-of-mouth), contribute to increase of income of buyers, that may buy products by acceptable prices on chosen market segment (wholesale markets), and consumers have interest to buy products of high quality by acceptable prices and distribution channels, that enable availability in the sense of nearness of product supply.

Determination of optimal communication instrument

Communication instruments should be harmonised, integrated and supported by several different instruments to create unique message that may contribute to efficient communication and increase of economic effects. In order to understand the difference between different instruments of communication, the influence on purchase process has to be measured primarily. In research of integration of communication instruments for this work, their efficiency is valued on the bases of mutual dependence, between instruments of selling, direct selling and word-of-mouth on purchase process. It is about the buyer's reaction to agro industrial products supply (fruit and vegetables) and buyer's decision to purchase products from certain seller.

The role of direct selling in communication mix is influenced by the phase of buying and selling process. In particular, phases of buying and selling process, consumers differently value certain forms of enterprise communications. The buying and selling process itself, as a line of activities where buyer and seller are involved, for the needs of direct selling analysis, may be divided to phase before purchase, purchase and usage. (Vračar, 2007). Purchase process is the description of demand behaviour, analysis that marks the path that potential buyer has chosen before the purchase (needs recognition, identifying alternative products and provider's estimation and decision about purchase). (Prdić, 2018).

Table 4. Model of efficiency of communication

MODEL OF EFFICIENCY OF COMMUNICATION			
Enterprise (service provider)	Seller	Buyer	Consumer
Tenant (service user)	Buyers	Consumer centres	Frequency of sales
Distribution channels	Consumer centres	Consumer interest	Buyers attitudes
Buyers and consumers	Buying products	Product interest	Perception of consumers

Source: Research results for requirements of this work

When speaking about researches of communication efficiency, we need to mention that it is necessary to implement all of the elements of communication model, so that effect of a good communication would influence on business efficiency of the company, sellers and buyers. Integration of communication instruments achieves synergy effect in sense of realisation of mutual interests of companies, sellers, buyers and consumers, and confirms the research hypothesis that efficient marketing communication, contributes to better business results. About the communication instrument that are objects of research in this work, it is needed to stress that sales promotion, direct selling and word-of-mouth fall into most economical instruments of communication and their integration and implementation of communication model, contributes to economic effects increase, communication efficiency increase and results in business efficiency improvement.

Research results

The contribution of this work paper from the standpoint of efficiency of the enterprise (service provider), business place renting such as bazaars and wholesale markets, means that the enterprise should take all necessary elements in communication model with its tenants, in order to increase income. Namely, it is necessary to ascertain that efficient is the enterprise that achieves its economic goals on the market (generated income), and successful communication with tenants gives opportunity for generating new revenues for sellers. A good and successful communication with buyers and consumers offers possibility for existence of sellers on the market and contribute to market efficiency of the enterprise (service provider) within the efficiency model.

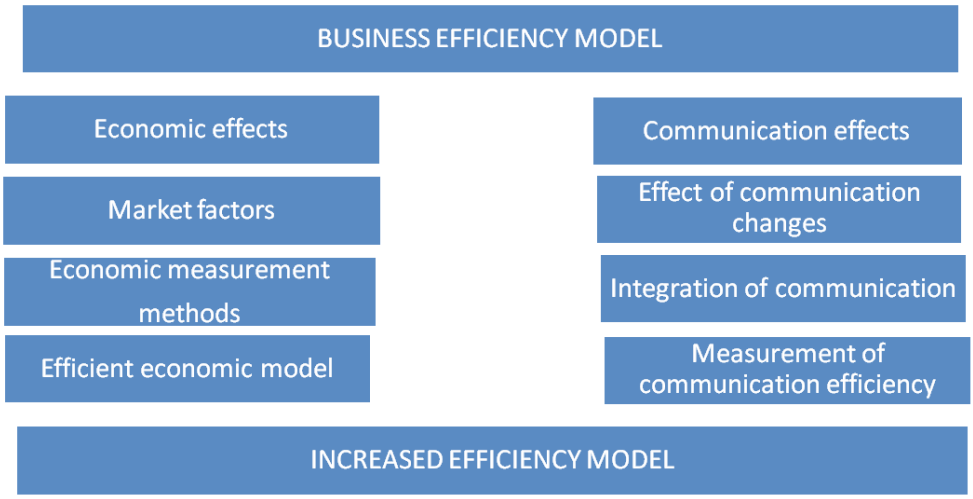
It is very important to appreciate specific requirements and wishes that imply adjusting of particular instruments of service marketing mix (Veljković, 2009).

Indeed, the efficiency is one of the key factors that determine business success of a company on the market, its position in comparison to competition and its strategic positions for market survival. We are efficient if we achieve our goals with the knowledge, better thanthe others, by better decision-making, market and market segments selection, great business knowledge, adaptation, flexibility and innovative and ethical business methods. (Prdić, 2018).Nowadays, the efficiency is one of basic factors that determine business success, market position and survival of a modern

company. Efficiency may be defined as a measure of fulfilled goals. (Prdić et al., 2014). The basic benefit for consumer is value of the product and its effect on the standard. Satisfaction of buyer is one of the most important competitive advantages on a free market of agro industry products. It is necessary to mention that competitive advantage of loyal buyer may be basic condition for taking a part or a greater segment of the market. Serbia should lead active policy of domestic agriculture production incentives, export and import protection of domestic production, according to conditions and rules of worlds market, WTO and EU, within CEFTA agreement. (Kuzman et al., 2013).

Based on theoretical and empirical researches for the cause of this work, it is concluded that the company that rents business place (wholesale market) may generate maximum revenues by using business efficiency model. The same model also works to product sellers within these market institutions and contributes to final consumer satisfaction, by using economic efficiency model and efficiency of communication model.

Figure 1. Business efficiency model



Source: Research results for requirements of this work

After conducting research for the purposes of this paper, based on the theoretical views of scientists in this field, their own experience and the experience of the authors of this paper, surveyed tenants of commercial space at the Kvantaška Market in Novi Sad on the importance of prices and other factors to the success of business, especially the importance of specialised market institutions such as are wholesale markets and marketplaces in countries with a large share of rural agricultural population, which Serbia belongs to, according to the data of the Business Association "Markets of Serbia" in the amount of over 80% prevalence, it can be concluded, that the future of the domestic agro-industry in trade in agricultural products lies in the development of these market institutions. Hypothesis H1 was confirmed by empirical research on the sample

of 500 sellers through a questionnaire when it comes to business success but also their views as (tenants) on the importance of rental prices on performance business. Previous views, specialist literature and the author's experience have contributed to the proposal of a cost-effectiveness model which confirms to H1 that by taking all steps in the cost-effectiveness model of a business, service providers can increase their revenues. Hypothesis H2 was confirmed on the basis of customer surveys, vendor attitudes and analysis of the provider's business (periodic balance sheet) as well as the views of experts in the field. Of course, the great experience of the author contributes to these views, when it comes to reaching certain conclusions for the future of these market institutions, but also contributes to both theoretical views and practical applications.

Conclusion

Based on the conducted research for the purposes of this paper, the conclusion is that companies that trade agro-industrial products or perform certain services in this type of trade should define the business strategy of marketing communication. The basic elements of such a strategy should be contained in the model of realization, economic revenues, as well as in the marketing communication model, in order to achieve the goals of the company on the market. The conducted research also confirmed the hypothesis of research, i.e. it has been proven that the optimized price is the most important instrument for renting space in the opinion of the sellers of goods carried out at the Kvantaška market in Novi Sad, which consequently means increasing the income to the service provider in terms of the number of leased points and increase of total income. It can also be concluded that the acceptable price is the most important factor in the opinion of buyers for deciding on the purchase of products confirmed by examining their attitudes on the same market. The conducted research also proves the hypothesis that a higher degree of integration of marketing communication instruments is a basic requirement for increasing business efficiency, which can be concluded in the model of communication efficiency conducted at the wholesale market by direct examination of attitudes. This conclusion further confirms the hypothesis that the degree of integration of communication leads to greater efficiency of business, especially when, is known, but also proven, that direct communication is the most effective instrument that allows the increased sales. It can be concluded that the elements of business efficiency were achieved by applying these models, as well as the confirmed hypothesis of the research. Of course, under the increase in revenues, we mean maximum space for rent, at acceptable prices for vendors (tenants), which can therefore increase their sales of products, and customers and consumers have a unique place of purchase, quality products at affordable prices and at specialized trading venues. So, we are efficient if we increase our revenues by achieving our business goals, the effects of which are in the interests of economic interest and direct and efficient communication.

The conducted research enabled the achievement of the basic goal of the paper, and the paper presents the importance of the strategic approach to prices to the marketing communication, and the assumptions in the hypothesis of research in the form of

the importance of integrated marketing communication in the function of increasing revenues from services, increased trade, and customer satisfaction are determined. Bearing in mind that the main goal of the paper is concentrating on the research, roles, significance and effects of wholesale markets in the system of trade in agro-industrial products in order to increase revenues on the one hand, as well as the results of empirical research on the market position of sellers in these market institutions, on the other hand, anticipate and identify all obstacles, and eliminate dilemmas that are related to improving the market position of these companies in order to satisfy the interests of consumers as end users and be applied in practice.

Conflict of interests

The authors declare no conflict of interest.

References

1. Aker, D. A., Kumar, V. Dej, S. Dž. (2008), *Marketinško istraživanje,* Ekonomski fakultet, Beograd [*in English*: Aker, D. A., Kumar, V. Dej, S. Dz. (2008), Marketing Research, Faculty of Economics, Belgrade]
2. Vračar, D. (2007), *Strategije tržišnog komuniciranja*, CID, Ekonomski fakultet, Beograd [*in English*: Vračar, D. (2007), Market Communication Strategies, CID, Faculty of Economics, Belgrade]
3. Duvnjak, S. (2013), *Pravci razvoja pijačne delatnosti u Srbiji*, Poslovno udruženje „Pijace Srbije“, Beograd [*in English*: Duvnjak, S. (2013), Directions for the Marketplace Industry in Serbia, Business Association “Markets of Serbia”, Belgrade]
4. Kliestik, T., Misankova, M., Valaskova, K., & Svabova, L. (2018). Bankruptcy prevention: new effort to reflect on legal and social changes. *Science and Engineering Ethics*, 24(2), 791-803.
5. Kotler, F. i Li, N. (2008*), Marketing u javnom sektoru*, Data status, Beograd [*in English*: Kotler, F. and Li, N. (2008), Public Sector Marketing, Data Status, Belgrade]
6. Kotler, P. (2003), *Marketing menadžment,* Prentice Hall [*in English*: Kotler, P. (2003), Marketing Management, Prentice Hall]
7. Kotler, F., Vong, V., Sonders, Dž. i Armstrong, G. (2007), *Principi marketinga*, Mate, Beograd [*in English*: Kotler, F., Wong, V., Sonders, Dz. and Armstrong, G. (2007), Principles of Marketing, Mate, Belgrade]
8. Kovacova, M., & Kliestik, T. (2017). Logit and Probit application for the prediction of bankruptcy in Slovak companies. Equilibrium. *Quarterly Journal of Economics and Economic Policy*, 12(4), 775-791.
9. Kuzman, B., Tešić, A., & Đelić, A. T. (2013). Possible routes of approaching of Serbia (agro industrial complex) to the EU and the WTO. *Economics of Agriculture*, 60(3), 541-549.

10. Kuzman, B., Prdić, N., & Dobraš, Z. (2017). The importance of the wholesale markets for trade in agricultural products. *Economics of Agriculture*, 64(3), 1177-1190.

11. Kuzman, B., & Prdić, N. (2018). Strategic significance of wholesale markets in agricultural products sale. *Economics of Agriculture,* Sustainable agriculture and rural development in terms of the Republic of Serbia strategic goals realization within the Danube region. 87-104. http://repository.iep.bg.ac.rs/65/1/1%20-%20 Prdic%2C%20Kuzman.pdf

12. Lovreta, S. (2008),,*Opravdanost izgradnje veletržnice na mikrolokaciji",Strategija razvoja trgovine grada Beograda*, Ekonomski fakultet, NICEF, Beograd [*in English*: Lovreta, S. (2008) "Justification for the construction of a wholesale market at a microlocation", Belgrade Trade Development Strategy, Faculty of Economics, NICEF, Belgrade]

13. Milisavljević, M. (2003), *Marketing,* Savremena administracija, Beograd

14. Ognjanov, G. (2009*), Integrisane marketinške komunikacije*, Ekonomski fakultet, Centar za izdavačku delatnost, Beograd [*in English*: Ognjanov, G. (2009), Integrated Marketing Communications, Faculty of Economics, Publishing Center, Belgrade]

15. Paraušić, V., Cvijanović, D., Subić, J. (2007): *Afirmacija udruživanja i marketinga u funkciji kreiranja konkurentnosti agrarnog sektora Srbije*, monografija, Institut za ekonomiku poljoprivrede, Beograd [*in English*: Paraušić, V., Cvijanović, D., Subić, J. (2007): Affirmation of Associations and Marketing in Function of Creating Competitiveness of the Agricultural Sector of Serbia, Monograph, Institute for Agricultural Economics, Belgrade]

16. Pickton, D. Broderick, A. (2001), *Integrated Marketing Comunication*, Pearson Education, England

17. Prdić, N., Kuzman, B., & Barjaktarović, M. (2014). Practical research results of a successful company's appearance at the fair. *Economics of Agriculture*, 61(297-2016-3637), 903-914.

18. Prdić, N. (2014), Istraživanje stavova potrošača o kupovini na pijacama ,*Agroekonomika***,**43 (63-64) [*in English*: Prdić, N. (2014), "Exploring consumer attitudes to shopping at markets", Agroekonomika, vol. 43, iss. 63-64]

19. Prdić, N. (2016). Competitive adventage on the basis of the strategy low price. Ekonomika, 62(1), 163-174.

20. Prdić, N. (2018), *Sajmovi, komunikacija, prodaja,* Prometej, Novi Sad [*in English*: Prdić, N. (2018), Trade shows, communication, sales, Prometheus, Novi Sad]

21. Stanković, L., Đukić, S., & Popović, A. (2012). Istraživanje motiva i stavova potrošača o turističkim destinacijama. *Marketing*, 43(2), 104-113. [*in English*: Stanković, Lj. Djukic, S. and Popovic, A. (2012), Investigating the Motives and Attitudes of Consumers on Tourist Destinations, *Marketing*]

22. Smit, P.R. (2002), *Marketinške komunikacije*, Clio, Beograd [*in English*: Smit, P.R. (2002), *Marketing communications*, Clio, Belgrade]

23. Valaskova, K., Kliestik, T., & Kovacova, M. (2018). Management of financial risks in Slovak enterprises using regression analysis. *Oeconomia Copernicana*, 9(1), 105-121.

24. Veljković, S. (2009), *Marketing usluga*, Ekonomski fakultet, Beograd [*in English*: Veljković, S. (2009), *Marketing Services*, Faculty of Economics, Belgrade]

25. Vlahović, B. i Puškarić, A. (2014), Međunarodni promet smrznutog povrća – stanje i tendencije, *Agroekonomika*, 8(1), 13-22, [*in English*: Vlahović, B. and Puškarić, A. (2014), "International frozen vegetable turnover - state and tendencies", *Agroeconomics*]

26. Vlahović, B. (2013), *Tržište agroindustrijskih proizvoda,*Poljoprivredni fakultet, Novi Sad [*in English*: Vlahović, B. (2013), Market for Agro-Industrial Products, Faculty of Agriculture, Novi Sad]

27. Zakić, V., Kovačević, V., Ivkov, I., & Mirović, V. (2014). Importance of public warehouse system for financing agribusiness sector. *Economics of Agriculture*, 61(297-2016-3641), 929-943.

A REVIEW OF WINE AND WINE TOURISM PRESENCE IN THE SCIENTIFIC PAPERS IN JOURNALS IN THE FIELD OF TOURISM

Slavica Anđelić[1], Dušan Garabinović[2], Goran Šormaz[3]

**Corresponding author E-mail: dusan.garabinovic.032@gmail.com*

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ABSTRACT

The aim of this paper is to indicate the representation of the papers related to wine and wine (eno) tourism in the scientific journals in the field of tourism from the Journal Citation Reports (JCR) list, with the Impact Factor (IF) – Clarivate Analytics. Fifteen journals have been analyzed on the basis of the phrase presence related to wine and wine tourism in titles, keywords and abstracts. 91 papers have been singled out, with their review per journal, as well as summary of publication frequency per year. The significance of wine and wine tourism in the entire tourism is emphasized through the tendency of their increasing presence in the most relevant scientific journals in the field. This paper creates a foundation for the authors interested in detailed research of the papers published so far, and therefore further development of the scientific and research activities related to wine and wine tourism.

Introduction

Represented in proverbs, customs, beliefs, thoughts of famous people and those less famous, as well as songs, wine has always been "the initiator" for the people. It has always been a component of human life. The relation towards wine has directed people in many areas of life, determining their view of themselves to a certain point, as well as the environment and the world we live in. Wine has multiple meanings. It is not just a product similar to other alcoholic drinks. It is "a person living", just as any other living

1 Slavica Anđelić, PhD, Higher business school of vocational studies "Prof. dr Radomir Bojković", Topličina 12, 37000 Kruševac, Republic of Serbia, Phone: +38162485274, E-mail: slavica.andjelic@indmanager.edu.rs, ORCID ID: https://orcid.org/0000-0003-4021-0822

2 Dušan Garabinović, MSc, Higher business school of vocational studies "Prof. dr Radomir Bojković", Topličina 12, 37000 Kruševac, Republic of Serbia, Phone: +381643929596, E-mail: dusan.garabinovic.032@gmail.com, ORCID ID: https://orcid.org/0000-0002-6247-3060

3 Goran Šormaz, Higher business school of vocational studies "Prof. dr Radomir Bojković", Topličina 12, 37000 Kruševac, Republic of Serbia, Phone: +381698206454, E-mail: goran.sormaz@indmanager.edu.rs, ORCID ID: https://orcid.org/0000-0001-6473-1062

being. There has always been something connected to wine, it has been the center of various events in spiritual, religious, cultural, culinary terms, entertainment, etc. Wine is complexity in simplicity, a phenomenon of human existence. The history of wine is a history of mankind at the same time. The charm of getting to know this ancient yet always trendy beverage can be found in this fact. Therein lies the basis for the appearance of tourist trends related to wine, and they managed to become singled out and differentiated as a separate type of tourism through their attractions and specific points, simultaneously related to many others (gastro, rural, etc) – wine tourism or enotourism.

"Wine is the beverage resulting exclusively from the partial or complete alcoholic fermentation of fresh grapes, whether crushed or not, or of grape must. Its actual alcohol content shall not be less than 8.5% vol" (International Organisation of Vine and Wine, 2017, I.1.3-1). "Nevertheless, taking into account climate, soil, vine variety, special qualitative factors or traditions specific to certain vineyards, the minimum total alcohol content may be able to be reduced to 7% vol. by legislation particular to the region considered" (International Organisation of Vine and Wine, 2017, I.1.3-1).

According to the International Organisation of Vine and Wine, vineyard surface area in the world in 2016 amounted to 7,463,909 ha (a reduction compared to 2001 – 7,786,462 ha), while wine production was 269,012 (an increase compared to 2001 – 265,523), wine exports 103,832 (an increase compared to 2001 – 65,151), wine imports 104,027 (an increase compared to 2001 – 61,095), wine consumption 244,421 (an increase compared to 2001 – 227,642), whereas the unit is 1000 hl (International Organisation of Vine and Wine – OIV). In comparison to the beginning of the 21st century, there was an increase in imports (70.27%), exports (59.37%), production (1.31%) and wine consumption (7.37%), while the vineyard surface area was reduced for 4.14% at the same time. According to (International Organisation of Vine and Wine, 2019), vineyard surface area was around 7,429 thousand ha (continued reduction), production was around 292,300 (an increase) and wine consumption was around 246,000 (an increase), unit 1000 hl (forecasted data) in 2018 (pp. 5-11).

According to International Organisation of Vine and Wine (2019), a) the countries with the largest vineyard surface space are Spain, China, France, Italy and Turkey; b) the countries as the biggest wine producers are Italy, France, Spain, the USA and Argentina; c) the countries with the largest wine consumption (consummation) are the USA, France, Italy, Germany and China (pp. 5-11).

"Wine tourism can be defined as visitation to vineyards, wineries, wine festivals and wine shows for which grape wine tasting and/or experiencing the attributes of a grape wine region are the prime motivating factors for visitors" (Hall, Longo, Mitchell & Johnson, 1996). Wine tourism can also be considered as a type of rural tourism, confirmed by Cvijanović & Ružić (2017) as well. The importance of wine tourism in the economic development of the rural areas is also clear from the fact that the 3rd UNWTO Global Conference on Wine Tourism held in Chisinau (Moldova) on 6th – 7th September 2018 directed its activities towards "Wine Tourism as a Tool for Rural Development" (3rd UNWTO Global Conference on Wine Tourism).

It is obvious that aforementioned countries with the largest vineyard surface area and production also have the greatest potential for wine tourism development. Still, there is a question of whether everything is in area and production scope. The above-mentioned elements are important in terms of the economic effects that arise from product placement in the market, especially the foreign market, through exports. On the other hand, wine areas should be singled out by some particularity in terms of service sector development, i.e. integrated sector of production and services. This kind of wine areas, destinations as well as individual service providers' differentiation in the field of wine and wine tourism represent a necessary marketing strategy in order to attract tourists. Therefore, wine tourism is the foundation for the emergence of the "silent" export, the kind that could have significant advantages in comparison to the traditional (classical) export type, especially through cost reduction. All things considered, along with the particularities that wine tourism possesses, make this area of tourism very interesting for scientific and professional studies both on supply and demand sides.

The subject of this paper is an overview of the representation of wine and wine tourism in scientific papers in selected journals in the field of tourism. Therefore, this paper is trying to offer the answer to the following question: "What is the significance of wine in the scientific research in the field of tourism?". The aim of this paper is to point out the number of papers related to wine and wine tourism in the scientific journals in the field of tourism that are listed in the JCR list (have Impact Factor – IF), to highlight the contribution of these papers, and to determine the frequency of words in the keywords listed in analyzed papers.

A review of similar research

López-Guzmán, García, Rodríguez (2013) offer a review of the scientific research on wine tourism in Spain according to the autonomous regions. Sánchez, García & del Río (2016) determined that there were 14 PhD thesis related to wine tourism defended from 2008 to 2014 – in Spain (8; 57.14%), England (3; 21.41%), Portugal (2; 14.29%) and France (1; 7.14%) (p. 191).

On the basis of the analysis conducted by Carlsen (2004), we can draw a conclusion that there is a dual approach (wine industry production and service orientation) that should be integrated into a unity as soon as possible. Thereby, five key issues important for all wine regions and wineries are: 1) "How do successful wineries manage to make the transition from a supply-led to a demand-driven business environment?, 2) Does wine tourism enable wineries to become price-makers instead of price-takers? 3) Within a wine region, how and when does the locus of economic activity shift from wine production to tourism over time? 4) How do wineries and wine regions diversify their products and services to meet the changing needs of visitors? 5) What is the relative importance of capital growth compared to profit as wealth creation activities in wine regions?" (Carlsen, 2004, pp. 8-9).

Montella (2017) provides an overview of works related to wine tourism and sustainability (43 papers (p. 3)). It also concludes that the majority of works are related to new wine producing countries (if the work relates to a specific country), and that more than half of the works were published after 2006 (p. 3). A more detailed analysis of the presence of sustainable (wine) tourism in the literature, emerging traits (eg "from the literature it emerges that sustainable wine tourism is strongly linked to the culture and distinctive traits of the local community and place" (p. 5)), motivations and drivers and geographical distribution and trends (pp. 4-7).

Sánchez, Del Río & García (2017) determined that there were 118 articles published in the Web of Science (WoS) and 191 in Scopus until 2014, and they all refer to wine tourism (p. 9). "The Scopus database was the first to incorporate the concept of wine tourism in 1984 and it contains the most records" (Sánchez, Del Río & García, 2017, p. 11). They emphasize that "in the last five years (2010–2014), more than 60% of wine tourism papers contained in Wos and Scopus have been published, 72 and 117 articles respectively" (Sánchez, Del Río & García, 2017, p. 11). The author with the largest number of papers is Alonso, A. D. (Scopus 21, WoS 10), whereas, on the other hand, the most productive journal (with the largest number of papers) is Tourism Management (WoS 13, 11.02%; Scopus 12, 6.28%), the only one with a two-digit number of papers (Sánchez, Del Río & García, 2017, pp. 12-13).

Gómez, Pratt & Molina (2018) carried out an extensive research on the presence of wine tourism in the scientific papers from 1995 to 2014 (176 papers), emphasizing, at the same time, that the framework for wine research has been expanded with two new fields compared to the previous formulations, and they are "regional development and the experiential wine tourist".

Mitchell & Hall (2006) offer a review of "the Australian research into winery visitation", "the research on New Zealand winery visitation", and "other international research into winery visitation" (North America, Europe, Southern Hemisphere, other), whereas they concluded that (at that moment)" Australia and New Zealand are the source of the vast majority of published literature on winery visitation" (Australia 38%, New Zealand 31%), followed by prevailing North America (pp. 308-311).

Materials and methods

The research is conducted on the 6th and 7th July 2019, on the sample of 15 scientific journals in the field of tourism (journals which names refer directly to the words "tourism", "tourist") from the Journal Citation Reports (Clarivate Analytics, 2018) list, with the Impact Factor (IF). The choice of these journals adds to the significance of the analysis, considering that we speak of the currently best journals in the field. Thus, the analysis of the wine and wine tourism presence in the published papers is improved additionally, indicating the tendencies for the study in this field at the highest, world level. The review of the analyzed journals along with their Impact Factor (IF) is offered in the table below (*Table 1.*).

Table 1. The analyzed journals

No.	Journal name	ISSN	IF (2017)
	Tourism Management	0261-5177	5.921
	Annals of Tourism Research	0160-7383	5.086
	Current Issues in Tourism	1368-3500	3.462
	Journal of Sustainable Tourism	0966-9582	3.329
	Journal of Hospitality and Tourism Research	1096-3480	2.685
	International Journal of Tourism Research	1099-2340	2.449
	Tourism Geographies	1461-6688	2.068
	Journal of Travel and Tourism Marketing	1054-8408	1.975
	Tourism Management Perspectives	2211-9736	1.779
	Tourist Studies	1468-7976	1.537
	Asia Pacific Journal of Tourism Research	1094-1665	1.352
	Journal of Hospitality, Leisure, Sport and Tourism Education	1473-8376	1.265
	Scandinavian Journal of Hospitality and Tourism	1502-2250	1.235
	Journal of Tourism and Cultural Change	1476-6825	1.105
	Tourism Economics	1354-8166	0.942

Source: The authors' research based on Clarivate Analytics (2018)

The journals were analyzed using the database of the papers available online: Science Direct (Annals of Tourism Research, Journal of Hospitality, Leisure, Sport & Tourism Education, Tourism Management Perspectives, Tourism Management), SAGE Journals (Tourist Studies, Tourism Economics, Journal of Hospitality & Tourism Research), Taylor & Francis Online (Asia Pacific Journal of Tourism Research, Current Issues in Tourism, Journal of Sustainable Tourism, Journal of Tourism & Cultural Change, Journal of Travel & Tourism Marketing, Scandinavian Journal of Hospitality & Tourism, Tourism Geographies) and Wiley Online Library (International Journal of Tourism Research).

The analysis refers to the establishment of the phrases related to wine and wine tourism presence (wine, wine tourism, wine tourist, enotourism, winery, etc.) in the titles, keywords and paper abstracts (book/literature reviews, conference reports, editorials, discussion forums etc. excluded). This type of analysis has been chosen because the authors regard that the search phrase is not of great significance unless it is in the title, keywords or paper abstract, even though it can be found in the paper itself. Evidently, one of the conditions for the selection of the papers in this review has been that, in addition to the presence of the above-mentioned words and phrases, the paper's theme is related to wine and its role in tourism, at least to a certain extent (not analyzed papers where the wine, wine tourism etc. were used in another/alternative/transferred meaning).

This review also considers the papers published online at the time the research was conducted (6th and 7th July 2019), including several papers from 2019.

After determining the papers, the papers were individually analyzed and a brief explanation of their scientific and professional contribution was given in the tables. In this way, the essence of each of the papers related to wine and wine tourism within the analyzed journals is presented. Also, the most common authors of the analyzed papers have been identified.

The frequency of words in keywords was then determined (words of the same meaning were observed together) and presented a) by journals, b) by time periods, and c) in total.

Hall (2011) giving a bibliometric analysis through performance indicators and databases states that one of the three groups of performance metrics is "productivity metrics, which includes metrics such as number of (cited) papers, number of papers per academic year, number of papers per individual author" (p. 21). This paper meets the stated group of productivity metrics with the exception of the number of citations.

Results and discussions

It is established that 13 out of 15 journals (86.67%) selected for the analysis contain at least one paper directly related to wine and wine tourism to a lesser or greater extent. The total of such papers was 91, indicating the average number of papers as 6.07, median 4, mode 2, standard deviation 6.01, minimum 0 (Tourist Studies, Journal of Hospitality, Leisure, Sport & Tourism Education), maximum 20 (Journal of Travel and Tourism Marketing), as is the range. On the basis of the aforementioned, it is obvious that the Journal of Travel & Tourism Marketing has the greatest share in the total number of papers (21.98%), while only three more journals have a two-digit share (Tourism Management – 16.48%, Journal of Hospitality and Tourism Research – 12.09%, International Journal of Tourism Research – 12.09%). If only the journals with the papers on wine/wine tourism are taken into account (13 journals), the average number of the papers per journal is 7, median 5, mode 2, standard deviation 5.92, minimum number 1, maximum 20, with rank 19. All previous numbers are rounded to two decimal places.

There is a total of 74 papers with wine/wine tourism in the title, which is a significant percentage (81.32%) compared to the established number of papers on the subject. The average number of the papers per all the analyzed journals (15) is 4.93, median 3, mode 2, standard deviation 5.01, minimum 0, maximum 17, as is the range (17). There is a complete match (100%) of all the papers referring to wine/wine tourism and the titles in case of 6 journals (40.00% of the total number of journals), while the lowest percentage is 40.00%. All previous numbers are rounded to two decimal places.

The review of the papers on wine and wine tourism per journal can be seen in the following table (*Table 2.*).

Table 2. The review of the number of papers on wine and wine tourism per journal

Journal name	Number of papers			
	Title (No)	Title (%)	Total (No)	Total (%)
Tourism Management	13	86.67%	15	16.48%
Annals of Tourism Research	2	40.00%	5	5.49%
Current Issues in Tourism	7	77.78%	9	9.89%
Journal of Sustainable Tourism	2	100.00%	2	2.20%
Journal of Hospitality and Tourism Research	8	72.73%	11	12.09%
International Journal of Tourism Research	9	81.82%	11	12.09%
Tourism Geographies	2	100.00%	2	2.20%
Journal of Travel and Tourism Marketing	17	85.00%	20	21.98%
Tourism Management Perspectives	3	100.00%	3	3.30%
Tourist Studies	0	-	0	-
Asia Pacific Journal of Tourism Research	4	100.00%	4	4.40%
Journal of Hospitality, Leisure, Sport and Tourism Education	0	-	0	-
Scandinavian Journal of Hospitality and Tourism	1	100.00%	1	1.10%
Journal of Tourism and Cultural Change	1	100.00%	1	1.10%
Tourism Economics	5	71.43%	7	7.69%
TOTAL	74	81.32%	91	100.00%

Source: The authors' research

In order to get a systematic insight into the papers on wine and wine tourism published so far, a review of the papers per each journal individually will be offered below, whereas the papers are ordered per year of publishing (starting from the earliest paper published).

The review of the papers on wine and wine tourism in the Tourism Management journal is offered in the table below (*Table 3.*).

Table 3. The review of the papers on wine and wine tourism in Tourism Management

Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Telfer, D. J.	2001	Strategic alliances along the Niagara wine route	*22*(1), 21-30	The author emphasizes the importance of cooperation for the successful development of the region (Niagara) as a wine tourism destination.
Charters, S., & Ali-Knight, J.	2002	Who is the wine tourist?	*23*(3), 311-319	The authors propose a three-dimensional model (a) purpose of visit, b) general tourist motivation and c) relationship to other tourist activities) by which specific tourist activities can be identified. The impact of geographical and cultural differences on segmentation is highlighted.

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Bruwer, J.	2003	South African wine routes: some perspectives on the wine tourism industry's structural dimensions and wine tourism product	*24*(4), 423-435	The author emphasizes: a) the structural dimensions of the wine industry and b) the characteristics of wine tourism products in relation to South African wine routes.
Hall, C. M.	2005	Biosecurity and wine tourism	*26*(6), 931-938	The author emphasizes (New Zealand): a) the utility of present customs declaration forms is questionable, b) the need to adapt biosecurity strategies
Getz, D., & Brown, G.	2006	Critical success factors for wine tourism regions: a demand analysis	*27*(1), 146-158	"It was determined that highly motivated, long-distance wine tourists prefer destinations offering a wide range of cultural and outdoor attractions." (Calgary, Canada)
Sparks, B.	2007	Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions	*28*(5), 1180-1192	"Perceived control, together with past attitude predicted intentions to take a vacation to a wine region. Wine/food involvement, normative influences and three wine expectancy-value (attitudinal) dimensions also contribute to intention to take a vacation to a wine region." (Australia)
Galloway, G., Mitchell, R., Getz, D., Crouch, G., & Ong, B.	2008	Sensation seeking and the prediction of attitudes and behaviours of wine tourists	*29*(5), 950-966	The authors examined "whether, compared with socio-economic variables, the personality variable sensation seeking adds to the ability to predict differences in various attitudes and behaviours of wine tourists".
Gross, M. J., & Brown, G.	2008	An empirical structural model of tourists and places: Progressing involvement and place attachment into tourism	*29*(6), 1141-1151	The authors have shown that the combined use of a) involvement and b) place attachment is applicable in tourism. (South Australia)
March, R., & Wilkinson, I.	2009	Conceptual tools for evaluating tourism partnerships	*30*(3), 455-462	The authors offer a method for "investigating and conceptualizing network relationships in a regional tourism district". (Hunter Valley, Australia)
Mason, M. C., & Paggiaro, A.	2012	Investigating the role of festivalscape in culinary tourism: The case of food and wine events	*33*(6), 1329-1336	The authors conclude that "festivalscape and emotions have significant direct effects on satisfaction", while "effects of festivalscape on visitors' future behavior are only indirect and mediated by satisfaction". (Italian festival "Friuli DOC")

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Quintal, V. A., Thomas, B., & Phau, I.	2015	Incorporating the winescape into the theory of planned behaviour: Examining 'new world' wineries	*46*, 596-609	The authors concluded that "winescape service staff and complementary product had significant effects on the wine tourist attitude toward the winery", and that "winescape service and wine value were also significant attributes in influencing the wine tourist attitude". (Australia and USA)
Gomez, M., Lopez, C., & Molina, A.	2015	A model of tourism destination brand equity: The case of wine tourism destinations in Spain	*51*, 210-222	The authors propose "a model for the design of origin (DO) brand image and destination image on brand equity of wine tourism destinations and examining these effects on two stakeholder groups, winery managers and winery visitors".
Byrd, E. T., Canziani, B., Hsieh, Y. C. J., Debbage, K., & Sonmez, S.	2016	Wine tourism: Motivating visitors through core and supplementary services	*52*, 19-29	The authors found that "the importance of customer service was found to be the primary predictor of intentions for repeat visitation".
Xu, S., Barbieri, C., Anderson, D., Leung, Y. F., & Rozier-Rich, S.	2016	Residents' perceptions of wine tourism development	*55*, 276-286	Residents have a neutral attitude towards wineries, while "residents' socio-demographics and level of wine enthusiasm, as well as the comprehensiveness of wine trails' tourism amenities were significantly associated with residents' perceptions". (Piedmont region, North Carolina, USA)
Eustice, C., McCole, D., & Rutty, M.	2019	The impact of different product messages on wine tourists' willingness to pay: A non-hypothetical experiment	*72*, 242-248	The authors conclude that the impact on WTP differs depending on the sharing of the promotional message (messages with sensory information – no impact, messages about awards – the most influential, messages about local production – a moderate increase).

Source: The authors' research; Reviewed papers: (Telfer, D. J., 2001), (Charters, S., & Ali-Knight, J., 2002), (Bruwer, J., 2003), (Hall, C. M., 2005), (Getz, D., & Brown, G., 2006), (Sparks, B., 2007), (Galloway, G., Mitchell, R., Getz, D., Crouch, G., & Ong, B., 2008), (Gross, M. J., & Brown, G., 2008), (March, R., & Wilkinson, I., 2009), (Mason, M. C., & Paggiaro, A., 2012), (Quintal, V. A., Thomas, B., & Phau, I., 2015), (Gomez, M., Lopez, C., & Molina, A., 2015), (Byrd, E. T., Canziani, B., Hsieh, Y. C. J., Debbage, K., & Sonmez, S., 2016), (Xu, S., Barbieri, C., Anderson, D., Leung, Y. F., & Rozier-Rich, S., 2016), (Eustice, C., McCole, D., & Rutty, M., 2019)

The review of the papers on wine and wine tourism in the Annals of Tourism Research is offered in the table below (*Table 4.*).

Table 4. The review of the papers on wine and wine tourism in Annals of Tourism Research

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Moore, R. S.	1995	Gender and alcohol use in a Greek tourist town	*22*(2), 300-313	The results highlight "the importance of gender in the social availability of alcohol". (Greece)
White, C. J., & Thompson, M.	2009	Self determination theory and the wine club attribute formation process	*36*(4), 561-586	"Motivation orientations were found to have a direct impact on preferences and with few exceptions, were fully mediated by levels of product and purchasing involvement in a theoretically consistent manner."
Mitchell, R., Charters, S., & Albrecht, J. N.	2012	Cultural systems and the wine tourism product	*39*(1), 311-335	The authors seek to introduce the application of Cultural Systems in the field of wine tourism by exploring the relationship of rural Cultural Systems in the wine regions of Champagne (France) and Margaret River (Western Australia).
Saayman, M., Krugell, W. F., & Saayman, A.	2016	Willingness to pay: Who are the cheap talkers?	*56*, 96-111	The authors came up with a result that confirmed that "the decision to contribute depends on behavioral and motivational factors, while the amount is income-dependent".
Rabbiosi, C.	2016	Place branding performances in tourist local food shops	*60*, 154-168	"The study contributes to the literature on tourism by proposing the concept of performative place branding, enabling a more creative, hybrid, and open-ended consideration of the relationship between tourist places and place branding." (food & wine shops – Verucchio, Italy)

Source: The authors' research; Reviewed papers: (Moore, R. S., 1995), (White, C. J., & Thompson, M., 2009), (Mitchell, R., Charters, S., & Albrecht, J. N., 2012), (Saayman, M., Krugell, W. F., & Saayman, A., 2016), (Rabbiosi, C., 2016)

The review of the papers on wine and wine tourism in the Current Issues in Tourism is offered in the table below (*Table 5.*).

Table 5. The review of the papers on wine and wine tourism in Current Issues in Tourism

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Shanka, T. & Taylor, R.	2004	Discriminating Factors of First-time and Repeat Visitors to Wine Festivals	7(2), 134-145	"The two festival attributes with discriminating abilities between the first-time visitors and repeat visitors were parking and services, while the four visitor characteristics that showed discriminating effects were age, place of residence, group composition, and information sources utilised."
Ignatov, E. & Smith, S.	2006	Segmenting Canadian Culinary Tourists	9(3), 235-255	The wine segment is the least present (4%), while the food and wine segment is slightly more present (7%). Wine-only visitors are balanced on gender, average age and education and have higher incomes. (Canada)
Stavrinoudis, T. A., Tsartas, P., & Chatzidakis, G.	2012	Study of the major supply factors and business choices affecting the growth rate of wine tourism in Greece	*15*(7), 627-647	The authors analyze the development of wine tourism in Greece, characteristics, key elements for further development.
Duarte Alonso, A., Bressan, A., O'Shea, M. & Krajsic, V.	2014	Educating winery visitors and consumers: an international perspective	17(6), 539-556	The paper presents an "international perspective on wineries' educational initiatives", with the most common approaches to educating visitors/consumers are: "guided tours, product tastings and showcasing production processes" are the most common approaches to educating their visitors and wine consumers.
Popp, L. & McCole, D.	2016	Understanding tourists' itineraries in emerging rural tourism regions: the application of paper-based itinerary mapping methodology to a wine tourism region in Michigan	19(10), 988-1004	"Wine tourism is particularly well-suited for itinerary mapping". The authors apply paper-based itinerary mapping. (Michigan, USA)
Bruwer, J., Pratt, M. A., Saliba, A. & Hirche, M.	2017	Regional destination image perception of tourists within a winescape context	20(2), 157-177	The authors found that the most important dimension of the wine landscape was "natural beauty / geographical setting", and that the dynamics of visits (first and repeated) had an impact on visitor behavior and perception.

Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Lee, S., Bruwer, J., & Song, H.	2017	Experiential and involvement effects on the Korean wine tourist's decision-making process	*20*(12), 1215-1231	Two constructs that relate to wine tourism and form relationships with attitude are a) experience of a wine tour, and b) wine tourism involvement. (Korea)
Gómez, M., Pratt, M. A., & Molina, A.	2018	Wine tourism research: a systematic review of 20 vintages from 1995 to 2014	1-39	The authors review 176 wine tourism papers published between 1995 and 2014, and also introduce "Regional development" and "the experiential wine tourist" as an extension of the wine tourism research framework.
Hassanli, N. & Ashwell, J.	2018	The contribution of small accommodations to a sustainable tourism industry		"The main drivers in implementing sustainability have been identified as cost reduction competitiveness, social legitimization and lifestyle values," while "key challenges include personal, financial and operational". (McLaren Vale, South Australia)

Source: The authors' research; Reviewed papers: (Shanka, T. & Taylor, R., 2004), (Ignatov, E. & Smith, S., 2006), (Stavrinoudis, T. A., Tsartas, P., & Chatzidakis, G., 2012), (Duarte Alonso, A., Bressan, A., O'Shea, M. & Krajsic, V., 2014), (Popp, L. & McCole, D., 2016), (Bruwer, J., Pratt, M. A., Saliba, A. & Hirche, M., 2017), (Lee, S., Bruwer, J., & Song, H., 2017), (Gómez, M., Pratt, M. A., & Molina, A., 2018), (Hassanli, N. & Ashwell, J., 2018)

The review of the papers on wine and wine tourism in the Journal of Sustainable Tourism is offered in the table below (*Table 6.*).

Table 6. The review of the papers on wine and wine tourism in Journal of Sustainable Tourism

Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Poitras, L. & Donald, G.	2006	Sustainable Wine Tourism: The Host Community Perspective	14(5), 425-448	The authors explore the meaning and elements of sustainable wine tourism from a perspective of the community. (Town of Oliver, British Columbia, Canada)
Alonso, A. D. & Liu, Y.	2012	Old wine region, new concept and sustainable development: winery entrepreneurs' perceived benefits from wine tourism on Spain's Canary Islands	20(7), 991-1009	The benefits for most winery entrepreneurs (59%) are only marginal or none at all, while "little government support, lack of organization within the wine sector and limited resources" are present as problems, so "research, partnership creation and marketing" are needed to achieve sustainability. (Spain's Canary Islands)

Source: The authors' research; Reviewed papers: (Poitras, L. & Donald, G., 2006), (Alonso, A. D. & Liu, Y., 2012)

The review of the papers on wine and wine tourism in the Journal of Hospitality & Tourism Research is offered in the table below (*Table 7.*).

Table 7. The review of the papers on wine and wine tourism in Journal of Hospitality & Tourism Research

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Fox, M.	1989	Quality Assurance and Sensory Evaluation in Foodservice— a New Course for Foodservice Managers	*13*(3), 554–554	The author lists "beverage taste testing panel procedures and leave a good taste for the course in students' mouths as wine tasting is conducted".
Dodd, T. H.	1996	Factors that Influence the Adoption and Diffusion of New Wine Products	*20*(3), 123–136	"The results of the survey of wine consumers found that although there were similarities in the socio-demographic variables of innovators and noninnovators of a new wine product, the two groups differed with respect to their behavioral characteristics, and the sources from which they collected their information concerning wine."
Rutherford, D. G., Perkins, A. W., & Spangenberg, E. R.	2000	Trade Dress and Consumer Perception of Product Similarity	*24*(2), 163–179	"The authors suggest that brand loyalty is less likely and switching behavior may become common in a market that includes such competitive behavior." (product is wine)
Dodd, T. H., Laverie, D. A., Wilcox, J. F., & Duhan, D. F.	2005	Differential Effects of Experience, Subjective Knowledge, and Objective Knowledge on Sources of Information used in Consumer Wine Purchasing	*29*(1), 3–19	"Results indicate that usage experience forms the basis for subjective and objective knowledge". (Texas, USA)
Lee, K., Zhao, J., & Ko, J.-Y.	2005	Exploring the Korean Wine Market	*29*(1), 20–41	"The study found Korean wine consumers had interesting preferences and that there were some significant differences between these preferences and demographic characteristics among the Korean respondents." (Korea)
Charters, S., & Menival, D.	2011	Wine Tourism in Champagne	*35*(1), 102–118	The authors found that: a) producers have three approaches to wine tourism, b) "producers can have a small idea of what tourists find acceptable", c) smaller producers can add value to their product (tourists pay more than local customers). (Champagne, France)

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Alonso, A. D., & Liu, Y.	2012	Visitor Centers, Collaboration, and the Role of Local Food and Beverage as Regional Tourism Development Tools: The Case of the Blackwood River Valley in Western Australia	*36*(4), 517–536	The authors found that "that not enough emphasis is placed on promoting food-, wine-, and farm-related tourism themes". (Blackwood River Valley, Western Australia)
Carlsen, J., & Boksberger, P.	2015	Enhancing Consumer Value in Wine Tourism	*39*(1), 132–144	"Studies are both qualitative and quantitative, and both approaches provided findings that are merged into a single matrix of key attribute types."
Cho, M., Bonn, M. A., & Brymer, R. A.	2017	A Constraint-Based Approach to Wine Tourism Market Segmentation	*41*(4), 415–444	The authors created five homogeneous subgroups ("Highly Constrained, Cost & Time Conscious, Family Togetherness, Unmotivated, and Minimally Constrained") applying constraints scales that are tailored to wine tourism.
Ye, B. H., Zhang, H. Q., & Yuan, J.	2017	Intentions to Participate in Wine Tourism in an Emerging Market: Theorization and Implications	*41*(8), 1007–1031	The authors found that: a) "subjective norm influences visit intentions through the mediating role of travel motivation and so to attitudes toward domestic wine when mediated by wine-specific travel motivation", b) "past experiences positively affected visit intentions", c) "A lack of wine knowledge and low confidence in domestic wine inhibited visit intentions".
Thomas, B., Quintal, V. A., & Phau, I.	2018	Wine Tourist Engagement With the Winescape: Scale Development and Validation	*42*(5), 793–828	The authors found that "the resultant 20-item winescape scale" was composed of 7 attributes (setting, atmospherics, wine quality, wine value, complementary product, signage, service staff) reliable and valid.

Source: The authors' research; Reviewed papers: (Fox, M., 1989), (Dodd, T. H., 1996), (Rutherford, D. G., Perkins, A. W., & Spangenberg, E. R., 2000), (Dodd, T. H., Laverie, D. A., Wilcox, J. F., & Duhan, D. F., 2005), (Lee, K., Zhao, J., & Ko, J.-Y., 2005), (Charters, S., & Menival, D., 2011), (Alonso, A. D., & Liu, Y., 2012), (Carlsen, J., & Boksberger, P., 2015), (Cho, M., Bonn, M. A., & Brymer, R. A., 2017), (Ye, B. H., Zhang, H. Q., & Yuan, J., 2017), (Thomas, B., Quintal, V. A., & Phau, I., 2018)

The review of the papers on wine and wine tourism in the International Journal of Tourism Research is offered in the table below (*Table 8.*).

Table 8. The review of the papers on wine and wine tourism in International Journal of Tourism Research

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Hjalager, A. M., & Corigliano, M. A.	2000	Food for tourists—determinants of an image	*2*(4), 281-293	The authors point out that the combination of food and tourism is increasingly pronounced, which can be seen, among other things, in wine tours. A comparison was made between Denmark and Italy regarding the development and standards of food for tourists, which "are not determined uniformly by tourism policies, but more significantly by national economic, agricultural and food policies".
Jaffe, E., & Pasternak, H.	2004	Developing wine trails as a tourist attraction in Israel	*6*(4), 237-249	The authors found that "there was a high degree of understanding of tourist needs among the winery operators". (Israel)
Yuan, J., Morrison, A. M., Cai, L. A., & Linton, S.	2008	A model of wine tourist behaviour: a festival approach	*10*(3), 207-219	"The study constructs a temporal model of wine tourist behavior" highlighting two new dimensions "by proposing that satisfaction and perceived value had an impact on attendees' intentions (i) to visit a local winery and (ii) to buy local wine products".
Scherrer, P., Alonso, A., & Sheridan, L.	2009	Expanding the destination image: Wine tourism in the Canary Islands	*11*(5), 451-463	The authors point out that "challenges to overcome in the development of a successful sustainable local wine tourism industry include the need for expansion of the destination image to reflect the region's wine□making history and scenic qualities; a shift towards independent high□yield travellers; and reintroducing local produce in the mass tourism product." (Canary Islands)
Gómez, M., & Molina, A.	2012	Wine tourism in Spain: denomination of origin effects on brand equity	*14*(4), 353-368	The authors strive for "the development of a model to study the influence of the denomination of origin brand image, as a regional brand, and destination image on wine tourism destination brand equity". (Spain)

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Bruwer, J.	2014	Service quality perception and satisfaction: Buying behaviour prediction in an Australian Festivalscape	*16*(1), 76-86	The authors provide a new look at festivalscape through the dynamics of first-time visitors and repeat visitors. Repeat visitors are the most productive group to visit for wine shopping, while first-time visitors are "are more short□term oriented in their planning when making the final decision to attend the event". (Australia)
Alonso, A. D., Bressan, A., O'Shea, M., & Krajsic, V.	2015	Perceived benefits and challenges to wine tourism involvement: An international perspective	*17*(1), 66-81	According to the authors, the main benefits of wineries from wine tourism relate to "the promotion of the winery's wines, distantly followed by the potential to significantly increase wine sales". (wineries predominantly located in Italy and Spain)
Jones, M. F., Singh, N., & Hsiung, Y.	2015	Determining the critical success factors of the wine tourism region of Napa from a supply perspective	*17*(3), 261-271	"Findings reveal an aligned marketing effort and strategic partnerships among suppliers of Napa wine tourism."
Alamanos, E., Kuznesof, S., & Ritson, C.	2016	The influence of holidays on wine purchasing behaviour: marketing and tourism insights based on a holiday experience in Greece	*18*(3), 228-235	"The effect is greater on highly involved wine consumers and depends on their knowledge of wines from the country, specifically grape varieties, wine producing areas and territorial certifications". (UK wine consumers who have holidayed in Greece)
Bruwer, J., Prayag, G., & Disegna, M.	2018	Why wine tourists visit cellar doors: Segmenting motivation and destination image	*20*(3), 355-366	The authors found "significant relationships were found between the motivation and destination image clusters".
Gu, Q., & Huang, S.	2019	Profiling Chinese wine tourists by wine tourism constraints: A comparison of Chinese Australians and long□haul Chinese tourists in Australia	*21*(2), 206-220	Four wine tourism constraint factors and three negotiation factors were identified.

Source: The authors' research; Reviewed papers: (Hjalager, A. M., & Corigliano, M. A., 2000), (Jaffe, E., & Pasternak, H., 2004), (Yuan, J., Morrison, A. M., Cai, L. A., & Linton, S., 2008), (Scherrer, P., Alonso, A., & Sheridan, L., 2009), (Gómez, M., & Molina, A., 2012), (Bruwer, J., 2014), (Alonso, A. D., Bressan, A., O'Shea, M., & Krajsic, V., 2015), (Jones, M. F., Singh, N., & Hsiung, Y., 2015), (Alamanos, E., Kuznesof, S., & Ritson, C., 2016), (Bruwer, J., Prayag, G., & Disegna, M., 2018), (Gu, Q., & Huang, S., 2019)

The review of the papers on wine and wine tourism in the Tourism Geographies is offered in the table below (*Table 9.*).

Table 9. The review of the papers on wine and wine tourism in Tourism Geographies

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Carmichael, B.	2005	Understanding the wine tourism experience for winery visitors in the Niagara region, Ontario, Canada	*7*(2), 185-204	The author initiates the consideration of "the symbiosis between wineries and tourists and the quality of the wine tourism experience". (Niagara region, Ontario, Canada)
Ferreira, S. L., & Hunter, C. A.	2017	Wine tourism development in South Africa: a geographical analysis	*19*(5), 676-698	The authors found that there was a "hierarchical differentiation between the wineries of the more established wine tourism regions has emerged", and that the development of wine tourism was responsible for the transformation of rural landscapes (especially in the regions with the most developed wine routes). (South Africa)

Source: The authors' research; Reviewed papers: (Carmichael, B., 2005), (Ferreira, S. L., & Hunter, C. A., 2017)

The review of the papers on wine and wine tourism in the Journal of Travel & Tourism Marketing is offered in the table below (*Table 10.*).

Table 10. The review of the papers on wine and wine tourism in Journal of Travel & Tourism Marketing

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Williams, P. W., & Dossa, K. B.	2003	Non-resident wine tourist markets: Implications for British Columbia's emerging wine tourism industry	*14*(3-4), 1-34	The authors use "an importance-performance analysis framework to determine the key areas for management activity that need to be addressed in order to meet the travel product needs" of each segments. (British Columbia)
Westering, J. V., & Niel, E.	2003	The organization of wine tourism in France: The involvement of the French public sector	*14*(3-4), 35-47	The authors concluded that the public sector is made up of many bodies at different levels, and that there are difficulties in working together towards collective goals. Also, "communications between involved parties is often slow due to differing political loyalties". (France)

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Hashimoto, A., & Telfer, D. J.	2003	Positioning an emerging wine route in the Niagara region: Understanding the wine tourism market and its implications for marketing	*14*(3-4), 61-76	This paper shows "the different markets visiting the Niagara Wine Route and suggests possible implications for marketing strategies for this emerging wine route". (Niagara region)
Frochot, I.	2003	An analysis of regional positioning and its associated food images in French tourism regional brochures	*14*(3-4), 77-96	The authors found that "country products/dishes and raw/natural products dominate food images followed by wine and vineyards images". (France)
Demhardt, I. J.	2003	Wine and Tourism at the "Fairest Cape" Post-Apartheid Trends in the Western Cape Province and Stellenbosch (South Africa)	*14*(3-4), 113-130	The authors analyze Stallenbosch and Stallenbosch Wine Route, Wine Route, and also conclude that "a new trend in wine tourism is highlighted by a case study of the hybrid wine and tourism developments at Spier Resort". (South Africa)
Mitchell, R. D., & Hall, C. M.	2003	Seasonality in New Zealand winery visitation: An issue of demand and supply	*14*(3-4), 155-173	The authors analyze the seasonality of visits and suggest "a number of marketing strategies by which some of the effects of seasonality may be overcome in terms of both target markets and the improved management of human resources". (New Zealand)
Brown, G. P., Havitz, M. E., & Getz, D.	2007	Relationship between wine involvement and wine-related travel	*21*(1), 31-46	The authors (analyzing the demographically diverse respondents) found that "although between market demographic differences were minimal, consumptive behaviours related to wine and wine tourism were consistent and profound ($p < .05$)". (Canada)
Barber, N. A., Donovan, J. R., & Dodd, T. H.	2008	Differences in tourism marketing strategies between wineries based on size or location	*25*(1), 43-57	By examining on-site and off-site marketing strategies ("based upon winery size and location"), the authors found that there were differences in "particularly with wine education at rural wineries and food/wine pairing techniques at larger wineries".

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Park, K. S., Reisinger, Y., & Kang, H. J.	2008	Visitors' motivation for attending the South Beach wine and food festival, Miami Beach, Florida	*25*(2), 161-181	The authors found that there were 7 factors that motivated first-time visitors to the festival, and that the biggest difference (between 5 segments) is present with family influence.
Marzo□Navarro, M., & Pedraja□ Iglesias, M.	2009	Profile of a wine tourist and the correspondence between destination and preferred wine: A study in Aragon, Spain	*26*(7), 670-687	The authors found that "the profile of a wine tourist can be divided into two groups", and also that there was a "positive correspondence between the place of origin of a preferred wine and the destination selected when participating in wine tourism". (Aragon, Spain)
Kolyesnikova, N., & Dodd, T. H.	2009	There is no such thing as a free wine tasting: The effect of a tasting fee on obligation to buy	*26*(8), 806-819	The authors found that visitors to the free wine tastings (compared to paying fee visitors) spent more money, "felt significantly more appreciative of the personnel", and felt a stronger obligation to make the purchase.
Barber, N., Taylor, D. C., & Deale, C. S.	2010	Wine tourism, environmental concerns, and purchase intention	*27*(2), 146-165	"Wine tourists may be willing to pay for environmentally friendly wines with females possessing stronger environmental attitudes about protecting wine region destinations, thus influencing stronger behaviors toward purchase intention."
Bruwer, J., & Lesschaeve, I.	2012	Wine tourists' destination region brand image perception and antecedents: Conceptualization of a winescape framework	*29*(7), 611-628	Natural beauty / setting (landscape) of the region is the most important dimension of winescape, and the other significant ones are "the service staff and friendly local people, overall ambience and the diversity of wine estates".
Savinovic, A., Kim, S., & Long, P.	2012	Audience members' motivation, satisfaction, and intention to re-visit an ethnic minority cultural festival	*29*(7), 682-694	Eight major motivators for attending national minority cultural festivals (community support; escape; knowledge/ education; food, wine, and entertainment; novelty; family togetherness; marketing; socialization). (2009 Feŝta – Croatian Food and Wine Festival in Adelaide, South Australia)

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Mikulić, J., Paunović, Z., & Prebežac, D.	2012	An extended neural network-based importance-performance analysis for enhancing wine fair experience	*29*(8), 744-759	The authors used "an extended neural network-based importance-performance analysis (IPA) that combines measures of both the relevance (i.e., stated importance/general importance) and determinance (i.e., derived importance/actual influence) of fair attributes" to analyze the data. (Dalmacija Wine Expo, Makarska, Croatia)
Pratt, M. A., & Sparks, B.	2014	Predicting wine tourism intention: Destination image and self-congruity	*31*(4), 443-460	"Functional destination image, affective destination image, and self-congruity predict attitude toward wine tourism, which in turn predicts behavioral intentions." (Australia)
Nella, A., & Christou, E.	2014	Segmenting wine tourists on the basis of involvement with wine	*31*(7), 783-798	"Results confirm that it is meaningful to segment winery visitors on the basis of their involvement with wine, as important differences can be identified".
Cuellar, S. S., Eyler, R. C., & Fanti, R.	2015	Experiential marketing and long-term sales	*32*(5), 534-553	Wine tasting rooms are forms of experiential marketing because they contribute to "creating brand awareness and generating greater growth in off-premise retail sales".
Gu, Q., Qiu Zhang, H., King, B., & Huang, S.	2018	Wine tourism involvement: a segmentation of Chinese tourists	*35*(5), 633-648	"Significant differences were found for behavioral variables and activity participation level", "but similarity outweighed the differences among demographic and socio-economic variables".
Canovi, M., & Pucciarelli, F.	2019	Social media marketing in wine tourism: winery owners' perceptions	*36*(6), 653-664	"The findings show that while the majority of winery owners recognise the social, economic and emotional benefits of social media, they are far from exploiting its full potential".

Source: The authors' research; Reviewed papers: (Williams, P. W., & Dossa, K. B., 2003), (Westering, J. V., & Niel, E., 2003), (Hashimoto, A., & Telfer, D. J., 2003), (Frochot, I., 2003), (Demhardt, I. J., 2003), (Mitchell, R. D., & Hall, C. M., 2003), (Brown, G. P., Havitz, M. E., & Getz, D., 2007), (Barber, N. A., Donovan, J. R., & Dodd, T. H., 2008), (Park, K. S., Reisinger, Y., & Kang, H. J., 2008), (Marzo-Navarro, M., & Pedraja-Iglesias, M., 2009), (Kolyesnikova, N., & Dodd, T. H., 2009), (Barber, N., Taylor, D. C., & Deale, C. S., 2010), (Bruwer, J., & Lesschaeve, I., 2012), (Savinovic, A., Kim, S., & Long, P., 2012), (Mikulić, J., Paunović, Z., & Prebežac, D., 2012), (Pratt, M. A., & Sparks, B., 2014), (Nella, A., & Christou, E., 2014), (Cuellar, S. S., Eyler, R. C., & Fanti, R., 2015), (Gu, Q., Qiu Zhang, H., King, B., & Huang, S., 2018), (Canovi, M., & Pucciarelli, F., 2019)

The review of the papers on wine and wine tourism in the Tourism Management Perspectives is offered in the table below (*Table 11.*).

Table 11. The review of the papers on wine and wine tourism in Tourism Management Perspectives

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
López-Guzmán, T., Vieira-Rodríguez, A., & Rodríguez-García, J.	2014	Profile and motivations of European tourists on the Sherry wine route of Spain	*11*, 63-68	"The main results of the research show that the tourists are highly satisfied with the winery visit, while highlighting the relationship between wine, local cuisine, and the growing interest of travellers in everything related to wine culture." (Segments – Spanish, Germans and other European citizens) – Spain
Garibaldi, R., Stone, M. J., Wolf, E., & Pozzi, A.	2017	Wine travel in the United States: A profile of wine travellers and wine tours	*23*, 53-57	"The comparison tries to highlight critical issues that may allow tour operators to enter successfully a market where consumers may tend to shy away from organized travels." (USA)
Soontiens, W., Dayaram, K., Burgess, J., & Grimstad, S.	2018	Bittersweet? Urban proximity and wine tourism in the Swan Valley Region	*28*, 105-112	"The study highlights how proximity to an urban market can be a major challenge for an industry based on agri-business in a rural setting." (Swan Valley, Australia)

Source: The authors' research; Reviewed papers: (López-Guzmán, T., Vieira-Rodríguez, A., & Rodríguez-García, J., 2014), (Garibaldi, R., Stone, M. J., Wolf, E., & Pozzi, A., 2017), (Soontiens, W., Dayaram, K., Burgess, J., & Grimstad, S., 2018)

The review of the papers on wine and wine tourism in the Asia Pacific Journal of Tourism Research is offered in the table below (*Table 12.*).

Table 12. The review of the papers on wine and wine tourism in Asia Pacific Journal of Tourism Research

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Dawson, D., Fountain, J. & Cohen, D. A.	2011	Seasonality and the Lifestyle "Conundrum": An Analysis of Lifestyle Entrepreneurship in Wine Tourism Regions	16(5), 551-572	"Both the wine and tourism industries are highly seasonal, and rely on cooperation for regional initiatives to manage seasonality, through events or marketing, particularly when the businesses are small scale and located in peripheral areas."

Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Chen, X., Goodman, S., Bruwer, J. & Cohen, J.	2016	Beyond Better Wine: The Impact of Experiential and Monetary Value on Wine Tourists' Loyalty Intentions	21(2), 172-192	The authors associate hedonic value, utilitarian value, monetary value perception with satisfaction and loyalty intentions. "Cellar door visitors are oriented toward the experiential aspects of the visit itself as much as to pragmatic considerations in purchasing wine".
Chong, K. L.	2017	Thailand wine tourism: a dream or a reality?	22(6), 604-614	"Wine tourism in Thailand was still an infant industry as most tourists and tourism operators were still not aware of the product offered. However, the wineries themselves had already owned the competency to serve the market."
Duan, B., Arcodia, C., Ma, E. & Hsiao, A.	2018	Understanding wine tourism in China using an integrated product-level and experience economy framework	23(10), 949-960	The authors found that wine tourism in China was in the infancy stage, and that "core product needed more customers' involvement, and enrichment of the augmented product, to best position the wine destinations".

Source: The authors' research; Reviewed papers: (Dawson, D., Fountain, J. & Cohen, D. A., 2011), (Chen, X., Goodman, S., Bruwer, J. & Cohen, J., 2016), (Chong, K. L., 2017), (Duan, B., Arcodia, C., Ma, E. & Hsiao, A., 2018)

The review of the papers on wine and wine tourism in the Scandinavian Journal of Hospitality & Tourism is offered in the table below (*Table 13.*).

Table 13. The review of the papers on wine and wine tourism in Scandinavian Journal of Hospitality & Tourism

Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Kim, H., & Bonn, M. A.	2015	The moderating effects of overall and organic wine knowledge on consumer behavioral intention	*15*(3), 295-310	Trust and taste factors influence consumer behavioral intentions. Also, environment factor is important predictor. (USA)

Source: The authors' research; Reviewed papers: (Kim, H., & Bonn, M. A., 2015)

The review of the papers on wine and wine tourism in Journal of Tourism & Cultural Change is offered in the table below (*Table 14.*).

Table 14. The review of the papers on wine and wine tourism in Journal of Tourism & Cultural Change

Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Mazurkiewicz-Pizlo, A.	2016	The importance of non-profit organisations in developing wine tourism in Poland	*14*(4), 339-349	The authors found that non-profit organizations play a significant role in the development of winery and wine tourism. (Poland)

Source: The authors' research; Reviewed papers: (Mazurkiewicz-Pizlo, A., 2016)

The review of the papers on wine and wine tourism in Tourism Economics is offered in the table below (*Table 15.*).

Table 15. The review of the papers on wine and wine tourism in Tourism Economics

Authors	**Year**	**Title of the paper**	***Volume* (Issue), Pages**	**Comment/Description**
Brown, M. D., Var, T., & Lee, S.	2002	Messina Hof Wine and Jazz Festival: An Economic Impact Analysis	*8*(3), 273–279	The authors found that the "Messina Hof Wine and Jazz Festival" had a significant impact on total sales output, personal income and jobs, which led to the conclusion that the festival would have a significant economic impact on Brazon County. (Texas, USA)
Marques, H.	2006	Research Report: Searching for Complementarities between Agriculture and Tourism — The Demarcated Wine-Producing Regions of Northern Portugal	*12*(1), 147–155	The author emphasizes the importance of agritourism in the development of the rural wine regions of northern Portugal. (North Portugal)
Taylor, P., McRae-Williams, P., & Lowe, J.	2007	The Determinants of Cluster Activities in the Australian Wine and Tourism Industries	*13*(4), 639–656	"The study finds that industry does seem to be more important than place in the determination of networking and cooperative cluster activities, and that members of the wine tourism industry participate more in these activities than members of the tourism or hospitality industries."
Ohe, Y., & Ciani, A.	2011	Evaluation of Agritourism Activity in Italy: Facility Based or Local Culture Based?	*17*(3), 581–601	"Owning a swimming pool is the most common and influential factor in enhancing the price level, while regional diversity is observed in local cultural resource based activities such as restaurants, World Heritage Sites and DOC wines."
Sampaio, A.	2012	Wine Tourism and Visitors' Perceptions: A Structural Equation Modelling Approach	*18*(3), 533–553	"Global tourist satisfaction is influenced directly by the tourists' level of wine involvement and indirectly by their image of Madeira Island".

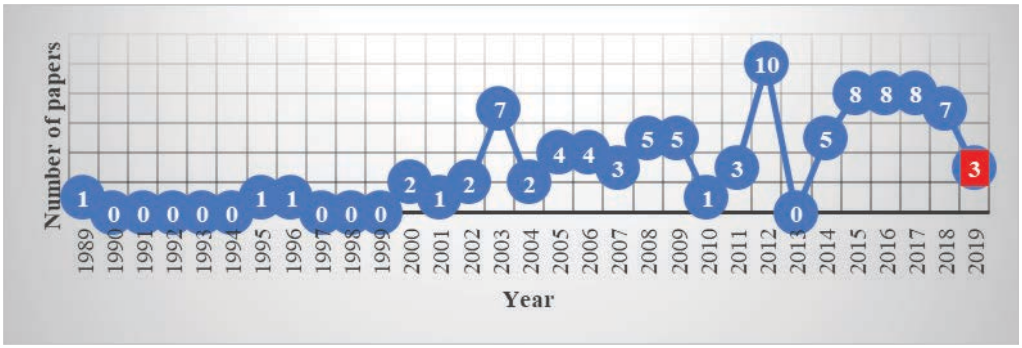
Authors	Year	Title of the paper	*Volume* (Issue), Pages	Comment/Description
Asero, V., & Tomaselli, V.	2015	Research Note: Analysing Tourism Demand in Tourist Districts — The Case of Sicily	*21*(5), 1111–1119	"The findings highlight the importance of the seaside, cultural, and food and wine/nature segments. The analysis of the distribution of per capita per day expenditure shows higher average values for the cultural holiday."
McFarlane, J., Grant, B., Blackwell, B., & Mounter, S.	2017	Combining amenity with experience: Exploring the hidden capital of a winescape experience	*23*(5), 1076–1095	The authors use input-output analysis to evaluate the economic performance and benefits of the wine industry. (Central West Region of New South Wales, Australia)

Source: The authors' research; Reviewed papers: (Brown, M. D., Var, T., & Lee, S., 2002), (Marques, H., 2006), (Taylor, P., McRae-Williams, P., & Lowe, J., 2007), (Ohe, Y., & Ciani, A., 2011), (Sampaio, A., 2012), (Asero, V., & Tomaselli, V., 2015), (McFarlane, J., Grant, B., Blackwell, B., & Mounter, S., 2017)

The average age of the papers (if we consider 2019 as the starting point for the calculation) is 8.41 years – Journal of Hospitality & Tourism Research (11.27), Journal of Sustainable Tourism (10.00), Journal of Travel & Tourism Marketing (9.75), Tourism Management (9.53), Annals of Tourism Research (9.40), Tourism Economics (9), Tourism Geographies (8), International Journal of Tourism Research (7.18), Current Issues in Tourism (5.44), Scandinavian Journal of Hospitality and Tourism (4), Asia Pacific Journal of Tourism Research (3.50), Journal of Tourism and Cultural Change (3), Tourism Management Perspectives (2.67). All previous numbers are rounded to two decimal places.

On the basis of the data obtained in the review, it is clear that the oldest paper on wine and wine tourism in the analyzed journals was published in 1989, and the latest come from the research year - 2019, indicating that the first paper was published more than three decades ago. Also, it can be observed that the number of papers was negligible until the beginning of the 21st century (5 papers, 5.49%). The progress is already obvious in the first decade of the 21st century, when a considerable number of papers was published (34 papers, 37.36%). So far, in the second decade of the 21st century, 52 papers have been published, which is more than a half of the established number of the papers on wine and wine tourism (57.14%). This fact indicates an increase in the interest in wine and wine tourism, and therefore even a larger number of the papers can be expected in the following decades. The largest number of papers was published in 2012 (10; 10%), while there has been a regular number of papers published since 2015 (note: at the time of the research, three more papers were published (2019), and it certainly is not the final number). The review of the papers per year of publishing is offered in the following graph (*Figure 1.*).

Figure 1. The review of the papers on wine and wine tourism per year of publishing



The source: the authors' research

We should mention the most often represented authors – Bruwer, J. (7 papers, 7.69%), Alonso, A. D. (5 papers, 5.49%), Dodd, T. H. (4 papers, 4.4%), Getz, D. (4 papers, 4.4%, etc).

Finally, the subject and aim of this paper have been achieved on the basis of the aforementioned research results on wine and wine tourism.

After determining the number of papers related to wine and wine tourism in the analyzed journals, the frequency of words in the keywords of the analyzed papers was determined. In order to better understand the distribution of keywords, it is necessary to present them by journals, by time periods and in the total number of papers.

The most frequent words in keywords by journals are given in the table below (*Table 16.*).

Table 16. The most frequent words in keywords (journals view)

Journal	The most frequent words in keywords
Tourism Management	wine (18), tourism (16), behavioral/behaviour(s) (5), attitude(s) (4), destination (3), experience(s)/experiential (3), structural (3), control (2), customer (2), equation (2), influences (2), intention (2), involvement (2), marketing (2), model(ling) (2), norms/normative (2), region(al) (2), theory (2), tourist(s) (2), trail(s) (2), willingness (2), winescape (2)
Annals of Tourism Research	tourism (3), cultural (2), orientations (2), wine (2)
Current Issues in Tourism	tourism (13), wine (12), behaviour (2), culinary (2), experience(s) (2), rural (2), sustainable (2)
Journal of Sustainable Tourism	tourism (3), wine (3), sustainable (2)
Journal of Hospitality & Tourism Research	wine (12), marketing (4), tourism (4), consumer(s) (3), travel (3), behavior(al) (2), constraints (2), information (2), knowledge (2), sources (2), subjective (2), value(s) (2)

Journal	The most frequent words in keywords
International Journal of Tourism Research	wine (12), tourism (7), behaviour(al) (3), brand (3), segmentation (3), consumer (2), consumption (2), cross-cultural/acculturation (2), destination (2), food (2), holiday/postholiday (2), image (2), local (2), model (2), perceived (2), tourist(s) (2), visitor (2), winery/wineries (2)
Tourism Geographies	tourism (3), wine (2)
Journal of Travel & Tourism Marketing	wine(s) (27), tourism (16), marketing (6), socio-/social (5), involvement (4), segments/segmentation (4), tourist(s) (4), winery/wineries (4), destination (3), festival(s) (3), image (3), media (3), visitor(s) (3), analysis (2), audience (2), Australia(n) (2), brand (2), Chinese (2), consumer (2), food (2), France (2), importance (2), market (2), motivation (2), networks/networking (2), satisfaction (2), tasting (2)
Tourism Management Perspectives	tourism (4), wine (3), tourist (2)
Asia Pacific Journal of Tourism Research	tourism (5), wine (5), value (4), experience (2)
Scandinavian Journal of Hospitality & Tourism*	organic (2), wine (2) (organic wine attributes, overall and organic wine knowledge, consumer behavioral intentions)**
Journal of Tourism & Cultural Change*	- (wine-tourism, non-profit organisations, rural areas, Poland)**
Tourism Economics	tourism (5), wine (4), analysis (3), model(ling) (3), agritourism (2), development (2), regional (2)
Notes: Words with a frequency ≥ 2 are listed above; * - a journal in which there is only one paper; **- original keywords	

The source: the authors' research

The most frequent words in keywords by time periods are given in the table below (*Table 17.*).

Table 17. The most frequent words in keywords (time periods view)

Time period	The most frequent words in keywords
1989-2000	consumer (3), wine (2)
2001-2010	wine(s) (40), tourism (32), festival(s) (5), tourist(s) (5), analysis (4), behaviour(s) (4), involvement (4), marketing (4), segments/segmentation (4), strategy/strategies/strategic (4), theory (4), winery/wineries (4), destination (3), food (3), market (3), motivation (3), Niagara (3), region(al) (3), special (3), Africa (2), attitude(s) (2), British Columbia (2), Canada (2), consumer(s) (2), control (2), development (2), experience(s) (2), France (2), influences (2), interest (2), knowledge (2), model(ling) (2), orientations (2), planned/planning (2), stakeholder (2), structural (2), trails (2), visits (2)

Time period	The most frequent words in keywords
2011-2019	wine (61), tourism (47), behavio(u)r(al) (10), experience(s)/experiential (9), destination (8), marketing (8), model(ling) (8), tourist(s) (8), intention(s) (7), value(s) (7), brand(ing) (6), cultural/cross-cultural/acculturation (6), image (6), visitor(s) (6), winery/wineries (6), winescape (6), perceived (5), satisfaction (5), segments/segmentation (5), social (5), travel (5), analysis (4), Australia(n) (4), benefits (4), China('s)/Chinese (4), consumer (4), involvement (4), region(al) (4), rural (4), servicescape (4), sustainable (4), added/adding (2), area(s) (2), attitude(s) (2), attribute(-,s) (2), audience (2), challenges (2), constraints (2), cross- (2), culinary (2), customer (2), effect (2), entrepreneurs/entrepreneurship (2), equation (2), equity (2), experimental/quasi-experiments (3), heritage (2), hodenic (2), importance (2), industry (2), Italy (2), logistic (2), loyalty (2), mapping/maps (2), networks/networking (2), norm(s) (2), organic (2), product (2), quality (2), regression (2), revisit/re-visit (2), SEM (2), structural (2), subjective (2), supply (2), system(s) (2), theory (2), US/USA (2), willingness (2)
Notes: Words with a frequency ≥ 2 are listed above.	

The source: the authors' research

After reviewing (key)words frequency by journals and time periods, the (key)words view should be given for the total number of papers. The most frequent words in keywords are overall: wine(s) (103), tourism (80), behavio(u)r(ial) (15), tourist(s) (13), marketing (12), destination (11), experience(s)/experient(i)al (11), model(ling) (10), winery/wineries (10), consumer(s) (9), segments/segmentation (9), analysis (8), brand(ing) (8), involvement (8), food (7), image (7), intention(s) (7), region(al) (7), value(s) (7), visitor(s) (7), cultural/cross-cultural/acculturation (6), festival(s) (6), motivation (6), socio-/social (6), theory (6), travel (6), winescape (6), Australia(n) (5), development (5), perceived (5), rural (5), sustainable (5). Note: Words with a frequency ≥ 5 are listed above.

Conclusions

As it is obvious from the review of the papers on wine and wine tourism, this field is represented in 13/15 analyzed journals, whereas the total number of papers is 91. The papers appear in the range from 1989 to 2019 (as the year of the research), whereas the greatest share was published in the 21st century (86; 94.51%), especially in its second decade (52; 57.14%) – most of them in 2012 (10; 10%). There has been a continuous flow in the number of the papers published since 2015; therefore, on the basis of the aforementioned data, it can be concluded that that the tendency of writing the scientific papers in the field of wine and wine tourism in the journals as the subject of the analysis will continue, increasing the annual number of papers in the following decades. Also, this paper gives highlights of the contribution of these analyzed papers, the most frequent authors, and presents the frequency of words in the keywords listed in analyzed papers. On the basis of all these facts, we can infer that the subject and aim of this paper have been achieved.

The contribution of this paper is in the review of the papers dealing with the topic of wine and wine tourism published in the most important journals in the world in the field of tourism so far (journals from JCR list with Impact Factor (IF) which names refer directly

to the word "tourism"– (Clarivate Analytics, 2018)). This is the way of creating the basis for further analyses and studies in this field for the interested scientists and researchers.

Potential disadvantages of this paper lay in the analysis of the journals (not other types of publications), more precisely a certain number of journals (15) in the field of tourism (journals from JCR list with Impact Factor (IF) which names refer directly to the word "tourism"– (Clarivate Analytics, 2018), regardless of the papers on the subject of wine and wine tourism published in other journals of the same category (rank), but in other scientific fields. Also, the analysis referred to the presence of the phrases related to wine and wine tourism in the paper titles, keywords and abstracts, not excluding the possibility (although a small one) that some of the authors were dealing with a similar analysis in the text of the paper, without stating it in the elements of this analysis (title, keywords, abstract).

Further research could be directed towards the analysis of the rest of the publications available, the other significant journals in the field of tourism (but potentially the other "related" scientific fields as well) in order to acquire a more complete picture about the studies on the role of wine and wine tourism in the complete economic movements.

In addition to all that, wine tourism will still attract people in the future, and therefore its further study will be important in order to use the potentials of this type of tourism as completely as possible.

Conflict of interests

The authors declare no conflict of interest.

References

1. 3rd UNWTO Global Conference on Wine Tourism, 6-7 September 2018, Chisinau, Moldova, http://affiliatemembers.unwto.org/event/3rd-unwto-global-conference-wine-tourism (July 11, 2019).
2. Alamanos, E., Kuznesof, S., & Ritson, C. (2016). The influence of holidays on wine purchasing behaviour: marketing and tourism insights based on a holiday experience in Greece. *International Journal of Tourism Research*, *18*(3), 228-235. https://doi.org/10.1002/jtr.1999
3. Alonso, A. D. & Liu, Y. (2012). Old wine region, new concept and sustainable development: winery entrepreneurs' perceived benefits from wine tourism on Spain's Canary Islands. *Journal of Sustainable Tourism*, *20*(7), 991-1009. DOI: 10.1080/09669582.2011.651220
4. Alonso, A. D., & Liu, Y. (2012). Visitor Centers, Collaboration, and the Role of Local Food and Beverage as Regional Tourism Development Tools: The Case of the Blackwood River Valley in Western Australia. *Journal of Hospitality & Tourism Research*, *36*(4), 517–536. https://doi.org/10.1177/1096348011413594

5. Alonso, A. D., Bressan, A., O'Shea, M., & Krajsic, V. (2015). Perceived benefits and challenges to wine tourism involvement: An international perspective. *International Journal of Tourism Research*, *17*(1), 66-81. https://doi.org/10.1002/jtr.1967
6. Asero, V., & Tomaselli, V. (2015). Research Note: Analysing Tourism Demand in Tourist Districts — The Case of Sicily. *Tourism Economics*, *21*(5), 1111–1119. https://doi.org/10.5367/te.2014.0392
7. Barber, N. A., Donovan, J. R., & Dodd, T. H. (2008). Differences in tourism marketing strategies between wineries based on size or location. *Journal of Travel & Tourism Marketing*, *25*(1), 43-57. DOI: 10.1080/10548400802164889
8. Barber, N., Taylor, D. C., & Deale, C. S. (2010). Wine tourism, environmental concerns, and purchase intention. *Journal of Travel & Tourism Marketing*, *27*(2), 146-165. DOI: 10.1080/10548400903579746
9. Brown, G. P., Havitz, M. E., & Getz, D. (2007). Relationship between wine involvement and wine-related travel. *Journal of Travel & Tourism Marketing*, *21*(1), 31-46. DOI: 10.1300/J073v21n01_03
10. Brown, M. D., Var, T., & Lee, S. (2002). Messina Hof Wine and Jazz Festival: An Economic Impact Analysis. *Tourism Economics*, *8*(3), 273–279. https://doi.org/10.5367/000000002101298115
11. Bruwer, J. (2003). South African wine routes: some perspectives on the wine tourism industry's structural dimensions and wine tourism product. *Tourism management*, *24*(4), 423-435. https://doi.org/10.1016/S0261-5177(02)00105-X
12. Bruwer, J. (2014). Service quality perception and satisfaction: Buying behaviour prediction in an Australian Festivalscape. *International Journal of Tourism Research*, *16*(1), 76-86. https://doi.org/10.1002/jtr.1901
13. Bruwer, J., & Lesschaeve, I. (2012). Wine tourists' destination region brand image perception and antecedents: Conceptualization of a winescape framework. *Journal of Travel & Tourism Marketing*, *29*(7), 611-628. DOI: 10.1080/10548408.2012.719819
14. Bruwer, J., Pratt, M. A., Saliba, A. & Hirche, M. (2017). Regional destination image perception of tourists within a winescape context. *Current Issues in Tourism*, *20*(2), 157-177. DOI: 10.1080/13683500.2014.904846
15. Bruwer, J., Prayag, G., & Disegna, M. (2018). Why wine tourists visit cellar doors: Segmenting motivation and destination image. *International Journal of Tourism Research*, *20*(3), 355-366. https://doi.org/10.1002/jtr.2187
16. Byrd, E. T., Canziani, B., Hsieh, Y. C. J., Debbage, K., & Sonmez, S. (2016). Wine tourism: Motivating visitors through core and supplementary services. *Tourism Management*, *52*, 19-29. https://doi.org/10.1016/j.tourman.2015.06.009
17. Canovi, M., & Pucciarelli, F. (2019). Social media marketing in wine tourism: winery owners' perceptions. *Journal of Travel & Tourism Marketing*, *36*(6), 653-664. DOI: 10.1080/10548408.2019.1624241
18. Carlsen, J., & Boksberger, P. (2015). Enhancing Consumer Value in Wine Tourism. *Journal of Hospitality & Tourism Research*, *39*(1), 132–144. https://doi.org/10.1177/1096348012471379

19. Carlsen, P. J. (2004). A review of global wine tourism research. *Journal of wine research*, *15*(1), 5-13. DOI: 10.1080/0957126042000300281
20. Carmichael, B. (2005). Understanding the wine tourism experience for winery visitors in the Niagara region, Ontario, Canada. *Tourism Geographies*, *7*(2), 185-204. DOI: 10.1080/14616680500072414
21. Charters, S., & Ali-Knight, J. (2002). Who is the wine tourist?. *Tourism management*, *23*(3), 311-319. https://doi.org/10.1016/S0261-5177(01)00079-6
22. Charters, S., & Menival, D. (2011). Wine Tourism in Champagne. *Journal of Hospitality & Tourism Research*, *35*(1), 102–118. https://doi.org/10.1177/1096348010384597
23. Chen, X., Goodman, S., Bruwer, J. & Cohen, J. (2016). Beyond Better Wine: The Impact of Experiential and Monetary Value on Wine Tourists' Loyalty Intentions. *Asia Pacific Journal of Tourism Research*, *21*(2), 172-192. DOI: 10.1080/10941665.2015.1029955
24. Cho, M., Bonn, M. A., & Brymer, R. A. (2017). A Constraint-Based Approach to Wine Tourism Market Segmentation. *Journal of Hospitality & Tourism Research*, *41*(4), 415–444. https://doi.org/10.1177/1096348014538049
25. Chong, K. L. (2017) Thailand wine tourism: a dream or a reality?. *Asia Pacific Journal of Tourism Research*, *22*(6), 604-614. DOI: 10.1080/10941665.2017.1308389
26. Clarivate Analytics (2018). 2018 Journal Citation Reports, Journals in the 2018 release of JCR. https://clarivate.com/wp-content/uploads/2018/06/Crv_JCR_Full-Marketing-List_A4_2018_v4.pdf
27. Cuellar, S. S., Eyler, R. C., & Fanti, R. (2015). Experiential marketing and long-term sales. *Journal of Travel & Tourism Marketing*, *32*(5), 534-553. DOI: 10.1080/10548408.2014.918925
28. Cvijanović, D. & Ružić, P. (2017). *Rural tourism*. Faculty of Hotel Management and Tourism in Vrnjačka Banja, University in Kragujevac, Vrnjačka Banja. [In Serbian: Cvijanović, D. & Ružić, P. (2017). *Ruralni turizam*. Fakultet za hotelijerstvo i turizam u Vrnjačkoj Banji, Univerzitet u Kragujevcu, Vrnjačka Banja.].
29. Dawson, D., Fountain, J. & Cohen, D. A. (2011). Seasonality and the Lifestyle "Conundrum": An Analysis of Lifestyle Entrepreneurship in Wine Tourism Regions. *Asia Pacific Journal of Tourism Research*, *16*(5), 551-572. DOI: 10.1080/10941665.2011.597580
30. Demhardt, I. J. (2003). Wine and Tourism at the "Fairest Cape" Post-Apartheid Trends in the Western Cape Province and Stellenbosch (South Africa). *Journal of Travel & Tourism Marketing*, *14*(3-4), 113-130. DOI: 10.1300/J073v14n03_07
31. Dodd, T. H. (1996). Factors that Influence the Adoption and Diffusion of New Wine Products. *Hospitality Research Journal*, *20*(3), 123–136. https://doi.org/10.1177/109634809602000308
32. Dodd, T. H., Laverie, D. A., Wilcox, J. F., & Duhan, D. F. (2005). Differential Effects of Experience, Subjective Knowledge, and Objective Knowledge on Sources of Information used in Consumer Wine Purchasing. *Journal of Hospitality & Tourism Research*, *29*(1), 3–19. https://doi.org/10.1177/1096348004267518

33. Duan, B., Arcodia, C., Ma, E. & Hsiao, A. (2018). Understanding wine tourism in China using an integrated product-level and experience economy framework. *Asia Pacific Journal of Tourism Research*, *23*(10), 949-960. DOI: 10.1080/10941665.2018.1512506

34. Duarte Alonso, A., Bressan, A., O'Shea, M. & Krajsic, V. (2014). Educating winery visitors and consumers: an international perspective. *Current Issues in Tourism*, *17*(6), 539-556. DOI: 10.1080/13683500.2012.746650

35. Eustice, C., McCole, D., & Rutty, M. (2019). The impact of different product messages on wine tourists' willingness to pay: A non-hypothetical experiment. *Tourism Management*, *72*, 242-248. https://doi.org/10.1016/j.tourman.2018.11.022

36. Ferreira, S. L., & Hunter, C. A. (2017). Wine tourism development in South Africa: a geographical analysis. *Tourism Geographies*, *19*(5), 676-698. DOI: 10.1080/14616688.2017.1298152

37. Fox, M. (1989). Quality Assurance and Sensory Evaluation in Foodservice— a New Course for Foodservice Managers. *Hospitality Education and Research Journal*, *13*(3), 554–554. https://doi.org/10.1177/109634808901300366

38. Frochot, I. (2003). An analysis of regional positioning and its associated food images in French tourism regional brochures. *Journal of Travel & Tourism Marketing*, *14*(3-4), 77-96. DOI: 10.1300/J073v14n03_05

39. Galloway, G., Mitchell, R., Getz, D., Crouch, G., & Ong, B. (2008). Sensation seeking and the prediction of attitudes and behaviours of wine tourists. *Tourism Management*, *29*(5), 950-966. https://doi.org/10.1016/j.tourman.2007.11.006

40. Garibaldi, R., Stone, M. J., Wolf, E., & Pozzi, A. (2017). Wine travel in the United States: A profile of wine travellers and wine tours. *Tourism management perspectives*, *23*, 53-57. https://doi.org/10.1016/j.tmp.2017.04.004

41. Getz, D., & Brown, G. (2006). Critical success factors for wine tourism regions: a demand analysis. *Tourism management*, *27*(1), 146-158. https://doi.org/10.1016/j.tourman.2004.08.002

42. Gómez, M., & Molina, A. (2012). Wine tourism in Spain: denomination of origin effects on brand equity. *International journal of tourism research*, *14*(4), 353-368. https://doi.org/10.1002/jtr.868

43. Gomez, M., Lopez, C., & Molina, A. (2015). A model of tourism destination brand equity: The case of wine tourism destinations in Spain. *Tourism Management*, *51*, 210-222. https://doi.org/10.1016/j.tourman.2015.05.019

44. Gómez, M., Pratt, M. A., & Molina, A. (2018). Wine tourism research: a systematic review of 20 vintages from 1995 to 2014. *Current Issues in Tourism*, 1-39. DOI: 10.1080/13683500.2018.1441267

45. Gross, M. J., & Brown, G. (2008). An empirical structural model of tourists and places: Progressing involvement and place attachment into tourism. *Tourism management*, *29*(6), 1141-1151. https://doi.org/10.1016/j.tourman.2008.02.009

46. Gu, Q., & Huang, S. (2019). Profiling Chinese wine tourists by wine tourism constraints: A comparison of Chinese Australians and long□haul Chinese tourists in Australia. *International Journal of Tourism Research*, *21*(2), 206-220. https://doi.org/10.1002/jtr.2255

47. Gu, Q., Qiu Zhang, H., King, B., & Huang, S. (2018). Wine tourism involvement: a segmentation of Chinese tourists. *Journal of travel & tourism marketing*, *35*(5), 633-648. DOI: 10.1080/10548408.2017.1401031

48. Hall, C. M. (2005). Biosecurity and wine tourism. *Tourism management*, *26*(6), 931-938. https://doi.org/10.1016/j.tourman.2004.06.011

49. Hall, C. M. (2011). Publish and perish? Bibliometric analysis, journal ranking and the assessment of research quality in tourism. *Tourism Management, 32*(1), 16-27, https://doi.org/10.1016/j.tourman.2010.07.001

50. Hall, C. M., Longo, A. M., Mitchell, R., & Johnson, G. (1996, December). Wine tourism in new Zealand. In *Proceedings of tourism down under II: A research conference* (pp. 109-119). Dunedin: University of Otago.

51. Hashimoto, A., & Telfer, D. J. (2003). Positioning an emerging wine route in the Niagara region: Understanding the wine tourism market and its implications for marketing. *Journal of Travel & Tourism Marketing*, *14*(3-4), 61-76. DOI: 10.1300/J073v14n03_04

52. Hassanli, N. & Ashwell, J. (2018). The contribution of small accommodations to a sustainable tourism industry. *Current Issues in Tourism*, DOI: 10.1080/13683500.2018.1530201

53. Hjalager, A. M., & Corigliano, M. A. (2000). Food for tourists—determinants of an image. *International journal of tourism research*, *2*(4), 281-293. https://doi.org/10.1002/1522-1970(200007/08)2:4<281::AID-JTR228>3.0.CO;2-Y

54. Ignatov, E. & Smith, S. (2006). Segmenting Canadian Culinary Tourists. *Current Issues in Tourism*, *9*(3), 235-255. DOI: 10.2167/cit/229.0

55. International Organisation of Vine and Wine (2017). INTERNATIONAL CODE OF ŒNOLOGICAL PRACTICES, OIV Code Sheet – Issue 2017/01, http://www.oiv.int/public/medias/5119/code-2017-en.pdf, 11.07.2019., 10:03.

56. International Organisation of Vine and Wine (2019). *STATE OF THE VITIVINICULTURE WORLD MARKET, State of the sector in 2018, april 2019*, Retrived from http://www.oiv.int/public/medias/6679/en-oiv-state-of-the-vitiviniculture-world-market-2019.pdf (July 11, 2019).

57. International Organisation of Vine and Wine (OIV), Retrived from http://www.oiv.int/en/statistiques/recherche (July 10, 2019).

58. Jaffe, E., & Pasternak, H. (2004). Developing wine trails as a tourist attraction in Israel. *International Journal of Tourism Research*, *6*(4), 237-249. https://doi.org/10.1002/jtr.485

59. Jones, M. F., Singh, N., & Hsiung, Y. (2015). Determining the critical success factors of the wine tourism region of Napa from a supply perspective. *International Journal of Tourism Research*, *17*(3), 261-271. https://doi.org/10.1002/jtr.1984

60. Kim, H., & Bonn, M. A. (2015). The moderating effects of overall and organic wine knowledge on consumer behavioral intention. *Scandinavian Journal of Hospitality and Tourism*, *15*(3), 295-310. DOI: 10.1080/15022250.2015.1007083

61. Kolyesnikova, N., & Dodd, T. H. (2009). There is no such thing as a free wine tasting: The effect of a tasting fee on obligation to buy. *Journal of Travel & Tourism Marketing*, *26*(8), 806-819. DOI: 10.1080/10548400903356228

62. Lee, K., Zhao, J., & Ko, J.-Y. (2005). Exploring the Korean Wine Market. *Journal of Hospitality & Tourism Research*, *29*(1), 20–41. https://doi.org/10.1177/1096348004268195

63. Lee, S., Bruwer, J., & Song, H. (2017). Experiential and involvement effects on the Korean wine tourist's decision-making process. *Current Issues in Tourism*, *20*(12), 1215-1231. DOI: 10.1080/13683500.2015.1050362

64. López-Guzmán, T., García, J. R., & Rodríguez, Á. V. (2013). REVIEW OF THE SCIENTIFIC LITERATURE ON WINE TOURISM IN SPAIN. *Cuadernos de Turismo*, *32*, 323-326

65. López-Guzmán, T., Vieira-Rodríguez, A., & Rodríguez-García, J. (2014). Profile and motivations of European tourists on the Sherry wine route of Spain. *Tourism Management Perspectives*, *11*, 63-68. https://doi.org/10.1016/j.tmp.2014.04.003

66. March, R., & Wilkinson, I. (2009). Conceptual tools for evaluating tourism partnerships. *Tourism management*, *30*(3), 455-462. https://doi.org/10.1016/j.tourman.2008.09.001

67. Marques, H. (2006). Research Report: Searching for Complementarities between Agriculture and Tourism — The Demarcated Wine-Producing Regions of Northern Portugal. *Tourism Economics*, *12*(1), 147–155. https://doi.org/10.5367/000000006776387141

68. Marzo□Navarro, M., & Pedraja□Iglesias, M. (2009). Profile of a wine tourist and the correspondence between destination and preferred wine: A study in Aragon, Spain. *Journal of Travel & Tourism Marketing*, *26*(7), 670-687. DOI: 10.1080/10548400903281251

69. Mason, M. C., & Paggiaro, A. (2012). Investigating the role of festivalscape in culinary tourism: The case of food and wine events. *Tourism management*, *33*(6), 1329-1336. https://doi.org/10.1016/j.tourman.2011.12.016

70. Mazurkiewicz-Pizlo, A. (2016). The importance of non-profit organisations in developing wine tourism in Poland. *Journal of Tourism and Cultural Change*, *14*(4), 339-349. DOI: 10.1080/14766825.2015.1102922

71. McFarlane, J., Grant, B., Blackwell, B., & Mounter, S. (2017). Combining amenity with experience: Exploring the hidden capital of a winescape experience. *Tourism Economics*, *23*(5), 1076–1095. https://doi.org/10.1177/1354816616665754

72. Mikulić, J., Paunović, Z., & Prebežac, D. (2012). An extended neural network-based importance-performance analysis for enhancing wine fair experience. *Journal of Travel & Tourism Marketing*, *29*(8), 744-759. DOI: 10.1080/10548408.2012.730936

73. Mitchell, R. D., & Hall, C. M. (2003). Seasonality in New Zealand winery visitation: An issue of demand and supply. *Journal of Travel & Tourism Marketing*, *14*(3-4), 155-173. DOI: 10.1300/J073v14n03_09

74. Mitchell, R., & Hall, C. M. (2006). Wine tourism research: the state of play. *Tourism Review International*, *9*(4), 307-332. https://doi.org/10.3727/154427206776330535

75. Mitchell, R., Charters, S., & Albrecht, J. N. (2012). Cultural systems and the wine tourism product. *Annals of tourism research*, *39*(1), 311-335. https://doi.org/10.1016/j.annals.2011.05.002

76. Montella, M. (2017). Wine tourism and sustainability: A review. *Sustainability*, *9*(1), 1-11

77. Moore, R. S. (1995). Gender and alcohol use in a Greek tourist town. *Annals of Tourism Research*, *22*(2), 300-313. https://doi.org/10.1016/0160-7383(94)00078-6

78. Nella, A., & Christou, E. (2014). Segmenting wine tourists on the basis of involvement with wine. *Journal of Travel & Tourism Marketing*, *31*(7), 783-798. DOI: 10.1080/10548408.2014.889639

79. Ohe, Y., & Ciani, A. (2011). Evaluation of Agritourism Activity in Italy: Facility Based or Local Culture Based? *Tourism Economics*, *17*(3), 581–601. https://doi.org/10.5367/te.2011.0048

80. Park, K. S., Reisinger, Y., & Kang, H. J. (2008). Visitors' motivation for attending the South Beach wine and food festival, Miami Beach, Florida. *Journal of Travel & Tourism Marketing*, *25*(2), 161-181. DOI: 10.1080/10548400802402883

81. Poitras, L. & Donald, G. (2006). Sustainable Wine Tourism: The Host Community Perspective. *Journal of Sustainable Tourism*, *14*(5), 425-448. DOI: 10.2167/jost587.0

82. Popp, L. & McCole, D. (2016). Understanding tourists' itineraries in emerging rural tourism regions: the application of paper-based itinerary mapping methodology to a wine tourism region in Michigan. *Current Issues in Tourism*, *19*(10), 988-1004. DOI: 10.1080/13683500.2014.942259

83. Pratt, M. A., & Sparks, B. (2014). Predicting wine tourism intention: Destination image and self-congruity. *Journal of Travel & Tourism Marketing*, *31*(4), 443-460. DOI: 10.1080/10548408.2014.883953

84. Quintal, V. A., Thomas, B., & Phau, I. (2015). Incorporating the winescape into the theory of planned behaviour: Examining 'new world' wineries. *Tourism Management*, *46*, 596-609. https://doi.org/10.1016/j.tourman.2014.08.013

85. Rabbiosi, C. (2016). Place branding performances in tourist local food shops. *Annals of tourism research*, *60*, 154-168. https://doi.org/10.1016/j.annals.2016.07.002

86. Rutherford, D. G., Perkins, A. W., & Spangenberg, E. R. (2000). Trade Dress and Consumer Perception of Product Similarity. *Journal of Hospitality & Tourism Research*, *24*(2), 163–179. https://doi.org/10.1177/109634800002400203

87. Saayman, M., Krugell, W. F., & Saayman, A. (2016). Willingness to pay: Who are the cheap talkers?. *Annals of Tourism Research*, *56*, 96-111. https://doi.org/10.1016/j.annals.2015.11.009

88. SAGE Journals, https://journals.sagepub.com/ (July 6, 2019)

89. Sampaio, A. (2012). Wine Tourism and Visitors' Perceptions: A Structural Equation Modelling Approach. *Tourism Economics*, *18*(3), 533–553. https://doi.org/10.5367/te.2012.0132

90. Sánchez, A. D., Del Río, M. D. L. C., & García, J. Á. (2017). Bibliometric analysis of publications on wine tourism in the databases Scopus and WoS. *European Research on Management and Business Economics*, *23*(1), 8-15. https://doi.org/10.1016/j.iedeen.2016.02.001

91. Sánchez, A. D., García, J. Á., & del Río, M. D. L. C. (2016). Wine tourism: scientific literature analysis in cross-cultural research of doctoral thesis. *Estudios y Perspectivas en Turismo*, *25*(2), 186-202. [In Spanish: Sánchez, A. D., García, J. Á., & del Río, M. D. L. C. (2016). Análisis de la literatura científica en las investigaciones transculturales de tesis doctorales en enoturismo. *Estudios y perspectivas en turismo*, *25*(2), 186-202.].

92. Savinovic, A., Kim, S., & Long, P. (2012). Audience members' motivation, satisfaction, and intention to re-visit an ethnic minority cultural festival. *Journal of Travel & Tourism Marketing*, *29*(7), 682-694. DOI: 10.1080/10548408.2012.720154

93. Scherrer, P., Alonso, A., & Sheridan, L. (2009). Expanding the destination image: Wine tourism in the Canary Islands. *International journal of tourism research*, *11*(5), 451-463. https://doi.org/10.1002/jtr.713

94. ScienceDirect, http://www.sciencedirect.com/ (July 6, 2019)

95. Shanka, T. & Taylor, R. (2004). Discriminating Factors of First-time and Repeat Visitors to Wine Festivals. *Current Issues in Tourism*, *7*(2), 134-145. DOI: 10.1080/13683500408667976

96. Soontiens, W., Dayaram, K., Burgess, J., & Grimstad, S. (2018). Bittersweet? Urban proximity and wine tourism in the Swan Valley Region. *Tourism management perspectives*, *28*, 105-112. https://doi.org/10.1016/j.tmp.2018.08.008

97. Sparks, B. (2007). Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions. *Tourism management*, *28*(5), 1180-1192. https://doi.org/10.1016/j.tourman.2006.11.003

98. Stavrinoudis, T. A., Tsartas, P., & Chatzidakis, G. (2012). Study of the major supply factors and business choices affecting the growth rate of wine tourism in Greece. *Current Issues in Tourism*, *15*(7), 627-647. DOI: 10.1080/13683500.2011.630457

99. Taylor & Francis Online, https://www.tandfonline.com (July 6 and 7, 2019)

100. Taylor, P., McRae-Williams, P., & Lowe, J. (2007). The Determinants of Cluster Activities in the Australian Wine and Tourism Industries. *Tourism Economics*, *13*(4), 639–656. https://doi.org/10.5367/000000007782696050

101. Telfer, D. J. (2001). Strategic alliances along the Niagara wine route. *Tourism Management*, *22*(1), 21-30. https://doi.org/10.1016/S0261-5177(00)00033-9

102. Thomas, B., Quintal, V. A., & Phau, I. (2018). Wine Tourist Engagement With the Winescape: Scale Development and Validation. *Journal of Hospitality & Tourism Research*, *42*(5), 793–828. https://doi.org/10.1177/1096348016640583

103. Westering, J. V., & Niel, E. (2003). The organization of wine tourism in France: The involvement of the French public sector. *Journal of Travel & Tourism Marketing*, *14*(3-4), 35-47. DOI: 10.1300/J073v14n03_02

104. White, C. J., & Thompson, M. (2009). Self determination theory and the wine club attribute formation process. *Annals of Tourism Research*, *36*(4), 561-586. https://doi.org/10.1016/j.annals.2009.04.001

105. Wiley Online Library, https://onlinelibrary.wiley.com/ (July 7, 2019)

106. Williams, P. W., & Dossa, K. B. (2003). Non-resident wine tourist markets: Implications for British Columbia's emerging wine tourism industry. *Journal of Travel & Tourism Marketing*, *14*(3-4), 1-34. DOI: 10.1300/J073v14n03_01

107. Xu, S., Barbieri, C., Anderson, D., Leung, Y. F., & Rozier-Rich, S. (2016). Residents' perceptions of wine tourism development. *Tourism Management*, *55*, 276-286. https://doi.org/10.1016/j.tourman.2016.02.016

108. Ye, B. H., Zhang, H. Q., & Yuan, J. (2017). Intentions to Participate in Wine Tourism in an Emerging Market: Theorization and Implications. *Journal of Hospitality & Tourism Research*, *41*(8), 1007–1031. https://doi.org/10.1177/1096348014525637

109. Yuan, J., Morrison, A. M., Cai, L. A., & Linton, S. (2008). A model of wine tourist behaviour: a festival approach. *International Journal of Tourism Research*, *10*(3), 207-219. https://doi.org/10.1002/jtr.651

THE IMPORTANCE OF AGRICULTURE IN FORMING GROSS VALUE ADDED IN SERBIA IN THE PERIOD OF 2008-2017

Dubravka Užar[1], Vuk Radojević[2],

**Corresponding author E-mail: dubravka.uzar@polj.uns.ac.rs*

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ABSTRACT

The subject of the research of this paper is the realized value of agricultural production, which significantly contributes to the formation of gross value added. The share of gross value added of agriculture in total GVA is one of the most important indicators of the importance of agriculture in the economic structure. The goal of the research is to point out the adequacy of the size and contribution of the agricultural sector to the creation of gross value added, as well as the impact of individual branches on the formation of total gross value added, i.e. on overall economic development. The simple linear regression method was applied to examine the impact of GVA in agriculture on total GVA. The results of the analysis show that the movement of agriculture GVA has a statistically significant influence on the movement of total GVA.

Introduction

Agricultural production is one of the key activities of the economy of the Republic of Serbia, given the availability of significant natural and human resources, as well as the achieved level of production and processing. As a production economic activity, it is a part of overall economic system, and therefore the status of agriculture reflects also on the economic system, i.e. the whole economy (Mitrović, et.al, 2017). The agricultural sector, in less developed countries, represents the basis of GDP growth, development and competitiveness of the national economy (Gerdien and Pim, 2007). However, as a consequence of the transition, this activity operates in extremely unstable conditions. Agricultural production, in the period after the breakup of the former SFRY, is characterized by unchanged production structure in, above all, capital-intensive production (with particular emphasis on livestock farming). All of the above occurs as a

1 Dubravka Užar, MAgrEC, Teaching Assistant, University of Novi Sad, Faculty of Agriculture, Trg Dositeja Obradovića 8, 21 000 Novi Sad, Serbia, Phone: + 381 (21) 4853 274, E-mail: dubravka.uzar@polj.uns.ac.rs, ORCID ID (http://orcid.org/ 0000-0002-0593-7383)

2 Vuk Radojević, PhD, Assistant Professor, University of Novi Sad, Faculty of Agriculture, Trg Dositeja Obradovića 8, 21 000 Novi Sad, Serbia, Phone: + 381 (21) 4853 420, E-mail: vuk.radojevic@polj.uns.ac.rs ORCID ID (http://orcid.org/ 0000-0002-3453-5236)

result of insufficiently effective agricultural policy measures of the Republic of Serbia (Gulan, 2013). Since the beginning of the 21st century, the contribution of agriculture to GDP has been gradually declining, primarily due to faster growth in activity in the non-productive sectors, before all in trade and the services sector. Despite this, the share of agriculture in the gross value added (GVA) structure of the economy of the Republic of Serbia is still high. The high share of agriculture, expressed in the basic macroeconomic indicators of Serbia, in comparison with other countries, can be attributed to the abundant natural resources and favorable climatic conditions for agricultural production, as well as slower processes and the lack of structural reform of the rest of the economy of the Republic of Serbia. Agriculture, food production, food security of the country, production of raw materials for other industries, foreign trade, social, demographic and other aspects determine the multiple importance and role of agriculture in the socio-economic development of the Republic of Serbia (Madžar, 2014). With adequate strategic planning, agriculture can make a significant contribution to the country's economic development.

In defining the role and the meaning of agriculture, it's necessary to go back to the original meaning of this term. Recent definitions, such as of Z. Zakić and Ž. Stojanovic (2008), treat agriculture as: ,,an area of production in which primary products of plant and animal origin are produced, refined or processed in order to meet specific human needs." When it comes to the place and role that agriculture plays in the economic development of a country, it should start from the legality. The more a country is economically developed in its economic structure (for example in gross domestic product), agriculture has less relative (percentage) share. However, the absolute importance of agriculture in the economies of developed countries is never questioned. The calculation of indicators of the contribution of agriculture to overall economic development is purposeful, first of all, due to the fact that these indicators can be a good basis for identifying development problems, and thus creating a macroeconomic policy that will eliminate these problems or at least mitigate their impact.

The application of development indicators in order to look at the macroeconomic situation and developments in individual cases may face different problems. Therefore, when selecting indicators that determine the importance, that is, the contribution of agriculture in economic development, it is justified to take into account how realistic, accurate and comparable quantifiable indicators are.

The contribution of agriculture to the development of gross domestic product is also an indicator of the degree of general economic (un)development and the relative importance of agriculture in the economic structure. Significant percentage of agricultural involvement in the gross domestic product is a characteristic of economic systems where the primary dominates over the secondary and tertiary sectors, that is, less developed economic systems. The decrease in the percentage share of agriculture in the total domestic product of the determinants is inherent in the later stages in the process of economic development.

The most famous and most used aggregate of the System of National Accounts is gross domestic product (GDP), which is the result of production activities of all resident institutional units[3], and is calculated at current and constant prices. From this, economic science and economic policy makers often see GDP per capita as a key indicator of the success of an economy and the level of well-being. Gross domestic product is a measure of the results of a country's economic activity and its production capacity to meet the needs of different forms of consumption (SORS, Statistical Office of the RS, 2018). Together with price movements, it can be an indicator of success in guiding the economic policy of the country (Krstić and Šoškić, 2015).

The analysis of GVA can lead to factors that can ultimately contribute to a better realization of GDP. Due to the correlation between GDP and GVA, GDP formation is shown. The national accounts system contains theoretical concepts that can be represented in the form of macroeconomic-size identities. The results of identities are the various macroeconomic aggregates contained in national accounts. There are three methods of calculating GDP: product, income and expenditure. The product method of calculating GDP is represented by aggregating the value of total production minus intermediate consumption by sectors, which at the level of the overall economy is increased with taxes on products minus subsidies.

$$\mathrm{GDP} = \mathrm{P} + \mathrm{Pr} - \mathrm{Sb} - \mathrm{MP}$$

Where: P- production value at base prices, Pr - taxes on products and services, Sb - subsidies, MP- intermediate consumption (part of output not used in further production process)[4]

If we deduct the intermediate consumption from total production of P, MP can be replaced by gross value added, so the following equation holds:

$$\mathrm{GDP} = \mathrm{GVA} + \mathrm{Pr} - \mathrm{Sb}$$

The above equation shows that GDP is calculated as the sum of gross value added plus taxes on products, minus subsidies on products. Therefore, it can be concluded that gross value added (GVA) equals the difference between production value (P) and intermediate consumption (MP). Therefore, gross value added of agriculture is one of the most important balance items in the economic accounts of agriculture.

3 Institutional units carry out economic activities and transactions with other institutional units on their own account, own goods and assets, assume financial obligations and make decisions and hold them accountable (Krstić i Šoškić, 2015).

4 Intermediate agricultural consumption represents the value of consumed inputs and services (inputs) in agricultural production. The elements of intermediate consumption are: 1. Seeds and planting material; 2. Energy and lubricants; 3. Fertilizers and other means for improving soil quality; 4. Plant protection products; 5. Veterinary expenses; 6. Animal fodder; 7. Maintenance of materials; 8. Maintenance of facilities; 9. Agricultural services, 10. Other goods and services (Đurić, 2018).

Subject and aim of research

Agricultural production represents a factor affecting the economic growth and development of a national economy. The agricultural sector has a traditional significance within the Serbian economy, so it is often viewed as an area of great potential (Atanasijević and Danon, 2014). Due to its interconnectedness and influence on other sectors it's extremely important for the development of Serbia, since it contributes significantly in foreign trade, ensures the food security of citizens, and contributes to rural development and ecological balance. Today, about two million people are engaged in agriculture in our country, which indicates that it's an important factor in engaging (directly or indirectly) a large number of the workforce. Therefore, the subject of the research of this paper is the realized value of agricultural production, which significantly contributes to the formation of gross value added. The share of gross value added of agriculture in total GVA is one of the most important indicators of the importance of agriculture in the economic structure.

The aim of the research is to point out the adequacy of the size and contribution of the agricultural sector to the creation of gross value added, as well as the impact of individual branches on the formation of total gross value added, i.e. on overall economic development. The goal is to observe the impact of agriculture on the increase or decrease in GVA. In accordance with the obtained results, the goal is to further divide plant production into crop, fruit and wine growing production and to further determine which line of plant production contributes most to the formation of value of agricultural production, and therefore the total GVA. Secondly, the goal is to quantify the impact of individual livestock production lines on the formation of total GVA, which can be classified into cattle production (which also includes milk production), pig farming, poultry farming, (including egg production) and sheep farming.

In line with the research goal, the starting hypothesis in the research is:

H_0: The total value of the GVA of agriculture has a statistically significant effect on the realized value of the total GVA.

H_1: The total value of the GVA of agriculture does not have a statistically significant effect on the realized value of the total GVA.

In accordance with the set subject and goal, the paper also starts with the following research questions:

1) Does GVA share in agriculture remain unchanged in total GVA in Serbia in the analyzed period?

2) What is the representation of individual branches of agricultural production in the structure of total GVA?

Materials and methods

The research will use the official data of the Statistical Office of the Republic of Serbia (*SORS*) (database). In addition to the database, available publications were used, such as: Statistical Yearbooks of the Republic of Serbia 2014 and 2018, Gross Domestic

Product (GDP) Calculation Methodology 2018, Regional Gross Domestic Product, 2017. Gross value added for the period 2008-2015 is taken from the mentioned publications, which is represented in current prices (in millions of RSD).

In order to make the data comparable for a longer period of time, deflation of the observed values was carried out using consumer price index previously reduced to base indexes, where 2010 was taken as the base year (following the recommendation of the World Program for the Census of Agriculture 2010 (FAO - UN)). In this way, gross value added for the observed period is converted into constant prices from the base year 2010. The calculation of GDP at constant prices aims to show real dynamic and structural changes that have occurred independently of the impact of prices.

The gross value added of other activities together with the GVA of agriculture was first examined, in order to examine the structure of total gross value added. Agriculture is observed in this paper only as the primary sector, while the upward and downward industries were not included in the GVA formation related to food sector (agribusiness). The analysis covers the movement trend of gross agricultural value added. For the purpose of further analysis, the value of plant production was divided to field, fruit and vine growing production. When it comes to the values of livestock faming production, here is a division in accordance with the data available for possible cattle production (which includes the production of milk), poultry farming (also includes egg production), pig and sheep farming. The total values of all products are primarily expressed in current prices (millions of RSD), so it is also necessary to reduce them to constant prices from the base year 2010 in the manner explained.

The descriptive statistics method was applied. The measures of central tendency (arithmetic mean) and variability (interval of variation and coefficient of variation) were used. The average annual rate of change is calculated by the formula:

$$r = (G - 1);\ G = \left(\frac{Y_n}{Y_1}\right)^{\frac{1}{n-1}}$$

r - annual rate of change, G - constant relative change in value, Y_n - absolute value of the last member of the series, Y_1 - absolute value of the first member of the series, n - total size of the series, (Čobanović et al., 2005).

The paper also presents regional agriculture GVA. According to the official SORS methodology, regional GVA represents the sum of value added of all local units operating in the territory of a given region (plus product taxes with deduction of product subsidies).

Finally, a simple linear regression analysis was performed. The regression method was applied to examine the impact of GVA in agriculture on total GVA. The general form of the regression model is:

$$Y_i = \beta_0 + \beta_1 X_1 + \varepsilon_i Y_i = \beta_0 + \beta_1 X_1 + \varepsilon_i$$

where Y_i is the value of the dependent variable, X_1 is the value of the independent variable, and β_1 is the regression parameter. The parameter β_0 represents the average of the initial dependent variable, while εi is a random error (Mladenović and Petrović, 2015).

The significance of the t model as a whole was tested using the regression variance analysis, as well as the significance of the estimated parameters using appropriate tests. A coefficient of determination (corrected coefficient of determination) was also calculated, which shows the proportion explained in the total variability. The level of statistical significance used was $p<0.05$. The SPSS software package was used for data processing and analysis.

Results and Discussion

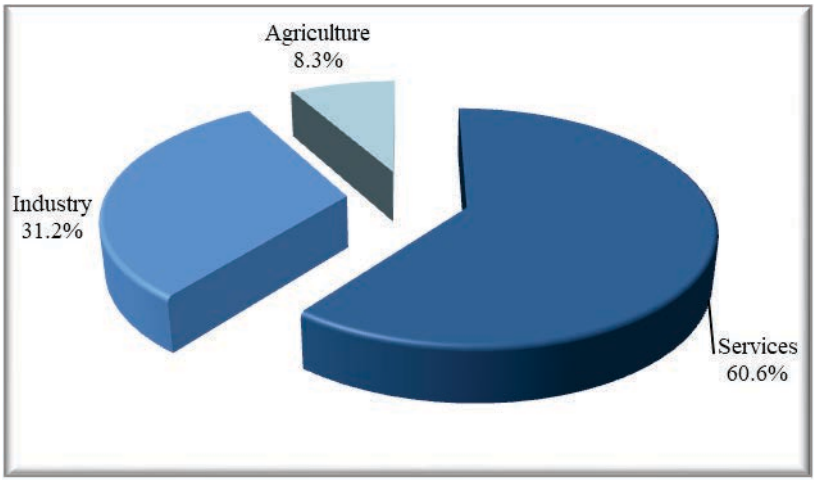
The results of the research were grouped into two:

a) GVA analysis of agriculture and share structure in total GVA

b) Analysis of the impact of agriculture GVA on total GVA

It is possible to show the value of GVA by activity and thus see the activities that are the largest contributors to the total GVA. Figure 1 shows the structure of GVA for the period 2008-2017 in the Republic of Serbia.

Figure 1. The structure of GVA by activities in the Republic of Serbia, for the period 2008-2017



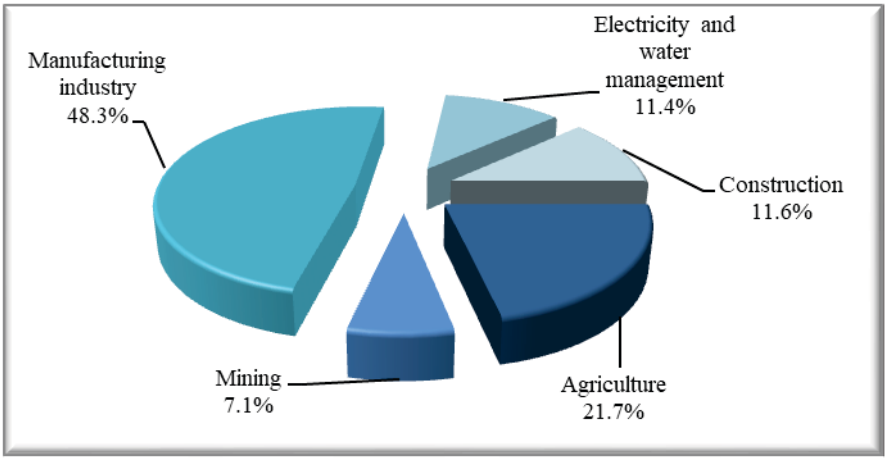
Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

Services account for 60.6% of total GVA and they are the largest share in the formation of GVA. Services include activities where no specific production is achieved, such as wholesale and retail trade, repair of motor vehicles, transport and storage, accommodation and catering, information and communication, various financial activities, real estate business, scientific, innovation and professional activities, education , arts, entertainment and recreation, health and social care, public administration, household activities and other activities. On the other hand, industry includes mining, manufacturing, electricity and gas production, construction and water management. The average share of industry in the formation of total GVA is 31.2%. Agricultural activity, which includes field production, fishing and forestry, is specially featured (Novaković, 2019). Agriculture

plays a significant role in the overall economy of the Republic of Serbia. The agriculture industry is the most important economic area, and as shown in the figure, its share in the creation of GVA in the period from 2008 to 2017 averaged 8.3%.

Sectors of agriculture and industry together account for 39.5% of the total GVA share. Figure 2 shows the structure of industry and agriculture GVA.

Figure 2. The structure of industry and agriculture GVA in the Republic of Serbia for the period of 2008-2017



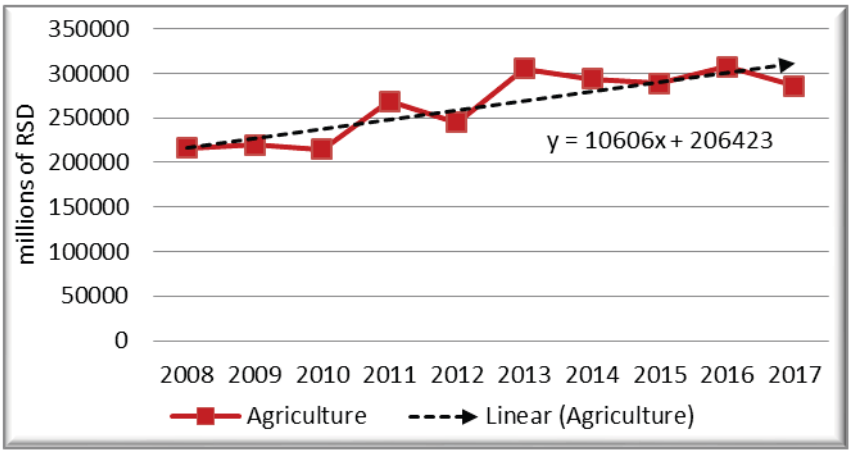
Source: Author's calculation based on data from the Statistical Office of the Republic Of Serbia

As shown in Figure 2, manufacturing industry has a dominant share in the GVA structure that provides manufacturing activity. In addition to the manufacturing industry, agriculture is also heavily involved. The remaining activities participate to a lesser extent in the following order: Construction 11.6%, Electricity and water management 11.4% and Mining 7.1%.

Given the richness of Serbia's natural resources in agriculture, and the global tendencies in food production and consumption, it's evident that agriculture is of particular importance to Serbia. It's reflected in the fact that it provides nutrition not only for the agricultural population, but for the rest of the population. Of particular importance is the amount of so-called market surpluses, that is, the amount of food produced that is not consumed in the agricultural sector but can be used in other sectors. The increase of these surpluses over time is necessary for several reasons: firstly, it is an indicator of productivity growth in agriculture, and secondly, for the nourishment of the population that derives its livelihood outside agriculture, (Njegovan and Đurić, 2016). Also, agriculture in the initial stages of development is a source of foreign currency inflow, which is necessary to cover the supply of imported inputs and evening out the trade balance.

The importance and role of agriculture was particularly pronounced in the time of sanctions in the 1990s, when agriculture proved to be the most vital economic sector. The present state of agriculture of the Republic of Serbia, its potentials and limitations, continue to show the same trend of investing less in agriculture than is necessary and, accordingly, receiving less from it (Pejanović, 2009).

Figure 3: Trends in the agriculture GVA in the period 2008-2017



Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

It is of utmost importance to look at the further trend of the agriculture GVA as well as the basic indicators of the agriculture GVA for the period 2008-2017. Average value of agriculture GVA for the period 2008-2017 amounts to RSD 226.805 million, with the maximum value recorded in the initial year of analysis - 2008 (RSD 264.380,3 million), while the minimum value was recorded in the last year of analysis - 2017 (RSD 203.034,3 million). Also, the gross added value of agricultural activity for the observed period is also characterized by relatively low variability, in support of which speaks the coefficient of variation of 8.54%. GVA of agriculture tends to decline by 2.79% annually in the observed period.

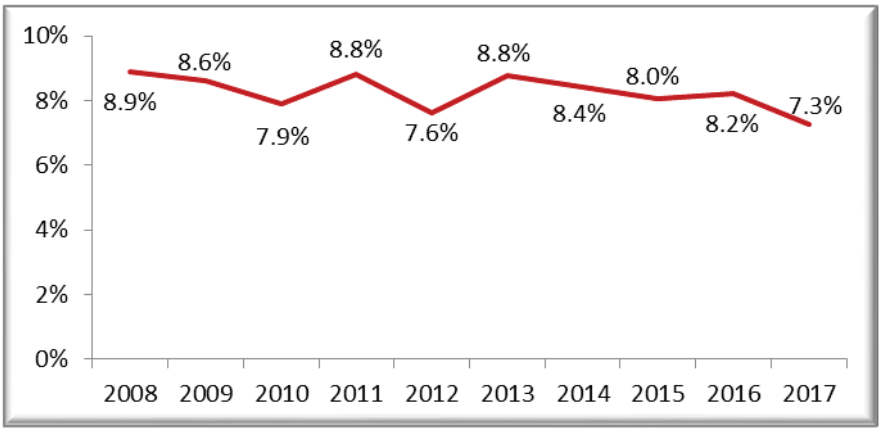
Table 1: Agriculture GVA parameters at constant prices (2010 = 100) for the period 2008-2017, million RSD

	Average value	Interval variation		CV (%)	Rate of change (%)
		Min	Max		
Agriculture GVA	226.805,0	203.034,3	264.380,3	8,54	-2,79

Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

In addition to the basic indicators, it's necessary to consider the share of GVA of agricultural production in the total GVA for the period 2008-2017, which is presented in Figure 4.

Figure 4: Agricultural participation in GVA (%) of the Republic of Serbia from 2008 to 2017



Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

It can be observed that the share of agriculture GVA in the observed period decreased from year to year, and that from the initial 8.9% in 2008 it was reduced to 7.3% in 2017, and the reduction rate was 2.3 % per year. The reason for the reduced share of agriculture GVA is reflected in the fact that service activities have significantly improved their position in the structure of total GVA.

The real growth of total GVA in 2017, compared to the previous year, was 2.1%, (SORS, 2018). Table 3 shows the real growth rate of agriculture GVA in the period 2008-2017. It can be observed that in the last year of the analyzed period, the real decline in gross value added was recorded in the agriculture, forestry and fishing sector by 11.20%.

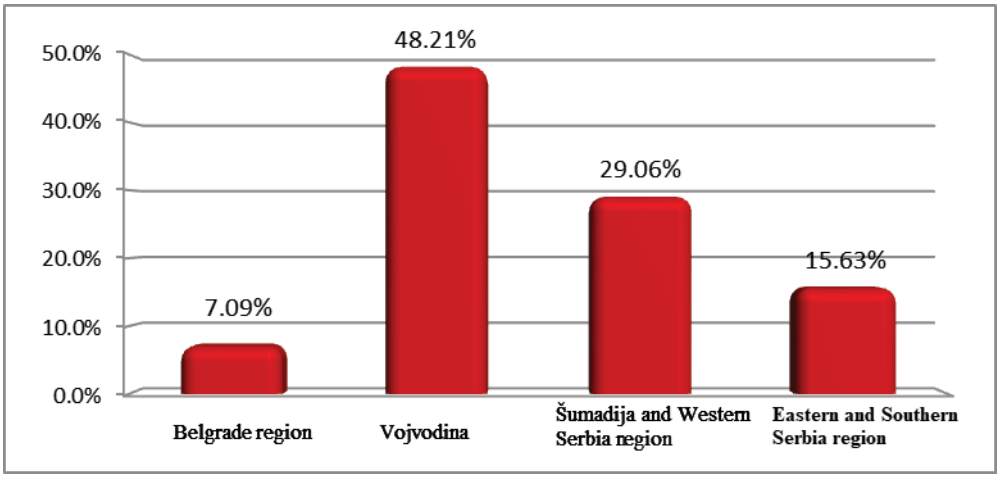
Table 2. Real GVA growth rates (2010 = 100),%

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, forestry and fishing	8,60	0,80	-0,40	0,90	-17,00	21,00	2,00	2,00	8,30	-11,20

Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

According to preliminary GVA calculation results, the value of total GVA and the share of the region in the value of the national GVA are: for the Belgrade region 40.41%, for the Vojvodina region 26.52%, for the Šumadija and Western Serbia region 19.21%, and for The Region of Southern and Eastern Serbia 13.86%. It's also interesting to look at the structure of the agriculture GVA in the regions of the Republic of Serbia. As shown in Figure 5, the largest contribution to the formation of the agriculture GVA is the Region of Vojvodina with 48.21%, while the least significant contribution to the structure of the GVA is the Belgrade Region with 7.09%.

Figure 5: Participation of the regions in the agriculture GVA of the Republic of Serbia for year 2017



Source: Author's calculation based on the data of Regional Gross Domestic Product, 2017

Within agricultural production, we distinguish between plant production and livestock farming. In the total value of agricultural production in 2017, plant production accounted for 61.7% and livestock production for 38.3%, (Statistical Yearbook RS, 2018). In plant production statistics, data are collected on areas and yields for field, fruit and wine production, while livestock production distinguishes cattle, pig, sheep and poultry production. Types of production to a different extent participate in the realization of the total value of agricultural production, and therefore the GVA of agriculture. Table 3 below presents the share of value of plant and livestock production in the total value of agricultural production for the period 2008-2017.

Table 3. Basic indicators of the share of value of individual types of production in the total value of agricultural production, for the period 2008-2017, %

Variable	Structure	Interval variation		Variation coefficient
		Min	Max	
Field farming	51,5	40,1	59,1	9,6
Fruit growing	10,7	9,0	13,0	14,8
Winegrowing	5,7	3,8	8,4	26,5
Cattle farming	12,6	11,2	13,9	7,9
Pig farming	11,1	9,4	12,9	10,1
Sheep farming	1,6	1,0	1,9	15,8
Poultry farming	5,1	4,3	6,1	11,0

Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

Within the plant production, in addition to the dominant share of the value of field production, which participates with more than 50%, there are also fruit production with 10.7% and winegrowing with 5.7%. On the other hand, in the cattle farming sector, the largest contribution gives cattle, which participates with 12.6% in the total value of

production, followed by the value of pig farming by 11.1%, poultry farming with 5.1% and sheep farming with 1.6% share in the total value of agricultural production, from which the values of agricultural services are excluded.

According to official statistics, field production includes the production of cereals, industrial plants, fodder and vegetables. Table 4 presents the basic parameters concerning the basic three forms of plant production for the period 2008-2017.

Table 4. Plant production parameters by branches for the period 2008-2017 (in million RSD)

Variable	Mean	Interval variation		Variation coefficient (%)	Rate of change
		Min	Max		
Field farming	222.184,3	168.397,6	269.550,4	14,4	-4,77
Fruit growing	45.963,2	37.443,6	54.787,1	12,2	1,44
Winegrowing	24.429,3	15.815,9	36.681,2	28,1	-0,13

Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

As can be seen from Table 3, the values of plant production tend to decline, except for fruit growing, which has a trend of growth of 1.44% per year. Field production has the highest value of production in the amount of 222,184.3 million RSD. The fall in value of 4.77% a year was caused by numerous weather conditions, particularly drought, which caused great damage in 2010, 2012 and 2014. Among the causes that contributed to this movement of agricultural production, in addition to adverse climatic conditions, we can identify insufficient investment, that is, insufficient investment that would affect the productivity and volume of production and reduce the impact of these climate factors. On the other hand, fruit and wine production account for much less in the total value of plant production with average values of 45,963.2 and 24,429.3 million RSD. However, wine production is also characterized by an extremely high value of interval variation, which ultimately contributes to the high coefficient of variation of 28.1%.

Significant variations in the volume of agricultural production caused by climate fluctuations, which were recorded in our country from 2007 to 2015, are one of the key indicators of underinvestment in the modernization of agricultural production. Specifically, a high degree of dependence on climatic conditions is one of the key characteristics of underdeveloped agriculture. On the other hand, the declining value of intermediate consumption in almost all its elements indicates a low level of income generated by agricultural producers in Serbia.

Livestock production is characterized by a drastic decline in production. First of all, it refers to the total number of cattle, pigs, but also sheep and goats. The current livestock stock is down by as much as 50% compared to the 1980s. The share of animal husbandry in total agriculture has been reduced to around 30%, which indicates a decrease in the intensity of production in this branch of the economy. The Republic of Serbia has favorable conditions for the development of livestock production, given the fact that it owns over 1.4 million hectares of permanent high-capacity grasslands,

as well as significant unused capacities for breeding cattle and sheep (Official Gazette of the Republic of Serbia, 2014). Despite the aforementioned benefits, this sector of agriculture has been recording negative trends for over 20 years. This fact is indicated by the data in Table 5.

Table 5. Livestock production parameters by branches for the period 2008-2017(in million RSD)

Variable	Mean	Interval variation		Variation coefficient (%)	Rate of change (%)
		Min	Maks		
Cattle farming	54.412,1	47117,1	67317,5	10,72	-3,89
Pig farming	47.740,4	39650,4	57062,5	11,74	-2,14
Sheep farming	7.069,6	4382,2	8516,4	18,96	-3,55
Poultry farming	22.042,0	19.437,3	25.024,7	8,62	-1,41

Source: Author's calculation based on data from the Statistical Office of the Republic of Serbia

Cattle production has the highest value of production in the amount of 54,412.1 million RSD, while the smallest value of realized production is recorded by the sheep farming with only 7,069.6 million RSD. All the mentioned branches in the observed period recorded a downward trend of production, which is indicated by the negative change rates shown in the table. The largest decrease is present in cattle production, at a rate of 3.89% per year, and the reason for this is a permanent decrease in the number of breeding heads that are the basis for reproduction, and therefore for the production of basic agricultural products. In view of the aforementioned, there has been a decrease in the production of meat and milk, as well as the inability to create market surplus meat and milk, sufficient to meet the needs of domestic and foreign demand.

The impoverished livestock stock in Serbia is obviously the consequence of both an inadequately managed agricultural policy and an extremely problematic privatization process, which has resulted in a significant reduction in the number of employees on large, and in the meantime privatized, farming households (i.e. farms), (Madžar, 2014). The described tendencies of gradual and persistent reduction of the livestock stock are leading Serbia to grow from a well-known exporter into a significant importer of meat and meat products. Finally, it should be emphasized that Serbian livestock farming occupies a significant place in the country's economy, as it creates great value added by engaging natural and human resources.

Regression analysis of the GVA

A regression model has been formed where the total GVA is dependent variable and the GVA of agriculture is independent variable. The model is of the following form:

$$Y_i = \beta_0 + \beta_1 X_1 + \varepsilon$$

where Y - total GVA is expressed in constant prices (2010 = 100);

X_1 - GVA value of agriculture (constant prices, 2010 = 100)

ε - Random error

First, the regression model as a whole was tested. In this case, the starting hypothesis is H_0: $\beta_1 = 0$ and the testing process itself was conducted using regression variance analysis. The value of F statistics (which is 6,179) and the last column of Table 6 indicate the statistical significance of the regression model as a whole.

Table 6. Evaluation of the regression model as a whole

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36562620830,105	1	36562620830,105	6,179	,038
	Residual	47337623074,678	8	5917202884,335		
	Total	83900243904,784	9			

Source: Author's calculation

It can be observed in Table 7 that the parameter under the variable GVA is agricultural shows statistical significance (column Sig.). The direction of action is positive, so it can be concluded that with the increase of the GVA of agriculture by one unit of measure, the total GVA also increases.

Table 7. Basic indicators of the regression model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2000559,895	301077,123		6,645	,000
	Agriculture GVA	3,289	1,323	,660	2,486	,038

Source: Author's calculation

Table 8 shows the coefficient of determination (as well as the adjusted coefficient of determination - Adjusted R Square), which actually indicate the percentage explanation of the dependent variable by assuming independent variable. It's noticeable that looking at the adjusted coefficient of determination, 36.5% of the variability of GVA is explained by the value of GVA of agriculture. The remaining 63.5% refers to the influence of other factors not observed in this model.

Table 8. Correlation coefficient, determinations, standard regression errors

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	,660[a]	,436	,365	76923,35721

Source: Author's calculation

Conclusions

The agriculture sector in Serbia represents a great development opportunity for economic growth. However, it's evident that in addition to all the benefits for the development of agriculture in our country, there are still some problems. The analysis concludes that the predominantly extensive way of production is dominating, and that livestock production has a downward trend in production decades back.

Within the total GVA, the share of agricultural activity is significant, at 8.3%. Agricultural production in its overall economic development has its absolute importance, primarily because of the demand for agri-food products. Within plant production, the share of field production is dominant with 51.5%, while on the other hand, the value of cattle production is the largest contributor to livestock production, which accounts for 12.6% of the total value of production. The results of the analysis show that the movement of agriculture GVA has a statistically significant influence on the movement of total GVA. To this end, it's necessary to work to improve the agricultural sector and increase agricultural production.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Atanasijević, J., & Danon, M. (2014). Financing agricultural development in Serbia: opportunities and challenges. *Ekonomika preduzeća*, 62(1-2), 67-81.
2. Čobanović, K., Nikolić-Đorić, E., Mutavdžić B. (2005). Komparativna analiza društvenog proizvoda poljoprivrede Srbije i Crne Gore i zemalja u tranziciji, poglavlje u Monografiji ''Razvoj i strukturne promene agrarne privrede i ruralnih područja'', Institut za ekonomiku poljoprivrede Beograd, Departman za ekonomiku poljoprivrede i sociologiju sela , Poljoprivrednog fakulteta Novi Sad, Ekonomski fakultet, Subotica, Beograd, 57-66. [*in English*: M Čobanović, K., Nikolić-Đorić, E. & Mutavdžić B. (2005). Comparative Analysis of the Agricultural Product of Serbia and Montenegro and Countries in Transition, Chapter in the Monograph "Development and Structural Changes of the Agrarian Economy and Rural Areas", Institute of Agricultural Economics Belgrade)].
3. Đurić, K. (2018). *Poljoprivreda i ruralni razvoj Srbije u procesu evropskih integracija*, Monografija, Univerzitet u Novom Sadu, Poljoprivredni fakultet [*in English*: Đurić, K. (2018). Agriculture and Rural Development of Serbia in the Process of European Integration, Monograph, University of Novi Sad, Faculty of Agriculture].
4. Đurić, K. i Njegovan Z. (2016). *Ekonomika poljoprivrede*, Univerzitet u Novom Sadu, Poljoprivredi fakultet [*in English*: Djuric, K. & Njegovan Z. (2016) Agricultural Economics, University of Novi Sad, Faculty of Agriculture].
5. Gerdien, M. and Pim, R. (2007). The role of agriculture in economic development, *Markets, Chains and Sustainable Development Strategy and Policy Paper*, no. 5.

6. Gulan, B. (2013). Agrar Srbije u susret evropskim integracijama i agrarnoj politici. http://www.makroekonomija.org/poljoprivreda/agrar-srbije-u-susret-evropskim-integracijama-i-agrarnoj-politici/ (June 18, 2019) [*in English*: Gulan, B. (2013). Serbian Agrarian Towards European Integration and Agrarian Policy. Retrieved June 18, 2019 from http://www.makroekonomija.org/poljoprivreda/agrar-srbije-u-susret-evropskim-integracijama-i-agrarnoj-politici/].
7. Krstić, G. i Šoškić D. (2015). *Ekonomska statistika*, Centar za izdavačku delatnost Ekonomskog fakulteta, Beograd [*in English*: Krstic, G. & Soskic D. (2015). Economic Statistics, Publishing Center of the Faculty of Economics, Belgrade].
8. Mitrović, S., Mitrović, A. . & Cogoljević, M. (2017). Contribution of agriculture to the development of Serbia. *Economics of Agriculture*, *64*(2), 805-819
9. Mladenović, Z. i Petrović, P. (2015). *Uvod u ekonometriju*, Ekonomski fakultet, Beograd [*in English*: Mladenović, Z. . & Petrović, P. (2015). *Uvod u ekonometriju*, Ekonomski fakultet, Belgrade].
10. Novaković, T. (2019). Analiza Bruto Dodate Vrednosti poljoprivrede u Republici Srbiji, *Ekonomske ideje i praksa*, *vol. 32, p. 39-55*, Ekonomski fakultet, Univerzitet u Beogradu [*in English*: Novaković, T. (2019). The Analysis of Gross Value Added of Agricultural Production in the Republic of Serbia Economic Ideas and Practice, vol. 32, p. 39-55, Faculty of Economics, University of Belgrade].
11. Pejanović R. (2009). Razvojni problemi poljoprivrede Republike Srbije, *Agroekonomika vol.* 42, *p.5-24,* [*in English*: Pejanović R. (2009) .Development problems of agriculture of the Republic of Serbia, Agroeconomics vol. 42, pp.5-24].
12. Zakić, Z. i Stojanović, Ž. (2008): *Ekonomika agrara*, Ekonomski fakultet, Beograd [*in English*: Zakic, Z. & Stojanovic, Z. (2008): Agricultural Economics, Faculty of Economics, Belgrade].
13. Metodologija obračuna bruto domaćeg proizvoda (BDP), izvori i metodi, 2018 [Gross Domestic Product (GDP) Methodology, sources and methods, 2018]. Retrieved June 25, 2019, from http://publikacije.stat.gov.rs/G2018/Pdf/G201821018.pdf
14. http://www.stat.gov.rs/sr-latn/vesti/20181001-bruto-doma%C4%87i-proizvod-2017/ Retrieved June 23, 2019.
15. Regionalni bruto domaći proizvod, 2017 , Republički zavod za statistiku [Regional Gross Domestic Product, 2017, Statistical Office of the Republic Of Serbia]. Retrieved June 23, 2019, from http://publikacije.stat.gov.rs/G2019/Pdf/G201910107.pdf
16. Statistički godišnjak Republike Srbije 2014 [Statistical Yearbook of the Republic of Serbia 2014]. Retrieved June 23, 2019, from http://publikacije.stat.gov.rs/G2014/Pdf/G20142013.pdf
17. Statistički godišnjak Republike Srbije 2018 [Statistical Yearbook of the Republic of Serbia 2018]. Retrieved June 23, 2019, from http://publikacije.stat.gov.rs/
18. http://www.ef.uns.ac.rs/Download/statistika/2017-10-23-DES-Deskriptivna-statistika.pdf Retrieved June 25, 2019

FARMERS' WILLINGNESS TO PURCHASE CROP INSURANCE: EVIDENCE FROM WHEAT AND RASPBERRY SECTORS IN SERBIA

Žaklina Stojanović[1], Tatjana Rakonjac-Antić[2], Marija Koprivica[3]

**Corresponding author E-mail: zaklina@ekof.bg.ac.rs*

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ABSTRACT

Crop insurance is widely acknowledged to be a valuable instrument contributing to sustainability of agriculture by reducing the risks associated with crop production and by stabilizing farmers' income. Despite the importance of the agricultural sector for the Serbian economy, level of crop insurance development is low. Therefore, there is a need to identify which characteristics most affect a farmer's decision regarding whether or not to use this type of insurance. In this study, a sample of 255 farmers producing wheat and raspberry in the regions of Vojvodina and Sumadija and Western Serbia were interviewed using structured questionnaire. The collected data was analyzed using the binomial logistic regression to ascertain the effects of selected socio-economic and risk perception variables on the likelihood that farmer plans to purchase crop insurance. Farmer's willingness to purchase crop insurance was found to be significantly influenced by age, farm size, income and perceived level of risk.

Introduction

Due to high risk and uncertainty, agricultural activity is highly vulnerable to the impact of external factors that are beyond the control of producers. Therefore, agricultural outcomes, compared to outcomes of other economic activities, are relatively less predictable. We have faced with more frequent and more intense adverse weather conditions due to climate change lately. Besides growing yield risk, agricultural producers are facing the risk of market price fluctuations as well. In such circumstances,

1 Žaklina Stojanović, Ph.D, Full Professor, University of Belgrade, Faculty of Economics, Kamenička 6 Street, 11000 Belgrade, Serbia, Phone: + 381 11 3021 081, E-mail: zaklina@ekof.bg.ac.rs, ORCID ID https://orcid.org/0000-0003-2878-9835.

2 Tatjana Rakonjac-Antić, Ph.D, Full Professor, University of Belgrade, Faculty of Economics, Kamenička 6 Street, 11000 Belgrade, Serbia, Phone: + 381 11 3021 074, E-mail: rakonjacantic@ekof.bg.ac.rs , ORCID ID https://orcid.org/0000-0003-0371-0115

3 Marija Koprivica, Ph.D, Assistant Professor, University of Belgrade, Faculty of Economics, Kamenička 6 Street, 11000 Belgrade, Serbia, Phone: + 381 11 3021 107, E-mail: marijajovovic@ekof.bg.ac.rs, ORCID ID https://orcid.org/0000-0003-4239-2252

the importance of crop insurance as a risk management tool is increasing over time both for agricultural producers and agricultural policy makers. Crop insurance provides protection against the unexpected losses of projected crop yields (in the form of yield insurance) and covers expected revenue also from losses due to a fall in crop market prices (in the form of revenue insurance). If successful, crop insurance market could increase the viability of agriculture and reduce the need for publicly funded *ad hoc* disaster assistance programs (Coble & Barnett, 2012).

Despite its falling share in the gross domestic product (from 7.1% in 2011 to 5.7% in 2017), agriculture continues to be an important sector of Serbian economy. As agriculture still plays the most important role in rural development (so-called agrarian rural development), this sector significantly contributes to poverty reduction. Although agricultural performance is threatened by frequent crop failures and price volatility, the level of development of agricultural insurance, which mainly relates to crop insurance, is unsatisfactory. Low crop insurance market density and penetration rate give rise to a question about the determinants affecting the decisions of our farmers to insure their yields and revenues.

Purpose of the paper is to investigate factors influencing demand for crop insurance in Serbia and to recommend adequate policies for supporting the development of this type of insurance. The paper is structured as follows: first, characteristics of crop insurance market in Serbia with a focus on indicators of its development are analyzed; second, research methodology and the findings of previous empirical studies on factors influencing demand for crop insurance are elaborated; third, the research results are shown and discussed; and, finally, the main conclusions in the form of policy recommendations are presented.

Crop insurance in Serbia

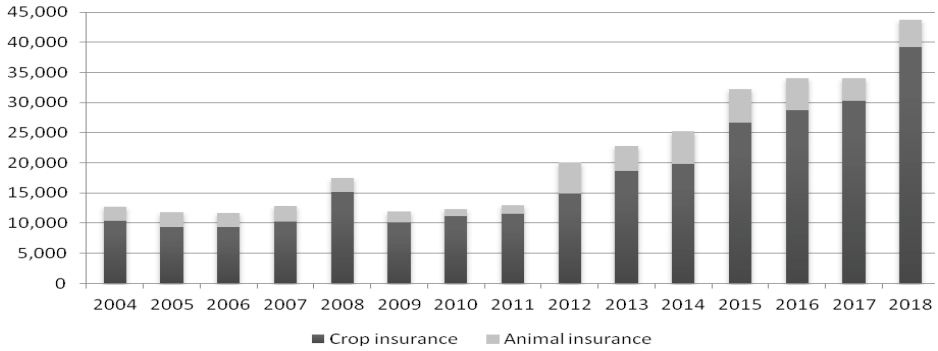
Less than a half of 17 insurance companies operating in Serbia offer agricultural insurance products. Two basic forms of agricultural insurance are available on voluntary basis: crop insurance and animal insurance. Basic risks covered by crop insurance are hail, fire and thunderbolt, and with additional premium it is possible to provide coverage against supplementary risks such as windstorms, spring frost, autumn frost, floods and drought[4] (Žarković et al., 2014). In addition to traditionally present yield insurance products that provide protection against loss of yield, insurance against loss of revenue has emerged recently as a new product on the market (offered only by one insurer for now).

As part of the incentive measures for rural development, the state began to subsidize insurance premium in 2007 for the registered agricultural holdings. By amending the Law on Incentives in Agriculture and Rural Development (2016, article 35), the minimum amount of incentives is reduced from 40% to 30% of the paid insurance

4 Insurance coverage against drought risk is provided by one insurance company and only for a limited number of crops for now.

premium excluding VAT, starting from January 1, 2017. The maximum amount of incentives is 40% of the paid insurance premium, or 45% of the premium for farms located in less favoured arreas. In absolute terms, maximum amounts of incentives are: 100,000 RSD for insurance of agricultural crops; 500,000 RSD for insurance of vegetable crops, 1,000,000 RSD for insurance of fruit trees, vines and hops; 500,000 RSD for insurance of nursery gardens and/or young perennial plants and 2,000,000 RSD for insurance of animals. For all types of incentives, the beneficiary can achieve a maximum of 2,500,000 RSD in the total amount (Rules on conditions, method and application form for the exercise of rights on incentives for premium for insurance of crops, fruits, perennial plants, nursery gardens and animals, 2017, article 7). The amount of funds intended for insurance premium subsidies in the budget year 2018 was 150 million RSD, which is four times less than in 2017 (Regulation on the distribution of incentives in agriculture and rural development in 2017; 2018). At the same time, there is an opposite trend in the Member States of the European Union regarding the state incentives for the development of agricultural insurance. Since 2013, Member States may subsidize agricultural insurance premiums with support rate up to 65%, under the condition that the losses covered represent more than 30% of the average annual production of the farmer (Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), article 37). As of 2018, the support rate is increased to 70%, and the loss threshold is reduced to 20% (European Commission, 2017). Thus, the EU apparently has opted for a public-private partnership approach for agricultural insurance.

Figure 1. Number of policies of crop insurance and animal insurance in Serbia (2004-2018)

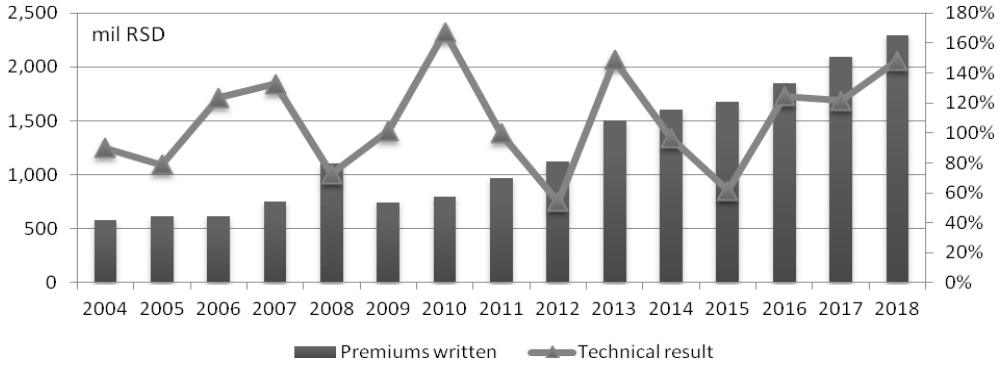


Source: National bank of Serbia. Number of insurances, policyholders and premiums by type of insurance and tariff for Serbia, https://www.nbs.rs/internet/english/60/60_2/index.html

Although there is no register of insured agricultural holdings at the state level, it is estimated that less than 10% of the total agricultural area and about 3% of the total number of agricultural holdings is covered by agricultural insurance (Radović, 2016). There were only 43,718 agricultural insurance policies in force in 2018, of which 89.7% referred to crop insurance (Figure 1). Gross written premium of crop insurance

in the same year was about 3.4 billion RSD (28.4 million EUR), accounting for only 4.43% of total non-life insurance premium (National Bank of Serbia, 2019) (Figure 2).

Figure 2. Premiums written and technical result in crop insurance sector in Serbia (2004-2018)



Source: National bank of Serbia. Number of insurances, policyholders and premiums by type of insurance and tariff and Number and amount of claims by types of insurance and tariff, https://www.nbs.rs/internet/english/60/60_2/index.html

Compared to 2004, the number of policies was more than tripled, and the crop insurance premium was almost quadrupled during the observed period. However, the achieved result is not satisfactory. The baseline was extremely low, which invalidates the assessment of any significant shift in this type of insurance in the previous decade (Kočović et al., 2016). The underdevelopment of crop insurance in Serbia is even greater when compared with other countries in the region. Thus, for example, more than 50% of insurable agricultural area in Hungary and Bulgaria is insured (Bielza et al., 2008).

In accordance with the data presented, crop insurance penetration rate and insurance density, as the most conventional indicators of the development of an insurance market, are very low. Insurance penetration rate, as the ratio of annual premiums written to gross domestic product (GDP), measures contribution of the insurance sector to the national economy. In 2018, crop insurance penetration rate in Serbia amounted to only 0.17% (National bank of Serbia, 2019; Statistical Office of the Republic of Serbia, 2019). Since only a small part of added value in agriculture is directed to the crop insurance sector (Marković et al., 2014), its participation in the GDP is peddling. Insurance density, as the ratio of annual premiums written to the whole population of a given country, indicates the average amount per capita spent on insurance. In the case of agricultural insurance, it is more convenient to relate premiums with the number of agricultural holdings (Petrović et al., 2013). Taking into account the total number of agricultural holdings determined by census of agriculture in 2012 (631,552) (Statistical Office of the Republic of Serbia, 2013), we obtained crop insurance density of 3,308.3 RSD (27.8 EUR). The value of this indicator is more favorable if we consider the number of registered agricultural holdings in 2018 (449,452) (Ministry of Finance of the Republic of Serbia - Treasury Department) and is equal to 5,103.5 RSD (42.9 EUR). Considering that the total number of crop insurance policies in 2018 was only 39,212,

it can be concluded that the average premium in this type of insurance amounted to 58,497.3 RSD (492.6 EUR) (National Bank of Serbia, 2019).

The situation regarding profitability of crop insurance business in Serbia is not so bright. By comparing claims with the earned technical premium, as a part of gross premium which is intended for risk coverage in a particular year, we obtain technical result (i.e. loss ratio), as a summary measure of the performance of insurance portfolio. Technical result lower than 100% indicates that the claim costs incurred in one year were covered by the technical premium earned in that year, and vice versa. Taking into account data on settled claims, technical result in crop insurance was higher than 100% in 7 of the past 15 years (Figure 2), indicating a loss in crop insurance business in those years. The result would be even more unfavorable if incurred claims (instead of settled claims) were included in calculation, as those claims reflect both the change of claims reserves and the costs of claims liquidation, which were not known to the authors. This indicator considerably varies over time as a result of highly unstable nature of the risks covered by this type of insurance. Finally, lower than 100% technical result does not necessarily imply an underwriting profit, since operating expenses of insurance companies also need to be covered.

Considered indicators reveal the unused potential for the development of crop insurance in Serbia. Undeveloped agriculture and low living standard of rural population (Stojanović et al., 2015), but also a low insurance culture and lack of awareness of potential policyholders (Kočović et al., 2016) are recognized as limiting factors in this regard. By increasing the number of policyholders, the average premium could be reduced, while the total premium at the same time would be increased. This would create the basis for sustainable development of agriculture, improving the performance of insurance companies and reducing the pressure on the state budget after the occurrence of natural disasters.

Research methodology

Our goal is to ascertain the effects of selected socio-economic and risk perception variables on farmer's willingness to purchase crop insurance, modeled using discrete choice framework. Risk management strategies in agriculture are heavily influenced by farmers' risk attitudes and farm characteristics reflecting farm's risk bearing capacity (Theuvsen, 2013). The choice of a combination of risk management instruments (including crop insurance) to adopt is one of the most fundamental and complex decisions an agricultural producer has to make (Velandia et al., 2009). Understanding the relationship between farm characteristics, farmers' risk perception and their willingness to use crop insurance is important for the decisional entities in determining strategies and formulating policies for agricultural development (Ullah et al., 2016). Also, knowledge about the factors affecting crop insurance demand outlines a consumer profile and thus can be useful for insurance companies to better adapt their offer to consumer needs. Although several rationales for the crop insurance decision were identified, a few variables are most prevalent across different studies, including those related to farmer's demographic attributes such as age (Dragos & Mare, 2014, Akinola, 2014, Liesivaara & Myyrä, 2014), gender (Mukhopadhyay et al, 2018,

Mbonane & Makhura, 2018) and education level (Danso-Abbeam et al, 2014, Black & Dorfman, 2000), structural variables such as farm size (Sujarwo, 2017, Sherrick et al, 2004, Enjorlas & Sentis, 2011, Lyu & Barré, 2017), financial variables such as farm income (Wąs & Kobus 2018, Farrin et al., 2016, Makki & Somwaru, 2001, Blank & McDonald, 1996, Goodwin, 1993), as well as variables indicating alternative risk management methods (diversification) and farmer's risk perception (Santeramo et al, 2016, Liu et al, 2016, Aditya et al, 2016, Di Falco et al, 2014, Sulewski & Kłoczko-Gajewska, 2014, Enjolras et al, 2012, Wu, 1999).

Some studies analyzed determinants of demand for particular crop insurance products. By estimating a multinomial logit model of insurance choices facing U.S. farmers, Mishra & Goodwin (2003) noticed that the set of significant explanatory variables is different for the adoption of yield versus revenue insurance. Education, farm size, and type of farm ownership were found to be statistically significant in explaining the decision to purchase revenue insurance, but the same variables were not found to be significant for the purchasing yield insurance. Contemporary academic literature is also concerned with factors affecting farmers' acceptance of some innovative insurance schemes, like index-based agricultural insurance (e.g. Kaczała & Łyskawa, 2013; Cole et al., 2014; Isaboke et al. 2016).

Following a distinction between possible production- and market- related changes on wheat and raspberry farms, we consider respondents' willingness to purchase yield insurance and revenue insurance separately. In both cases, response variable Y is categorical with two possible responses indicating whether or not an individual plans to purchase particular insurance product within next 5 years ("yes", when $Y = 1$ and "no", when $Y = 0$). In order to model probability that one of the outcomes occur, we employ binomial logistic regression which describes how a binary dependent variable is associated with one or more independent variables $X_1, X_2, \dots, X_k$ that can be either continuous or categorical. For $p = \mathrm{Prob}(\mathrm{Y} = 1|\mathrm{X})$, the logit function is defined as $\log[p/(1-p)]$, where $p/(1-p)$ is the odds of an event occurring (i.e. log odds). As p varies between 0 and 1, logit function varies between $-\infty$ and $+\infty$ and it links the dependent variable to the set of explanatory variables:

$$\log[p/(1-p)] = \beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k \quad (1)$$

or equvalently:

$$p = \frac{exp(\beta_0+\beta_1 X_1+\cdots+\beta_k X_k)}{1+exp(\beta_0+\beta_1 X_1+\cdots+\beta_k X_k)} \quad (2)$$

where $\beta_0, \beta_1, \dots, \beta_k$ are regression coefficients that are to be estimated by maximum-likelihood estimation (MLE) method.

Thus, we estimated two logit models with two different dependent variables, representing farmers' willingness to purchase yield insurance and farmers' willingness to purchase revenue insurance. Independent variables in both models are the same, except that we included perceived market risk as an additional predictor in the second model. Choice of variables to represent a farmer's predisposition concerning crop insurance is based on preliminary evaluation of the survey data, a Mann-Whitney U test and the results of earlier empirical researches.

Data used in this study come from a face to face survey of farmers producing wheat and raspberry in the regions of Vojvodina and Sumadija and Western Serbia, respectively, conducted in December 2017 - January 2018. The survey comprised of questions concerning demographic and business information, farming strategies, risk perceptions, and other related information useful in identifying the characteristics that may distinguish farmers who are willing to purchase insurance from those who are not willing. Sample representativeness was ensured through stratification by farm size and random selection of farms within each stratum. Total number of surveyed farmers is 271, of which 140 are wheat producers in Vojvodina and 131 are raspberry producers in Sumadija and Western Serbia. After removing the observations with missing values/ unanswered questions, a total of 255 observations per each variable were obtained.

Results and discussion

More than third (36.5%) of the surveyed farmers were within the ages of 51 and 65 years. Also, about 29% were in the age range of 41 and 50 years, and slightly less (27.8%) were younger than 40 years. In terms of gender distribution, only 12.5% of respondents were female, which reflects gender imbalance in the Serbian agricultural sector. The largest group included respondents with lower secondary education (65.1%), followed by higher secondary/vocational (13.3%) and university education (12.5%), while 9% of respondents had only primary school. Only 12.9% of the surveyed farmers have a specific agricultural education. About 37% of respondents gave affirmative answer on the question whether they are planning to diversify into new crops in the coming 5 years. The average area of agricultural land was 57.59 ha. The average income in the latest completed financial year was calculated as 23,735.55 EUR.

Table 1 reports some descriptive statistics of variables in total and categorized by respondents' willingness to purchase yield insurance and revenue insurance. Out of 255 farmers sampled from the study area, 76 indicated their plan to purchase yield insurance, while 66 farmers acknowledged willingness to purchase revenue insurance, representing 29.8% and 25.9% of the sample, respectively.

Table 1. Characteristics of surveyed farms

Variable \ Mean / proportion	Total	Yield insurance		Revenue insurance	
		No	Yes	No	Yes
Willingness to purchase particular insurance product		70.2%	29.8%	74.1%	25.9%
Age group					
40 or less years	27.8%	64.8%	35.2%	76.1%	23.9%
41-50 years	29.0%	78.4%	21.6%	75.7%	24.3%
51-65 years	36.5%	69.9%	30.1%	74.2%	25.8%
More than 65 years	6.7%	58.8%	41.2%	58.8%	41.2%
Gender					
Male	87.5%	69.1%	30.9%	71.7%	28.3%
Female	12.5%	78.1%	21.9%	90.6%	9.4%
Education level					
Primary school	9.0%	69.6%	30.4%	69.6%	30.4%
Lower secondary	65.1%	72.3%	27.7%	74.1%	25.9%
Higher secondary/vocational	13.3%	61.8%	38.2%	70.6%	29.4%
University	12.5%	68.8%	31.3%	81.3%	18.8%
Specific qualifications					
No	87.1%	71.2%	28.8%	73.9%	26.1%
Yes	12.9%	70.2%	29.8%	75.8%	24.2%
Plan to diversify					
No	63.1%	75.8%	24.2%	80.1%	19.9%
Yes	36.9%	60.6%	39.4%	63.8%	36.2%
Total land area	57.59	47.31	81.79	49.31	81.29
Income	23,735.55	24,055.37	23,599.76	26,170.38	22,885.30
Perceived yield risk	4.31	4.19	4.61	4.16	4.74
Perceived market risk	4.26	4.22	4.36	4.16	4.53

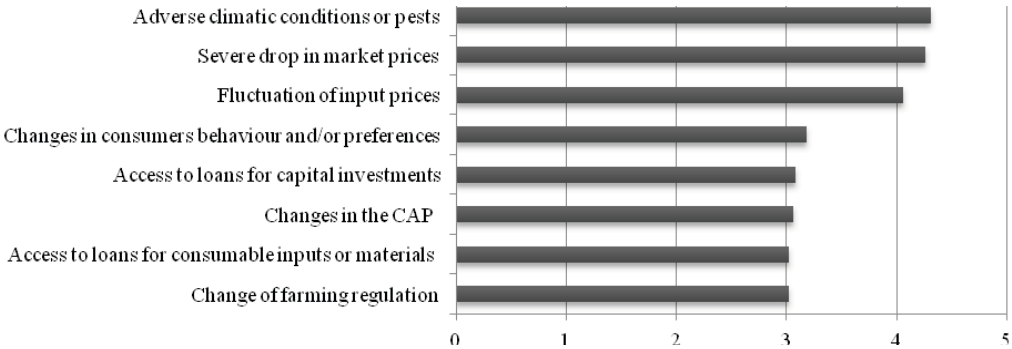
Source: Authors' calculations.

During the survey, farmers were also asked to express to what extent different factors might influence their decisions regarding production and farming strategies on a 1 (not at all) to 5 (strongly) Likert scale. According to the results, adverse climatic conditions or pests and severe drops in market prices are considered among farmers to have the highest impact on the sustainability in the future (*Figure 3*). Thus, we can conclude that there is a relatively high level of risk perception among surveyed farmers. The average assigned score was 4.31 in case of yield risk, and 4.26 in case of market risk.

The means of total land area operated by farmers willing to purchase insurance exceeded those of their counterparts, while the situation is reversed in the case of household income. Among insurance products (i.e. yield and revenue insurance), average values of the same variables were similar. With regard to age group, proportion of those willing to purchase crop insurance is the highest among the oldest farmers (65>). Also, male farmers and farmers who plan to diversify into new crops are more willing to purchase crop insurance. The proportion of respondents planning to insure against crop losses and volatile prices is relatively constant among different educational levels.

Further, specific agricultural qualifications did not seem to be statistically significant determinant of crop insurance purchase decision. Finally, farmers willing to purchase any crop insurance product exhibit relatively higher perceived yield risk, while perceived market risk seems to be related with farmers' decision to purchase revenue insurance, but not with the decision to purchase crop insurance. Thus, preliminary data analysis indicates some differences in the characteristics of farmers who are willing to purchase insurance and of those who are not.

Figure 3. Farmer's perceptions of different factors that will influence sustainability in the future



Source: Authors' calculations.

In order to determine if there are differences in terms of the risk perception between farmers who are willing to purchase crop insurance products and those who are not, we performed a Mann–Whitney U test. Concerning decision to purchase revenue insurance, the two subsamples were significantly different with regard to median perceived yield risk and with regard to median perceived market risk, as well. On the other hand, farmers who plan to purchase yield insurance differ significantly from those who do not in terms of perceived yield risk, but not in terms of perceived market risk (*Table 2*).

Table 2. Results of the Mann-Whitney U test

Grouping variable / Results	Yield insurance				Revenue insurance			
	Total land area	Income	Perceiv. yield risk	Perceiv. market risk	Total land area	Income	Perceiv. yield risk	Perceiv. market risk
U	10,513	7,902	7,910	7,247	8,549	7,812	8,047	7,317
Z	6.892	2.041	2.387	0.914	4.483	3.052	4.072	2.316
P	0.000	0.041	0.017	0.361	0.000	0.002	0.000	0.021

Note: Asymptotic significances are displayed. Variables significant at the 5% level are in grey.

Source: Authors' calculations.

Such a result is logical given the risks covered by these two insurance products. Thus, we decided to include perceived yield risk variable in both and perceived market risk variable only in the second regression model. The same test also showed that median total land area and income were significantly different between farmers who are willing to purchase crop insurance products and farmers who are not. Thus, we decided to

include those variables in both regression models, together with control variables (age group, gender, education level, specific qualifications and plan to diversify) to check if the identified differences are still significant.

In both logit regression models, linearity of the continuous independent variables with respect to the logit transformation of the dependent variable was assessed using the Box-Tidwell (1962) approach. Two continuous variables that violated linearity assumption (total land area and income) were log transformed to achieve a linear relationship between variables. Multicollinearity was assessed by examining variance inflation factors (VIF) produced by multiple linear regression analysis with the same variables (Midi et al. 2013). VIF values were between 1 and 2 for all independent variables, indicating low correlation among them. Finally, cases with studentized residuals greater than ±2 standard deviations were removed from the analysis as outliers.

As shown in *Table 3*, the first logistic regression model was statistically significant. The model explained 66.6% (Nagelkerke R2) of the variance in farmers' willingness to purchase yield insurance and correctly classified 85.9% of cases. Sensitivity was 74.2%, specificity was 90.3%, positive predictive value was 74.2% and negative predictive value was 90.3%. Four out of eight independent variables included in the model were found to be statistically significant: age group, perceived yield risk, ln(total land area) and ln(income).

The overall association between willingness to purchase yield insurance and farmer's age was significant at 5% significant level, as indicated by the overall Wald statistic, but regression coefficients were not significant for all age groups, nor have the same signs. As opposed to farmers of 40 or less years, farmers within age group 41-50 years were less likely to buy yield insurance, while farmers older than 50 years were more likely to buy yield insurance. Thus, farmers older than 65 years had 22 times higher odds to be willing to buy yield insurance than farmers in the youngest group, after controlling for other predictors. The first result can be explained with the relative openness of younger farmers for new risk management tools and innovative approach in farming, while the second result is owed to the accumulated experience of older farmers enabling them to better understand the negative impact of farm perils on the performance of their production.

As expected, average perceived yield risk was higher for the group willing to purchase insurance, similar to the results reported by Sherrick et al. (2004), Liu et al. (2016) and Aditya et al. (2016). Increasing farm size measured by total land area was associated with an increased likelihood that farmer plans to buy yield insurance. This stands to imply that farmers operating larger farms are likely to experience relatively greater loss in absolute terms if peril such as hail, drought or flood occur than farmers with small ownership. Thus, they are more prone to yield insurance, although in relative terms the loss is greater for small farms (particularly in raspberry production) which are indeed usually less diversified, and the existence is more dependent on production results and therefore more vulnerable to natural disasters. This is also consistent with the previous studies (e.g. Enjorlas & Sentis, 2011; Danso-Abbeam et al., 2014; Liesivaara & Myyrä, 2014).

Table 3. Logistic regression predicting likelihood of farmers` willingness to purchase yield insurance based on selected variables

Variable	B		SE	Wald	df	P	Odds Ratio
Constant	4.932	*	2.566	3.694	1	0.055	138.601
Age group				8.520	3	0.036	
41-50 years	-0.532		0.573	0.862	1	0.353	0.588
51-65 years	0.763		0.570	1.789	1	0.181	2.145
> 65 years	3.117	**	1.515	4.233	1	0.040	22.573
(reference group = 40 or less years)							
Gender	1.603		1.109	2.088	1	0.148	4.966
(reference group = male)							
Education level				4.290	3	0.232	
Lower secondary	-0.909		0.965	0.887	1	0.346	0.403
Higher secondary/Vocational	0.654		1.096	0.356	1	0.551	1.923
University	-0.624		1.101	0.322	1	0.571	0.536
(reference group = primary)							
Specific qualifications	-0.182		0.632	0.083	1	0.773	0.833
(reference group = yes)							
Plan to diversify	-0.615		0.496	1.539	1	0.215	0.541
(reference group = yes)							
ln(Total land area)	2.411	***	0.438	30.277	1	0.000	0.165
ln(Income)	-1.802	**	0.384	22.037	1	0.050	138.601
Perceived yield risk	0.847	***	0.220	14.756	1	0.000	2.332
Nagelkerke R Square	66.6%						
Wald test	χ^2 χ^2 = 148.444, df = 12, p = 0.000						
Hosmer & Lemeshow test	χ^2 χ^2 = 5.681, df = 8, p = 0.683						
Classification accuracy	85.9%						

Note: ***, ** and * indicate significance level at 1%, 5% and 10% level respectively. Variables significant at the 5% level are in grey.

Source: Authors' calculations.

On the contrary, farmers' income was inversely related to the likelihood of planning to purchase yield insurance. In other words, recent yield losses decrease income from farming and thus increase farmer's willingness to buy insurance. This result is in line with the findings of Wąs & Kobus (2018) and Mbonane & Makhura (2018). However, it is contrary to the findings of Blank & McDonald (1996), who reported positive correlation between income from farming and farmer's willingness to insure crops. It is logical to expect that with higher income insurance becomes more affordable, that is, farmers will be having more money to pay insurance premium which is usually believed to be beyond the reach of many poor among them. However, high income makes diverse risk management strategies available. Therefore, high-income farmers might opt to invest in better known risk management tools which compete against insurance. This leads to the conclusion that the lack of financial resources is not the

only cause of the low penetration and density of the crop insurance market in Serbia, because the interest in insurance is relatively low even when those funds exist. Rather, the farmers are not familiar enough with the benefits and importance of insurance, especially when they expect government help in case that natural disaster occurs.

Contrary to the expectations, other characteristics of the farmer, such as the gender, educational level, specific agricultural qualifications and willingness to diversify crop production have not been verified as statistically significant at a significance level of 5%.

Table 4. Logistic regression predicting likelihood of farmers` willingness to purchase revenue insurance based on selected variables

Variable	B		SE	Wald	df	p	Odds Ratio
Constant	-5.175	*	2.675	3.744	1	0.053	0.006
Age group				15.302	3	0.002	
41-50 years	-0.030		0.598	0.003	1	0.910	0.970
51-65 years	0.231		0.565	0.167	1	0.682	1.260
> 65 years	3.915	***	1.063	13.565	1	0.000	50.165
(reference group = 40 or less years)							
Gender	0.108		0.906	0.014	1	0.905	1.114
(reference group = male)							
Education level				1.257	3	0.739	
Lower secondary	-0.855		0.764	1.254	1	0.263	0.425
Higher secondary/College/Vocational	-0.705		0.900	0.613	1	0.433	0.494
University	-0.776		0.935	0.689	1	0.406	0.460
(reference group = primary)							
Specific qualifications	0.073		0.624	0.014	1	0.907	1.076
(reference group = yes)							
Plan to diversify	0.717		0.474	2.288	1	0.130	2.048
(reference group = yes)							
ln(Total land area)	1.256	***	0.243	26.688	1	0.000	3.510
ln(Income)	-0.938	***	0.260	13.047	1	0.000	0.391
Perceived yield risk	0.821	***	0.317	6.724	1	0.010	2.273
Perceived market price risk	1.133	***	0.346	10.726	1	0.001	3.106
Nagelkerke R Square	53.9%						
Wald test	χ^2 χ^2 = 101.903, df = 13, p = 0.000						
Hosmer & Lemeshow test	χ^2 χ^2 = 3.181, df = 8, p = 0.922						
Classification accuracy	84.9%						

Note: ***, ** and * indicate significance level at 1%, 5% and 10% level respectively. Variables significant at the 5% level are in grey.

Source: Authors' calculations.

As shown in *Table 4*, the second logistic regression model was also statistically significant. The model explained 53.9% (Nagelkerke R2) of the variance in farmers' willingness to buy revenue insurance and correctly classified 84.9% of cases. Sensitivity was 58.8%,

specificity was 91.9%, positive predictive value was 66.7% and negative predictive value was 89.1%. Five predictor variables were found to be statistically significant: age group, ln(total land area), ln(income), perceived yield risk and perceived market risk.

Similarly to the previous model, in comparison with farmers of 40 or less years, farmers within age group 41-50 years were less likely to buy revenue insurance, while farmers older than 50 years were more likely to buy revenue insurance. Farmers older than 65 years had 50 times higher odds to be willing to buy revenue insurance than farmers younger than 40 years, after controlling for other predictors. Further, farmers willing to purchase revenue insurance operated significantly larger land areas, earned lower income in the previous financial year and exhibited higher perceived yield and market risk. The study revealed that, except the perceived market risk, all other factors influencing farmer's willingness to purchase yield and revenue insurance are the same. This finding confronts with the results reported by Mishra & Goodwin (2003), who showed that several characteristics of farmers interested to insure against crop losses and volatile income are significantly different.

Conclusion and policy recommendations

In this paper we presented results of the investigation of factors affecting demand for crop insurance based on the evidence from wheat and raspberry sectors in Serbia. Two separate regression models were employed for this study, one to account for the yield insurance purchase decision and another to account for the revenue insurance purchase decision. Farmer's willingness to purchase crop insurance was found to be significantly influenced by age, farm size, income and perceived level of risk. On a basis of the estimates obtained, it is not possible to indicate clearly the relationship between the farmer's age and the willingness to insure yields or revenue. Thus, after a certain threshold, increasing farmer's age as a proxy of accumulated experience in farming is associated with increased odds of planning to buy crop insurance. It is also well known that older farmers groups are less prone to invest in new technologies and implement new instruments for risk insurance. The obtained results further show that farmers managing larger farms who have faced with lower income in the previous year, as well as farmers that perceive higher level of yield and market price risks, are more interested in buying crop insurance. Also, the study revealed that factors influencing farmer's willingness to purchase yield and revenue insurance are the same, except for the perceived market price risk which is relevant only for the decision to purchase revenue insurance.

The main factors affecting demand for crop insurance in Serbia are connected with financial resources available to farmers and their awareness on risk and insurance. From policy perspectives point of view, the obtained results suggest the need for further analysis of premium subsidies across market segments which could lead to a closer tailoring of premiums to farmer's attributes, especially in serving the needs for small and younger farmers.

Considering the low level of crop insurance development, current subsidy rate of agricultural insurance premium should be changed. In order that large and high-risk farmers would not be favored, it is possible to introduce a differentiated instead of proportional premium subsidy rate. This rate can be higher for certain crops or regions where the development of agriculture is to be encouraged, for younger producers, smaller farms and multi-year insurance contracts. Also, in addition to premium subsidies, state subsidies that promote the development of market infrastructure, through investing in databases and risk models, subsidizing administrative costs for insurers, reinsurance and improving the relevant regulation are also highly recommended (Koprivica & Rakonjac-Antić, 2019).

Based on the EU model, the public-private partnership should be a long-term commitment in terms of organizing agricultural insurance in Serbia. A possible solution for increasing penetration rate in the short term is the introduction of mandatory elements in agricultural insurance based on the targeted agricultural holdings categories. Following positive experiences from other countries, the obligation to insure can be selective, so that mandatory insurance is imposed on certain risks, for certain crops and/or for agricultural holdings whose size exceeds a certain limit. Also, the insurance obligation may be conditional in the sense obtaining publicly funded disaster assistance is conditioned with the possession of the insurance policy. In this way, the total risk would be distributed among a large number of policyholders, so that the cost of the insurance premium for each of them would be minimized.

Finally, a prerequisite for the premium rates to be adequate and crop insurance market to be sustainable even with strong public support is to develop a single database of losses in agriculture. Portfolios of individual insurers in Serbia are relatively small, which limits the accuracy of risk assessment and makes it difficult to calculate actuarially funded premiums, while the cooperation between companies in the domain of data exchange is completely underdeveloped. Therefore, an initiative by the Association of Serbian Insurers is needed to create a unified database of losses in agriculture as a basis for calculating adequate premiums and developing new insurance products. By virtue of the bonus-malus system that exists in motor third-party liability insurance, insurers could, for each new policyholder who was previously insured with another insurer, find out her/his loss experience and accordingly determine the insurance premium. Even if crop insurance becomes mandatory, tariff determination should remain in the domain of insurance companies, but with the improvement of the grounds on which it is based.

Obtained results also highlight the need for more intense educational programs and marketing campaigns supported by authorities or private entities about the importance and benefits of crop insurance. If farmers would be more knowledgeable about crop insurance, they will be able to recognize its advantages over other risk management instruments and to better understand insurance policies and conditions and thus gain greater confidence in insurance. Marketing programs targeted to younger farmers and small farms operators will likely be more successful in contributing to the wider adoption of crop insurance in Serbia.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Aditya, K. S., Tajuddin, K., & Avinash, K. (2016). Crop Insurance in India: Drivers and Impact. *2016 Annual Meeting,* July 31-August 2, Boston, MA, Agricultural and Applied Economics Association, DOI:10.13140/RG.2.1.1012.0562
2. Akinola, B. D. (2014). Determinants of Farmers' Adoption of Agriculture Insurance: the Case of Poultry Farmers in Abeokuta Metropolis of Ogun State, Nigeria. *British Journal of Poultry Sciences, 3*(2), 36-41, DOI: 10.5829/idosi.bjps.2014.3.2.83216
3. Bielza, M., Conte, C., Dittmann, C., Gallego, J., & Stroblmair, J. (2008). *Agricultural Insurance Schemes.* European Commission, Joint Research Centre, Ispra.
4. Black, D. K., & Dorfman, J. H. (2000). Identifying Farmer Characteristics Related to Crop Insurance Purchase Decisions. *2000 Annual meeting,* July 30-August 2, Tampa, FL, American Agricultural Economics Association, DOI: 10.22004/ag.econ.21831
5. Blank, S. C., & McDonald, J. (1996). Preferences for Crop Insurance When Farmers Are Diversified. *Agribusiness, 12*(6), 583-592, DOI: 10.22004/ag.econ.291738
6. Box, G. E. P., & Tidwell, P. W. (1962). Transformation of the independent variables. *Technometrics 4*, 531-550, DOI: 10.2307/2526842
7. Coble, K., & Barnett, B. J. (2012). Why Do We Subsidize Crop Insurance? *American Journal of Agricultural Economics, 95*(2), 498-504, DOI: https://doi.org/10.1093/ajae/aas093
8. Cole, S., Stein, D., & Tobacman, J. (2014). Dynamics of Demand for Index Insurance: Evidence from a Long-Run Field Experiment. *American Economic Review, 104*(2014), 284-290, DOI: 10.1257/aer.104.5.284
9. Danso-Abbeam, G., Addai, K. N., & Ehiakpor, D. (2014). Willingness to Pay for Farm Insurance by Smallholder Cocoa Farmers in Ghana. *Journal of Social Science for Policy Implications, 2*(1), 163-183.
10. Di Falco, S., Adinolfi, F., Bozzola, M., & Capitanio, F. (2014). Crop Insurance as a Strategy for Adapting to Climate Change. *Journal of Agricultural Economics, 65*(2), 485-504, DOI: 10.1111/1477-9552.12053
11. Dragos, S. L., & Mare, C. (2014). An Econometric Approach to Factors Affecting Crop Insurance in Romania. *Ekonomie a Management, 17*(1), 93-104, DOI: http://dx.doi.org/10.15240/tul/001/2014-1-008

12. Enjolras, G., Capitanio, F., & Adinolfi, F. (2012). The demand for crop insurance: combined approaches for France and Italy. *Agricultural Economics Review, 13*(1), 5-22, DOI: 10.22004/ag.econ.253490
13. Enjorlas, G., & Sentis, P. (2011). Crop insurance policies and purchases in France. *Agricultural Economics, 42*(2011), 475-486, DOI: 10.1111/j.1574-0862.2011.00535.x
14. European Commission (2017). Summary of main changes introduced to the four basic regulations of the CAP through the Omnibus regulation, Brussels, https://ec.europa.eu/agriculture/cap-overview/summary-changes-omnibus_en.pdf (accessed 10.02.2019)
15. Farrin, K., Miranda, M. J., & O'Donoghue, E. (2016). How Do Time and Money Affect Agricultural Insurance Uptake? A New Approach to Farm Risk Management Analysis. *Economic Research Report.*
16. Goodwin, B. K. (1993). An Empirical Analysis of the Demand for Multiple Peril Crop Insurance. *American Journal of Agricultural Economics, 75*(2), 425-434, DOI: https://doi.org/10.2307/1242927
17. Isaboke, H. N., Zhang, Q., Nyarindo, W. N., & Wang, K. (2016). Factors explaining producer perception towards weather index micro-insurance: Evidence from Kenya. *RUFORUM Working Document Series, 14*(3), 345-354.
18. Kaczała, M., & Łyskawa, K. (2013). Factors affecting the demand for index-based agriculture insurance in Poland. *Insurance Review, 4*(2013), 75-91.
19. Kočović, J., Rakonjac - Antić, T., & Jovović, M. (2016). Possibilities for Agricultural Insurance Development in Serbia, print in ed. Stojanović Ž. And Bogdanov N., Agribusiness and villages in Serbia - state and perspectives, Facutly of Economics, University of Belgrade, pp. 205-224. [*in Serbian:* Kočović, J., Rakonjac - Antić, T., & Jovović, M. (2016). Mogućnosti razvoja osiguranja poljoprivede u Srbiji, objavljeno u Stojanović, Ž., Bogdanov, N. (red.), *Stanje i perspektive agroprivrede i sela u Srbiji,* Ekonomski fakultet, Univerzitet u Beogradu].
20. Koprivica, M., & Rakonjac - Antić, T. (2019). Insurance development in agriculture in Serbia and EU countries, *Ekonomski vidici, XXIV*(1-2), 43-58 [*in Serbian:* Koprivica, M., & Rakonjac-Antić, T., (2019). Razvijenost osiguranja u poljoprivredi u Srbiji i u zemljama Evropske unije].
21. Law on Incentives in Agriculture and Rural Development. *Official Gazette of the Republic of Serbia,* No. 10/2013, 142/2014, 103/2015 and 101/2016.
22. Liesivaara, P., & Myyrä, S. (2014). Willingness to pay for agricultural crop insurance in the northern EU. *Agricultural Finance Review, 74*(4): 539-554, DOI: 10.1108/AFR-06-2014-0018
23. Liu, F., Corcoran, C. P., Tao, J., & Cheng, J. (2016). Risk perception, insurance recognition and agricultural insurance behavior - An empirical based on dynamic panel data in 31 provinces of China. *International Journal of Disaster Risk Reduction, 20*(2016): 19-25, DOI: 10.1016/j.ijdrr.2016.10.005

24. Lyu, K., & Barré, T. J. (2017). Risk aversion in crop insurance program purchase decisions: Evidence from maize production areas in China. *China Agricultural Economic Review, 9*(1), 62-80, DOI: 10.1108/CAER-04-2015-0036
25. Makki, S. S., & Somwaru, A. (2001). Asymmetric Information in the Market for Yield and Revenue Insurance Products. *Technical Bulletins* 33587, U. S. Department of Agriculture, Economic Research Service, Washington, D. C., DOI: 10.22004/ag.econ.33587
26. Marković, T., Martinovska Stojcheska, A., Zgajnar, J., & Janeska Stamenkovska, I. (2014). Crop insurance as a factor of economic stability in the agriculture -The case of Serbia, Slovenia and Macedonia. *9th International Conference: The role of agricultural economic sciences in agriculture and rural development in the Balkan countries*, 24-25 April 2014, Ohrid, Association of Agricultural Economists of Republic of Macedonia.
27. Mbonane, N. D., Makhura, M. N. (2018). Factors influencing maize farmers' interest in crop insurance in Swaziland. *SA-TIED Working paper 15,* Washington, D. C.: International Food Policy Research Institute.
28. Midi, H., Sarkar, S., & Rana, S. (2013). Collinearity diagnostics of binary logistic regression model. *Journal of Interdisciplinary Mathematics, 13*(3), 253-267, DOI: 10.1080/09720502.2010.10700699
29. Ministry of Finance of the Republic of Serbia - Treasury Department. Register of agricultural holdings – Statistics, http://www.trezor.gov.rs/sr/services/rpg/statistika (accessed 26.09.2019)
30. Mishra, A. K., & Goodwin, B. K. (2003). Adoption of Crop versus Revenue Insurance: A Farm-Level Analysis. *Agricultural Finance Review, 63*(2), 143-155, DOI: 10.1108/00215050380001146
31. Mukhopadhyay, P., Sinha, M., & Sengupta, P. P. (2018). Determinants of Farmers' Decision-Making to Accept Crop Insurance: A Multinomial Logit Model Approach. In *Soft Computing in Data Analytics: Proceedings of International Conference on SCDA 2018,* Nayak, J., Abraham, A., Krishna, B. M., Sekhar, G. T. C., & Das, A. K. (eds.), Springer, 267-275, DOI: 10.1007/978-981-13-0514-6_27
32. National bank of Serbia. Number and amount of claims by types of insurance and tariff, https://www.nbs.rs/internet/english/60/60_2/index.html (accessed 26.09.2019)
33. National bank of Serbia. Number of insurances, policyholders and premiums by type of insurance and tariff for Serbia, available at https://www.nbs.rs/internet/english/60/60_2/index.html (accessed 26.09.2019)
34. Petrović, Z., Njegomir, V., & Počuča, S. (2013). Characteristics of agricultural insurance: the case of countries of former Yugoslavia region. Economics of Agriculture, 4(2013), 729-743.

35. Radović, G. (2016). Agricultural insurance as the obligatory insurance in the Republic of Serbia, *Tokovi osiguranja* 4 (2016): 7-23 [*in Serbian:* Radović, G. (2016). Osiguranje poljoprivrede kao moguće obavezno osiguranje u Republici Srbiji. *Tokovi osiguranja, 4*(2016): 7-23]
36. Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), *Official Journal of the European Union, 347.*
37. Regulation on the distribution of incentives in agriculture and rural development in 2017. *Official Gazette of the Republic of Serbia,* No. 106/2017.
38. Regulation on the distribution of incentives in agriculture and rural development in 2018. *Official Gazette of the Republic of Serbia,* No. 18/2018.
39. Rules on conditions, method and application form for the exercise of rights on incentives for premium for insurance of crops, fruits, perennial plants, nursery gardens and animals. *Official Gazette of the Republic of Serbia,* No. 61/17.
40. Santeramo, F. G., Goodwin, B. K., Adinolfi, F., & Capitanio, F. (2016). Farmer Participation, Entry and Exit Decisions in the Italian Crop Insurance Programme. *Journal of Agricultural Economics, 67*(3), 639-657, DOI: https://doi.org/10.1111/1477-9552.12155
41. Sherrick, B. J., Peter J. B., Ellinger, P. N., & Schnitkey, G. D. (2004). Factors Influencing Farmers' Crop Insurance Decisions. *American Journal of Agricultural Economics*, 86(1), 103–114, DOI: https://doi.org/10.1111/j.0092-5853.2004.00565.x
42. Statistical Office of the Republic of Serbia (2013). *Census of Agriculture 2012 - Agriculture in the Republic of Serbia,* Belgrade.
43. Statistical Office of the Republic of Serbia (2018). *Ekonomski računi poljoprivrede u Republici Srbiji, 2007-2017.* Belgrade.
44. Statistical Office of the Republic of Serbia, https://www.stat.gov.rs/en-US (accessed 26.09.2019)
45. Stojanović, Ž., Gligorijević, M., Rakonjac-Antić, T. (2012): The Role of the Marketing Mix in the Improvement of Agricultural Insurance. *Economics of Agriculture*, [S.l.], v. 59, n. 4, 769-780, DOI: 10.22004/ag.econ.143172
46. Stojanović, Ž., Popović Petrović, I., & Rakonjac-Antić, T. (2015). The impact of catastrophe risks on agricultural sector in Serbia, print in ed. Kočović, J., Jovanović Gavrilović, B., Đukić, V., Catastrophic risks and sustainable development, Faculty of Economics, University of Belgrade, 267-284.
47. Sujarwo, S. (2017). Factors affecting farmers' acceptability toward agricultural insurance program in Malang, East java, Indonesia. *Agricultural Socio-Economics Journal, 17*(3), 97-104, DOI: https://doi.org/10.21776/ub.agrise.2017.017.3.1
48. Sulewski, P., & Kłoczko-Gajewska, A. (2014). Farmers' risk perception, risk aversion and strategies to cope with production risk: an empirical study from Poland. *Studies in Agricultural Economics, 116*(2014), 140-147, DOI: 10.7896/j.1414

49. Theuvsen, L. (2013). Risk and risk management in agriculture. *Problems of world agriculture, 13*(4), 162-174, DOI: 10.1504/IJRAM.2000.001491

50. Ullah, R., Shivakoti, G. P., Zulfiqar, F., & Kamran, M. A. (2016). Farm risks and uncertainties: Sources, impacts and management. *Outlook on Agriculture, 45*(3), 199-205, DOI: 10.1177/0030727016665440

51. Velandia, M., Rejesus, R. M., Knight, T. O., & Sherrick, B. J. (2009). Factors affecting farmers' utilization of agricultural risk management tools: the case of crop insurance, forward contracting and spreading sales. *Journal of Agricultural and Applied Economics, 41*(1), 107-123, DOI: https://doi.org/10.1017/S1074070800002583

52. Wąs, A., & Kobus, P. (2018). Factors differentiating the level of crop insurance at Polish farms. *Agricultural Finance Review, 78*(2), 209-222, DOI: https://doi.org/10.1108/AFR-06-2017-0054

53. Wu, J. (1999). Crop Insurance, Acreage Decisions, and Nonpoint-Source Pollution. *American Journal of Agricultural Economics, 81*(2), 305-320, DOI: https://doi.org/10.2307/1244583

54. Žarković, N., Toscano, B., Mrkšić, D., & Lisov, M. (2014). Key features of crop insurance in Serbia. *Bulgarian Journal of Agricultural Science, 20*(1), 23-33.

INFLUENCE OF EXTRINSIC FACTORS ON CONSUMERS' CHOICE AT SEGMENTED WINE EVENTS

Marina Nacka[1], Kristina Popova[2], Riste Elenov[3]

**Corresponding author E-mail: marina.nacka@fznh.ukim.edu.mk*

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ABSTRACT

Many wine attributes make consumer's choice difficult and confusing. By focusing on consumers from higher-segmented comparing wine events and comparing lower-segmented and higher-segmented wine events, we determinate the more influential attributes in consumers' choice, and identify what is important cue on the bottle's label. ANOVA, cluster analysis and Pearson chi-square test were used to determinate the consumers' segments and their differences, difference between attributes, influence of some of the attributes over behavioral variables. We find that recommendation influences has stronger influence over the choice of consumers at the higher-segmented event, compared to awards or information on the label. Price and design defined cluster in the lower-segmented sample while vintage, region and brand defined the high-segmented cluster.

Introduction

Many internal and external factors influence consumer behavior towards wine. Produces can have little influence over external or demographic factors and greater influence over internal factors, such as information about the wine and its consumption (Moulton & Lapsley, 2001). The information derives mainly from intrinsic factors like tasting and extrinsic factors from the packaging of the bottles (Sáenz-Navajas, Campo, Sutan, Ballester, & Valentin, 2013). This indicate that wine is a difficult and confusing product for consumers to choose due to number of cues on the label, such as brand name, region, grape variety (Lockshin, Jarvis, d'Hauteville, & Perrouty, 2006) and the information on the front label as a first line of communication to entice the consumer (Barber, Almanza, & Donovan, 2006).

1 Marina Nacka, Assistant Professor, Ss. Cyril and Methodius University in Skopje, Faculty of Agricultural Sciences and Food – Skopje, +38975244994, marina.nacka@fznh.ukim.edu.mk, https://orcid.org/0000-0001-6335-5966

2 Kristina Popova, MSc Student, Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Skopje, kristipopova@yahoo.com, https://orcid.org/0000-0003-3072-1266

3 Riste Elenov, Assistant Professor, Ss. Cyril and Methodius University in Skopje, Faculty of Agricultural Sciences and Food – Skopje, relenov@fznh.ukim.edu.mk, https://orcid.org/0000-0003-1005-358X

The literature suggests different influential factors in wine consumption choice such as price, packaging and labeling, brand name, region (Atkin & Thach, 2012; Lombardo, 2012). Based on this, we determinate the key extrinsic cues used by different consumer groups when choosing wine: price, brand, recommendation, vintage, region, awards and back label information. Additionally, the consumers reliance of label information to make their purchase decision for wine determinate the selection of the following cues: producer/brand, level of alcohol and region as mandatory (MAFWE, 2010), as well as use other information that will distinguish their product (Lunardo & Guerinet, 2007) such as vintage, label design, awards and quality sign.

Beside consumer knowledge (Gustafson, Lybbert, & Sumner, 2016; Atkin & Thach, 2012), choices are often made without a wealth of information, thus selecting fewer information being enticing to consumers (Barber, Almanza, & Donovan, 2006). The choice of the product in high extend depends on consumer involvement to the product. Different categories of consumers or low involvement consumers use price and award to a greater degree than high involvement consumers (Lockshin, Jarvis, d'Hauteville, & Perrouty, 2006). Additionally, Lockshin et al., (2006) pointed out that the award has the greatest effect for low involvement consumers. Brand and well known region of origin show important effects, which vary at different prices thus price sensitivity also varies between low and high involvement consumers.

For more experienced consumers, brand, varietal, and region collectively formed the primary driver (Reynolds, Haglund, Taylor, & Ruetzler, 2013). With regard to the other information to distinguish the product, Hristov & Kuhar (2014) found that recommendation as personal or credible sources of information whose opinion the consumers respect has a high influence on consumer wine purchase.

This paper attempts to present and empirically to test the main influencing factors on consumer's choice of wine and what consumers see on the bottle's label. By exploring the attributes of the wine packaging, we aim to determinate what drives consumer choice of wine in different price ranges at different wine events.

Our primary focus is set on the audience of higher-segment wine event, in order to collect insights on the wine-lovers consumers which are not done yet for this market, as to the authors' knowledge. We further widen our analysis by including more heterogeneous audience from lower-segment wine event and compare consumers' profiles and attributes affecting their choice. We consider the two wine events as industry or internally focused wine events taking into account that different events attract different audience and do not constitute a single homogenous market (Hall & Mitchell, 2008).

As a higher-segmented event, we chose the Wine Salon in 2016 and as the lower-segmented event we chose the Winter Wine Festival in 2014. We divided the events in two categories, based on critical factors that determinate the audience to the wine event: location, timing, event facilities and activities, event program, promotion and marketing (Hall & Mitchell, 2008).

First, we examine attributes that influence the buyers' choice as well as identify what is important for the consumers to see on the bottle's label. A self-administered questionnaire with closed-ended and five-point Likert-type scale questions was conducted at the two different wine events.

Information were obtained for certain demographic variables (age, gender, education level, employment sector), as well as for behavioral variables (frequency of buying wine, attributes relevant for choosing which wine to buy, information stated on the bottle's label).

We test if significant differences can be found among the attributes that influence the choice of consumers when purchasing wine, by ANOVA. Additionally, we assess if gender and age group of consumers, differentiates the attributes influencing the consumers' choice. Moreover, we assess some behavioral variables, as the frequency of buying wine and the price that the consumers are willing to pay for their favorite bottle of wine, if differences in behavior reflect in differences among the attributes that influence the choice.

Following in the analysis suggested by Madeira (J., F., & MM., 2009), cluster analysis was implemented to obtain consumer segments from the visitors of a higher-segmented wine event versus visitors of a lower-segmented wine event. To define the significant differences in the importance of certain attributes between consumers that visit higher-segmented and lower-segmented events Pearson chi-square test was performed.

Domestic Market Segmentation

In the last ten years, significant investments were done in wine sector of Republic of North Macedonia (RNM). Therefore, producers tend to intensify efforts to develop a wine culture in the country by wine education of the younger generation of adults and parallel launching of more quality, branded wine (USAID AgBiz, 2012).

The majority of the consumers on this market is price sensitive and prefers low priced wine, as consequence of the low living standard of the population. Previous study on this issue, pointed out the price, the income, the gender and the level of education as main factors with greater influence on consumers ability and willingness to pay higher price for quality wine. For this category of consumers, the brand has secondary importance in their decision to purchase a quality wine (Nacka, 2015). Furthermore, the young segment of consumers on the market is highly influenced by the price of the wine as crucial factor in their choice of wine (Trajcevski, 2016).

An industry report (USAID AgBiz, 2012) defined two important consumer groups in this market; middle- aged consumers with lower purchasing power, who consume higher quantities of economy wine and more affluent young-to-middle aged adults, who prefer smaller quantities of more sophisticated wine. The second group of consumers raises the need of organizing different events to increase their wine knowledge. Organizing different wine events lacks on the market. This should be changed, because of the benefits of attracting new consumers to wine-consumption overall and to specific brands

(Hall & Mitchell, 2008). Furthermore, wine events would help producers to understand the consumers' profiles that are present on these wine events and would provide them leads to shift their marketing strategies. In a line to the scarce research on this issue, it raises the necessity of determining which extrinsic factors have influence on different consumers' segments on their purchasing decision. By being able to provide insights from analyzing samples of visitors on these events, this paper contributes both, to literature and to real wine sector consumer's segmentation challenges.

The results provided have implications in many directions. Firstly, we define the general profiles of consumers that visit lower-segmented and higher-segmented wine events. Secondly, the results give insights for producers in understanding which wine attributes and extrinsic cues are important to the consumers assessing if certain attributes are significantly more important than others, as well as decomposing which of the attributes is significant for consumers with different willingness to pay, different frequency of buying, or different sex and age groups. By using these results, they could focus their marketing efforts in attracting new consumers and strengthening their market position.

The paper is structured as follows. The second part presents the data used and method applied for analyzing significant differences that can be found among the attributes that influence the choice of consumers and between consumers at higher-segmented and lower- segmented wine events. In the third part, the results are presented and discussed. Finally, by defining the key extrinsic cues that influence wine choice and differences among consumers, as well as clustering the consumers, the main concussions are drawn.

Materials and methods

Following Szolonki and Hoffmann (Szolnoki & D, 2013) who prove face-to-face survey method to deliver the most representative results over telephone and online surveys in wine consumer research, we conduct face-to-face survey on a wine event addressing 113 respondents. With the research, we try to identify which of the most often theoretically and empirically supported attributes that influence the buyers' choice are significantly more influential than the others, as well as to identify what is important for the consumers to see on the bottle's label. We also address the frequency of the wine purchase, the price they would pay for their favorite wine, as well as the place they choose to buy the wine most often from.

The survey was conducted during a wine event which had selective target of wine consumers visiting higher-segmented event. The questionnaire used in the survey was consisted of mainly close-ended questions designed to obtain information on certain demographic variables (age, gender, education level, employment sector), as well as behavioral variables (frequency of buying wine, attributes relevant for choosing which wine to buy, information stated on the bottle's label). We follow in the analysis suggested by Madeira (J., F., & MM., 2009), however what is specific for our research is that we further apply additionally cluster analysis on a specific group of consumers in regards to their attendance on higher or lower segment wine event.

Using the data from the survey, in the first stage, analysis was based on independence tests and ANOVA, in order to test if significant differences can be found among the attributes that influence the choice of consumers when purchasing wine. A step further was made in assessing the significance of the information that is stated on the bottle's label.

Furthermore, ANOVA was used to assess differences in the influence of some of the attributes in dependence of the sex, the age group, the frequency of buying wine, as well as the price that the consumers are willing to pay for their favorite bottle of wine.

In the second stage, cluster analysis was implemented in order to obtain consumer segments from the visitors of a higher-segmented wine event versus visitors of a lower-segmented wine event. In order to see if there are significant differences in the attributes' importance for consumers that visit high profile wine-related events, versus the consumers that visit lower profile wine-related events, we conducted Pearson's chi-square test.

Events characteristics

The higher-segmented was organized as international event with purpose to build fine wine public, to spread the wine culture through educational program, to improve the potential export and wineries' collaboration and to promote and improve the wine tourism in region. The ticket was 8.1 EUR/day. In the literature, the purpose of this kind of event is to develop awareness amongst wine consumers (Hoffman, Beverland, & Rasmussen, 2001) and provide an educational opportunity in a non-threatening environment to develop wine appreciation and improve knowledge on wines and the wine industry (Dodd, 1995). The most present group at the event was young consumers in range of 25-34 years.

The lower-segmented wine was organized as national event with purpose to promote the wine culture in our country and the wider region. The event was not supporter by educational program instead a musical program was organized so to attract the visitors. The price of the tickets was 1.6 EUR. The most present group was consumers in range of 35 to 49 years.

Sample Characteristics

The sample from the higher segmented event consisted of 113 respondents with an average response rate of 97%, defined as the number of completed questionnaires obtained divided by the number of people who were asked to complete them. This is considered to be high response rate, having into consideration that the survey was done face-to-face and similar rates are reported by Thornberry (OT., 1987), Mulry-Liggan (MH, 1983) in other fields of research where they applied this method.

Table 1. Sample description

Age of respondents		Gender		Frequency of buying wine	
Under 24	17%	Women	52%	Less than once a month	6%
25 – 34	33%	Man	48%	Once a month	12%
35 – 49	46%	Total respondents	112	Once in two weeks	14%

Age of respondents		Gender		Frequency of buying wine	
Above 50	4%			Once a week	27%
				Two-three times a week	41%
Total respondents	112			Total respondents	113
How much would you pay for your favorite wine?				**In which industry do you work?**	
>1000 MKD	26,5%			Unemployed	12%
1000 MKD	26,5%			Other	23%
600 MKD	33,6%	**Where do you buy your wine?**		Trade and Logistics	9%
300 MKD	13,3%	Own production	5%	Science and Education	12%
150 MKD	0,0%	From relatives and Friends	4%	Business, Consultancy, Marketing Services	10%
Total respondents	113	Specialized Stores	15%	Manufacturing Industry	11%
		Directly from the manufacturers	24%	Tourism	12%
		Supermarket	52%	Financial Services	13%
		Total respondents	111	Total respondents	112

Source: Authors own calculations

Most of the respondents were aged between 18 and 58 years old. The sample was almost identically split between men and women representatives. Great part of the respondents answered that they would pay 600 MKD (10 EUR) for their favorite wine (33.6%), and a little over half of them answered that they would pay 1.000 or more MKD (16 EUR) (53%). From this structure we could see that most of the visitors of the higher-segmented event would pay above the middle price for their favorite bottle of wine. Having in mind that none of the respondents seems to think that their favorite wine could be bought for a very low price of 150 MKD (2.4 EUR), we can logically assume that the consumers put into positive relation the price and the quality of wine.

From the frequency of buying wine, we could conclude that most of the respondents buy wine on regular basis and really often. Sixty-eight percent of the respondents buy wine at least once a week, two times a week and three times a week. When it comes to the place of purchase, respondents prefer the supermarkets (52%), whereas some of them purchase directly from the producers (24%). When it comes to analyzing the question in which industry does the respondent work, we can see that the sample is pretty diverse, consisting of almost identical participation of all of the sectors listed in the questionnaire.

Wine consumers that visit higher-segmented events consider the recommendations to be the attribute that has the highest importance on average, over their wine choice (ranked 4.1). The brand (ranked 3.9), vintage (ranked 3.8) comes second and third. The geographical regions, as well as the price are equally affecting the consumers' choice on average (ranked 3.7). The least important are the awards (ranked 3.4) and before them are the information that can be found on the label of the bottle (ranked 3.5).

From the information consisted on the bottle's label, the wine consumers that visit higher-segmented events, consider the variety to be the most important information on average (ranked 4.3). The geographical region, brand winery or product brand, as well as the vintage are found to be equally important on average (ranked 3.8). The design and color of the label is considered to be more important for these consumers than the percentage of alcohol consisted in the wine (ranked 3.4, versus 3.2), however less important from the awards granted and quality logos (ranked 3.6).

Results and discussion

This part is divided into three segments: insights on the consumers from the higher-segmented wine event; clusters of the audience of higher and lower segmented wine events; differences of importance of certain attributes to consumers in dependence of the type of event visited.

Insights on attributes affecting

The consumers taking the survey were asked to choose how strong the influence of the attributes over their choice is. The results from the analysis on the sample from the higher-segment wine event pointed out indifference of the consumers when considering year of harvesting as an attribute, the geographic origin, and the price.

A statistically significant difference exists between Recommendations and Awards (with mean difference of 0.7256, p=0.000) and Recommendations and the Information on the label of the bottle (with mean difference of 0.6199, p=0.002), both indicating the recommendations to have stronger influence over the choice of consumers, over the awards and information on the label of the bottle.

Another statistically significant importance exists between the brand and the award (with mean difference of 0.5700, p=0.007), indicating the brand of the wine to have stronger influence than the awards for the consumers on higher-segmented events. This is in line with Barber (2008) who stressed that consumers will seek varying external information sources when making need-satisfying purchase decisions, relying on others' opinions and experiences.

To get better insight, we assessed if consumers with different gender or age groups appreciate differently attributes that influence their choice of wine. Moreover, we assessed if the consumers with different behavioral characteristics: frequency of buying wine and the amount of money they would pay for their favorite wine, appreciate differently the attributes influencing their choice.

There is only one statistically significant relationship between gender and attributes affecting consumers' choice – geographical origin (with mean difference of 0.5150, p=0.026). Men consumers value more the geographical origin than women. For both man and women, the label did not have significant influence on the choice of wine. This is opposite of the findings that emphases the design of the label as a top priority for both men and women (Lombardo, 2012).

Clusters

Input (Predictor) Importance

1,0 0,8 0,6 0,4 0,2 0,0

Cluster	2	1
Label		
Description		
Size	52,1% (50)	47,9% (46)
Inputs	S_Year_harvest	S_Year_harvest
	S_Geo_origin	S_Geo_origin
	S_Brand	S_Brand
	S_Awards Important (42,0%)	S_Awards
	S_Price	S_Price
	S_age_group 35 - 48 (42,0%)	S_age_group 35 - 48 (52,2%)
	S_sex_code Male (58,0%)	S_sex_code Female (56,5%)
	S_Info_label Important (32,0%)	S_Info_label
	S_Recommendations	S_Recommendations
	S_how_much_pay 600 MKD (34,0%)	S_how_much_pay 600 MKD (37,0%)
	S_frequency_of_buying_wine	S_frequency_of_buying_wine

There is statistically significant difference between the consumers aged under 24 years-old, and the consumers aged 25 to 34 years-old, for the influence of the recommendations as an attribute of choice. The second, gave on average higher grade on the recommendation as an influencing factor (mean difference of 1.0602, p=0.004). Consumers buying wine as frequent as two to three times a week, tend to show higher importance of the price as factor of choice, over the consumers buying wine once a week (with mean difference of 0.7212, p=0.047).

A statistically significant difference can be seen between the consumers that would pay more than 1.000 MKD (16 EUR) and the consumers that would pay around 300 MKD (5 EUR), the first appreciating the geographical origin of the wine as an attribute that influences their choice (with mean difference of 1.095, p=0.032 for the higher-segment and 0.6175, p=0.013 for overall sample of both higher and lower segment).

Market segmentation

In order to have better insights on the consumers' profile, we conducted cluster analysis on the sample of visitors on higher-segment wine events, as well as cluster analysis on the sample of lower-segment wine events. Two-step Cluster is an algorithm designed to analyze large datasets grouping the observations of the sample in clusters by using the approach criterion. The procedure uses agglomerative hierarchical clustering method. Compared to classical methods of cluster analysis, the Two-step cluster analysis enables both continuous and categorical attributes. Moreover, the method can automatically determine the optimal number of clusters and these are the reasons for choosing it.

The Two-step cluster analysis detected two separate clusters in the sample of the visitors on higher-segment wine events. The attributes that define the clusters are the vintage, geographical region and the brand of wine.

The first cluster from the higher-segment wine event sample is dominated by women consumers aged 35 to 49 years-old that tend to buy wine two or three times a week and would pay for their favorite wine 600 MKD (10 EUR). They consider the price, the awards, the brand of the wine, as well as the geographical region, label information and vintage to be out of moderate importance for their choice of wine (ranked 3 out of 5).

However, they put the recommendations very high on their importance scale (ranked 5 out of 5).

The second cluster from this sample is dominated by men consumers aged 35 to 49 years-old who tend to buy wine two-three times a week and are willing to pay 600 MKD (10 EUR) for their favorite wine. In this cluster consumers rank the vintage, the geographical region, the brand and price as very important (ranked 5 out of 5). Furthermore, they appreciate more the awards granted and the label information on the bottle of wine compared to the first cluster. The recommendations are very important for this cluster's consumers as well (ranked 5 out of 5).

What is common for the both clusters that resulted from the higher-segment wine event is that the both are dominated by pretty frequent buyers of wine aged 25 to 34, who appreciate the recommendations very much (ranked 5 out of 5) and are willing to pay around 600 MKD (10EUR) for their favorite bottle of wine. This description is relevant, regardless of the sex of the consumers. What is different among them is the sensitivity of the attributes such as geographical region, vintage, brand and price of wine which are more appreciated by the men consumers.

The cluster analysis done on the sample of wine consumers that visited lower-segment wine event, resulted in two clusters as well. The greatest influence in defining the clusters had how much would the consumers pay for their favorite wine and how important was the design for them.

The first cluster from this sample was dominated by women consumers aged bellow 24 that tend to buy wine two or three times a week. Most of the cluster members would pay for their favorite wine 600 MKD (10 EUR). The members of this cluster consider the geographical region, the brand and the price of the wine to be very important (ranked 5 out of 5). On the other hand, most of them consider the variety to be moderately important (ranked 3 out of 5). This cluster can be identified as college/university drinkers since it is pre dominated by young consumers.

The second cluster was dominated by the male consumers aged 25 to 34 years old that buy wine once a week and would pay for their favorite wine 1.000 MKD (16 EUR). They think that the geographical region, the brand, the design and the price to be moderately important (ranked 3 out of 5). However, they consider the variety to be very important (ranked 5 out of 5).

The lower-segment wine events attract pretty heterogonous consumers in terms of the price that they are willing to pay, the age group they belong to and what they seem to find more important from the wine attributes. The variety seems to be factor of difference for the two clusters, since the first find it less important than the second compared to the other listed attributes. However, the second would pay more for their favorite wine and in regards to their age, we could safely say that they are representatives of the consumers' category of young adults (Townshend & Duka, 2005).

This is line with (Hall & Mitchell, 2008) who stressed that different wine events target different audience with different behavior profiles. Therefore, organization of different wine events with educational character is important in increasing consumer knowledge and should incorporate and understand the behavior of the events visitors in the marketing and promotional strategies (Hall & Mitchell, 2008).

Comparing consumers from both – higher and lower segment events

The results in general, present significant differences among consumers segments at the different wine events. The differences are in line with assumed consumers' profiles with regard to the characteristics of each wine event.

We have also analyzed if respondents' demographic characteristics influence over their behavior. By conducting ANOVA, we have discovered that for the consumers in the higher-segmented events, the gender has influence over the frequency of buying ($F(1,110) = 5.607$, $p=0.020$ with mean difference of 0.559) indicating that male consumers buy wine more frequently than women. There was no indication that gender has influence over the price a consumer would pay for their favorite wine ($F(1, 110) = 1.221$, $p=0.271$). It is interesting, that the gender influence is also confirmed for the consumers in the lower-segment wine events ($F(1, 398) = 6.715$, $p=0.010$) indicating the men consumers purchase wine more frequently. On the other side, effect was discovered between the gender and the price a consumer would pay for their favorite wine.

We analyzed the relationship between the consumers visiting higher segment wine events versus the consumers visiting lower segment wine events in regards to the importance of couple of attributes including the brand of the wine, the variety, the price, the geographical region and the label design and color, by applying Pearson's chi-square test. The test proved to be in favor of the alternative hypothesis for each of the attributes considered, proving that there is a relationship between the attributes and the consumers visiting different types of wine events ($\alpha=0.05$).

The strength of the relationship was assessed with Cramer's V test which is recommended as the most useful when considering variables that have more than two categories.

Table 2 Pearson's Chi-square Results

	Brand	**Geographical Region**	**Price**	**Label Design and Color**	**Variety**
Chi-square	15.046	4	7	21	19
Deg. Freedom	4	4	4	6	4
p. sig. ($\alpha=0.05$)	0.005	0.000	0.000	0.001	0.001
Cramer's V	0.257	0.094	0.182	0.320	0.470
Sample size	508	512	509	509	507

By post-hoc comparison of the relative frequencies, we manage to determine significant difference in the importance of the brand, as well as the variety. The consumers from

the higher-segment event seem to value these attributes much more than the consumers from the lower-segment wine events.

Figure 1 Importance of the brand

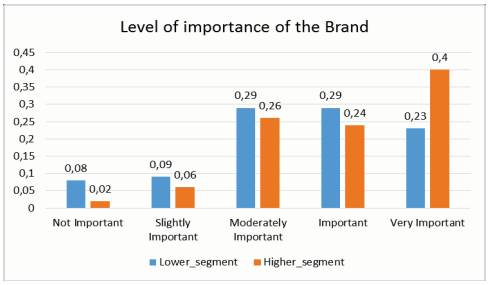
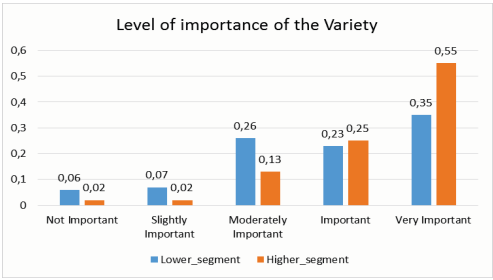


Figure 2 Importance of variety



Source: Authors own calculations and presentation of relative frequencies

Conclusions

Empirically testing the theoretical assumptions of the attributes having effect over the wine consumer's provides useful insight both to the real wine sector consumer's segmentation challenges, and the literature overall. By analyzing the different type of consumers that visit wine events would help producers to understand the consumers' profiles and would provide them leads to shift their marketing strategies.

The results provided in this research of the attributes affecting consumer's choice, as well as providing market segmentation, have implications in two main directions. Firstly, we define the general profiles of consumers that visit lower-segmented and higher-segmented wine events.

Secondly, the results give insights for producers in understanding which wine attributes and extrinsic cues are important to the consumers assessing if certain attributes are significantly more important than others, as well as decomposing which of the attributes is significant for consumers with different willingness to pay, different frequency of buying, or different sex and age groups. By using these results, they could focus their marketing efforts in attracting new consumers and strengthening their market position.

What is characteristic for the higher-segment wine event consumers is that it is dominated by pretty frequent buyers of wine aged 25 to 34, who appreciate the recommendations very much and are willing to pay around 600 MKD (10EUR) for their favorite bottle of wine. This conclusion is relevant, regardless of the gender of the consumers. However, there is different attributes sensitivity of these consumers in regards to their sex when it comes to valuing the importance of the geographical region, vintage, brand and price. Male consumers find more important these attributes than female wine consumers from the higher-segment events.

The lower-segment wine events attract pretty heterogonous consumers in terms of the price that they are willing to pay, the age group they belong to and what they seem to

find more important from the wine attributes. From the analysis done, it can be clearly seen that there is typical college drinkers' group, dominated by female consumers that buy wine pretty often and are willing to pay around 600 MKD (10 EUR) for the favorite bottle of wine, and young adults' group on the other side. The second considers the variety to be very important attribute, tends to buy wine once a week and would pay for their favorite wine 1.000 MKD (16 EUR).

When analyzing in details the higher-segment event consumers, the results show that recommendation is very important for the age group of young adults, compared to the college drinkers aged bellow 24 years old. The consumers that would pay more than 1.000 MKD (16 EUR) find the geographical region of the wine as a very important attribute, compared to the consumers that would pay only 300 MKD (5 EUR). Women consumers from this segment seem to value the brand higher than men consumers. When analyzing the data in regards on the information on the bottle's label, than we can note that men consumers on average value more the geographical region than women. Consumers that buy wine once a week give more value to the price of the wine from the consumers that buy wine two or three times a week.

Consumers who are ready to pay lower price for the wine show higher attractiveness to the label design and for both, man and women, do not have significant influence on their choice of wine. However, consumers at lower-segmented event are mostly affected by the price than other wine attributes. Compared to higher-segmented event, this event attracts segment of consumers with different behavior profiles that values wine attributes much more than lower-segmented event visitors. Therefore, the organization of higher-segmented wine events with educational character has proved to be important for targeting higher-segmented consumers and increasing consumers' knowledge. Wineries should offer quality wines that will be recognized and recommended to the consumers as important extrinsic factor, and should incorporate the behavior of the events visitors in their marketing and promotional strategies.

Conflict of interests

The authors declare no conflict of interest.

References

1. Atkin, T., & Thach, L. (2012). Millennial wine consumers: risk perception and information search. *Wine Economics and Policy*, *1*(1), 54-62 https://doi.org/10.1016/j.wep.2012.08.002
2. Barber, N. A. (2008). *How self-confidence and knowledge effects the sources of information selected during purchase situations* (Doctoral dissertation, Texas Tech University).
3. Barber, N. (2009). Wine consumers information search: Gender differences and implications for the hospitality industry. *Tourism and Hospitality Research*, *9*(3), 250-269. https://doi.org/10.1057/thr.2009.14

4. Barber, N., Almanza, B. A., & Donovan, J. R. (2006). Motivational factors of gender, income and age on selecting a bottle of wine. *International Journal of wine marketing*, *18*(3), 218-232. https://doi.org/10.1108/09547540610704774
5. Dodd, T. H. (1995). Opportunities and pitfalls of tourism in a developing wine industry. *International Journal of wine marketing*, *7*(1), 5-16. https://doi.org/10.1108/eb008636
6. Gustafson, C. R., Lybbert, T. J., & Sumner, D. A. (2016). Consumer knowledge affects valuation of product attributes: Experimental results for wine. *Journal of Behavioral and Experimental Economics*, *65*, 85-94. https://doi.org/10.1016/j.socec.2016.08.004
7. Michael, H. C., & Mitchell, R. (2008). Wine Marketing a practical guide.
8. Hoffman, D., Beverland, M., & Rasmussen, M. (2001). The evolution of wine events in Australia and New Zealand: A proposed model. *International Journal of Wine Marketing*, *13*(1), 54-71. https://doi.org/10.1108/eb043370
9. Hristov, H., & Kuhar, A. (2014). *Young urban adults preference for wine information sources: An exploratory study for Republic of Macedonia* (No. 727-2016-50308). https://doi.org/10.22004/ag.econ.184855
10. Madeira, J., Duarte, F., & Barreira, M. M. (2009). Wine purchase and consumption behaviour of young adults in Portugal: Is age a differentiation factor?. *Age*, *15*(24)
11. Lockshin, L., Jarvis, W., d'Hauteville, F., & Perrouty, J. P. (2006). Using simulations from discrete choice experiments to measure consumer sensitivity to brand, region, price, and awards in wine choice. *Food quality and preference*, *17*(3-4), 166-178. https://doi.org/10.1016/j.foodqual.2005.03.009
12. Lombardo, C. (2012). Gender Preferences in Wine Marketing. https://digitalcommons.calpoly.edu/agbsp/101
13. Lunardo, R., & Guerinet, R. (2007). The influence of label on wine consumption: its effects on young consumers' perception of authenticity and purchasing behavior. *International marketing and trade of quality food products*, *1*, p279-291. https://doi.org/10.3920/978-90-8686-661-8
14. MAFWE. (2010). Law on Wine. Skopje: Ministry of Agriculture, Forestry and Water economy. *State Gazzette*
15. Mulry-Liggan, M. H. (1983). A comparison of a random digit dialing survey and the current population survey. In *Proceedings of the American Statistical Association, Section on Survey Research Methods. Washington, DC: American Statistical Association* (pp. 214-219).
16. Moulton, K., & Lapsley, J. (2001). Successful Wine Marketing. Aspen Publishers.
17. Nacka, M. (2015). Use of geographical indications in marketing modeling of wine sector in Republic of Macedonia. PhD. Skopje: *Faculty of Agricultural Sciences and food- Skopje.*

18. Nacka, M., Georgiev, N., & Simonvska, A. (2016). Young consumer preferences for Macedonian wine, *Journal "Agriculture and Forestry, Volume 62/Issue 2, University of Montenegro.* https://doi.org/10.17707/AgricultForest.62.2.09
19. OT., T. J. (1987). An experimental comparison of telephone and personal health interview surveys. *Vital and health statistics. Series 2, Data Evaluation and methods research* (106), 1-4.
20. Reynolds, D., Haglund, I., Taylor, J., & Ruetzler, T. (2013). Wine Purchase Intentions: A Push-Pull Study of External Drivers, Internal Drivers, and Personal Involvement. *American Association of Wine Economists 2013 Annual Conference.*
21. Sáenz-Navajas, M. P., Campo, E., Sutan, A., Ballester, J., & Valentin, D. (2013). Perception of wine quality according to extrinsic cues: The case of Burgundy wine consumers. *Food Quality and Preference*, *27*(1), 44-53. https://doi.org/10.1016/j.foodqual.2012.06.006
22. Szolnoki, G., & Hoffmann, D. (2013). Online, face-to-face and telephone surveys—Comparing different sampling methods in wine consumer research. *Wine Economics and Policy*, *2*(2), 57-66. https://doi.org/10.1016/j.wep.2013.10.001
23. Trajcevski, H. (2016). Consumer behavior in selection of wine-impact of factors. *VI Student Review of scientific papers. Skopje: Faculty of agricultural sciences and food-Skopje*.
24. USAID AgBiz. (2012, February). Macedonia's Wine Sector Export Marketing Plan for EU Markets. USAID.

Appendix 1: Sample descriptives, ANOVA results and multiple comparisons results

Descriptives								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
S_Brand	111	3,937	1,0811	,1026	3,734	4,140	1,0	5,0
S_Year_harvest	109	3,771	1,2220	,1170	3,539	4,003	1,0	5,0
S_Geo_origin	108	3,676	1,2061	,1161	3,446	3,906	1,0	5,0
S_Info_label	110	3,473	1,2319	,1175	3,240	3,706	1,0	5,0
S_Awards	109	3,367	1,2595	,1206	3,128	3,606	1,0	5,0
S_Recommendations	108	4,093	1,1236	,1081	3,878	4,307	1,0	5,0
S_Price	108	3,657	1,1204	,1078	3,444	3,871	1,0	5,0
Total	**763**	**3,710**	**1,1977**	**,0434**	**3,625**	**3,795**	**1,0**	**5,0**

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	41,369	6	6,895	4,957	,000
Within Groups	1051,619	756	1,391		
Total	1092,988	762			

The p-value is lower than the 0.05 significance level indicating rejection of the null hypothesis.

Multiple Comparisons						
Tukey HSD (I) V1	(J) V1	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
S_Brand	S_year_harvest	,1663	,1590	,943	(,304)	,636
	S_geo_origin	,2610	,1594	,658	(,210)	,732
	S_info_label	,4642	,1587	,055	(,005)	,933
	S_awards	,5700*	,1590	,007	,100	1,040
	S_recommendation	(,1557)	,1594	,959	(,627)	,316
	S_price	,2795	,1594	,580	(,192)	,751
S_year_harvest	S_brand	(,1663)	,1590	,943	(,636)	,304
	S_geo_origin	,0947	,1601	,997	(,379)	,568
	S_info_label	,2979	,1594	,502	(,173)	,769
	S_awards	,4037	,1598	,151	(,069)	,876
	S_recommendation	(,3220)	,1601	,409	(,795)	,151
	S_price	,1132	,1601	,992	(,360)	,587
S_Geo_origin	S_brand	(,2610)	,1594	,658	(,732)	,210
	S_year_harvest	(,0947)	,1601	,997	(,568)	,379
	S_info_label	,2032	,1598	,865	(,269)	,676
	S_awards	,3090	,1601	,461	(,164)	,782
	S_recommendation	(,4167)	,1605	,129	(,891)	,058
	S_price	,0185	,1605	1,000	(,456)	,493
S_Info_Label	S_brand	(,4642)	,1587	,055	(,933)	,005
	S_year_harvest	(,2979)	,1594	,502	(,769)	,173
	S_geo_origin	(,2032)	,1598	,865	(,676)	,269
	S_awards	,1058	,1594	,994	(,365)	,577
	S_recommendation	(,6199)*	,1598	,002	(1,092)	(,148)
	S_price	(,1847)	,1598	,910	(,657)	,288

Multiple Comparisons						
S_Awards	S_brand	(,5700)*	,1590	,007	(1,040)	(,100)
	S_year_harvest	(,4037)	,1598	,151	(,876)	,069
	S_geo_origin	(,3090)	,1601	,461	(,782)	,164
	S_info_label	(,1058)	,1594	,994	(,577)	,365
	S_recommendation	(,7256)*	,1601	,000	(1,199)	(,252)
	S_price	(,2904)	,1601	,539	(,764)	,183
S_ Recommendation	S_brand	,1557	,1594	,959	(,316)	,627
	S_year_harvest	,3220	,1601	,409	(,151)	,795
	S_geo_origin	,4167	,1605	,129	(,058)	,891
	S_info_label	,6199*	,1598	,002	,148	1,092
	S_awards	,7256*	,1601	,000	,252	1,199
	S_price	,4352	,1605	,097	(,039)	,910
S_Price	S_brand	(,2795)	,1594	,580	(,751)	,192
	S_year_harvest	(,1132)	,1601	,992	(,587)	,360
	S_geo_origin	(,0185)	,1605	1,000	(,493)	,456
	S_info_label	,1847	,1598	,910	(,288)	,657
	S_awards	,2904	,1601	,539	(,183)	,764
	S_recommendation	(,4352)	,1605	,097	(,910)	,039
The mean difference is significant at the 0.05 level.						

PERCEPTION OF FACTORS OF ENTREPRENEURSHIP DEVELOPMENT IN VOJVODINA'S SUSTAINABLE TOURISM BY VARIOUS BUSINESS ACTORS

Iva Škrbić[1], Milan Nešić[2], Ivana Mišković[3], Srđan Milošević[4]

**Corresponding author E-mail: srdjan.milosevic@tims.edu.rs*

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A B S T R A C T

The purpose of the study is to defining and assessment of the impact of the determinants affecting the development of entrepreneurship in Vojvodina's sustainable tourism. The empirical part of the study was conducted using the Survey method. The basic research instrument was a questionnaire. Its construct was based on the factor models of entrepreneurship, amended and adapted with item entries which can be deemed correspondent with particularities of the tourism environment of the AP of Vojvodina. The results indicate that the factors of Education and Partnership are the determinants with the strongest influence on the development of entrepreneurship in Vojvodina's sustainable tourism. Factors such as education and partnership are rated with the highest impact. Partnership, education, and cooperation between all interested stakeholders are a prerequisite for sustainable tourism in Vojvodina.

Introduction

Interest in entrepreneurship in tourism appears is the context of strengthening of public debate and attention paid to entrepreneurship and its role in the national, regional and local development (Page & Ateljevic, 2009). During the previous two decades,

1 Iva Škrbić, Ph.D, assistant professor, Educons University, Faculty of Sport and Tourism, Radnička 30a, 21000 Novi Sad, +38121530633, E-mail: iva.skrbic@tims.edu.rs, ORCID ID 0000-0001-6539-9225

2 Milan Nešić, Ph.D, full professor, Educons University, Faculty of Sport and Tourism, Radnička 30a, 21000 Novi Sad, +38121530633, E-mail: milan.nesic@tims.edu.rs, ORCID ID 0000-0002-5097-5653

3 Ivana Mišković, Ph.D, assistant professor, Educons University, Faculty of Sport and Tourism, Radnička 30a, 21000 Novi Sad, +38121530633, E-mail: ivana.miskovic@tims.edu.rs, ORCID ID 0000-0002-2588-3132

4 Srđan Milošević, Ph.D, assistant professor, Educons University, Faculty of Sport and Tourism, Radnička 30a, 21000 Novi Sad, +38121530633, E-mail: srdjan.milosevic@tims.edu.rs, ORCID ID 0000-0002-3045-5810

the interest in entrepreneurship has grown in scientific circles, as well. In the *Triple Helix* model of innovation and entrepreneurship, the main institutions recognised were university, industry and government (Etzkowitz & Leydesdorff, 1995), making it compatible with *knowledge economy.* The *Quintuple Helix* model (Carayannis & Campbell, 2010) emphasizes the need for a socio-ecological transition, in which the natural environment should also be seen as a driver for development of knowledge and innovation. Innovation, as a central element of entrepreneurship, can be an answer to the environmental issues, as well. This is covered by the Agenda 21- Chapter 30 (United Nations Division for Sustainable Development, 1992).

On the other hand, tourism is one of the leading global industries. According to the estimates of the World Trade and Tourism Council (WTTC, 2019), gross domestic product GDP in the sector of tourism in 2018, including indirect and induced income, was $8.8 billion or 10.4% of the global GDP, while the overall contribution to employment in 2018 is estimated to around 319 million (10% of global employment). Entrepreneurship has shown its strength in aiding revitalisation of regional identities and creation of new employment possibilities (OECD, 2011). More than 99% of all European enterprises are classified as small and medium enterprises (SME), providing 66% of jobs in the entire private sector and as many as 83% in tourism and hospitality industry. Around 95% of accommodation and food sector in the European Union EU were classified as small businesses (UNWTO, 2013). SME are a backbone of European economy and their contribution is essential to meeting the goals of "Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth".

Entrepreneurship emphasizes the individual, environment and the entrepreneurial process itself. Each of these dimensions includes a range of specific factors (driving factors and factors of success): personal motivation, entrepreneurial climate, entrepreneurial infrastructure and support to entrepreneurship. The role of governments in stimulating and creating an adequate entrepreneurial climate is essential, with focus on people who have motives, financial means and skills to start a business.

Tourism is a field with a great degree of entrepreneurial involvement: a very intensive diversification of tourist products and services is needed to meet increased demands for new types of tourist experience. The key to success of enterprises in tourism in the future will be related to finding new sources of growth (knowledge, information), which can result in a successful business and development policy (Sundbo & Gallouj, 2010). This also includes possibilities offered by the adoption of the concept of entrepreneurship and sustainable tourism.

This is why the process of analysing the role of entrepreneurship in sustainable tourism development is very important, as is identification of ways to strengthen entrepreneurship in tourism. The basic question of this study is: *how do different actors in tourism business perceive the importance of certain entrepreneurship development factors with the greatest impact on sustainable tourism in Vojvodina?*

Factors of development in tourism and, particularly, in sustainable tourism, are heterogeneous, appear in several different forms (activity, impact, process, etc.) and

can have a positive/stimulating or negative/limiting effect. There is a large number of papers and case studies that deal with the problem of entrepreneurship development, so overviews of literature contain numerous factors that are integral parts of various models, such as the Timmons' model, GEM model, Carol Moore's model, Buhalis & Costa model, Gartner's model, Morris & Lewis model, the triple and quadruple helix model, etc. (Škrbić, Mišković, Milošević, & Nešić, 2019). All of these models recognise and define the factors and their items that generally affect the development of entrepreneurship, regardless of specific area and activity. However, seeing as tourism is a complicated and complex field, very dynamic in terms of market and innovations, with a markedly specific resource basis, there is a need for an additional deeper analysis of factors and items that exhibit their specific effect primarily in the part of development of tourism entrepreneurship, taking into account the principles of sustainable development.

Method

This research was realised as an empirical study aimed at identifying levels of perception of certain factors that are interlinked and can affect the processes of development of entrepreneurship in Vojvodina's tourism, from the perspective of different tourism actors in local communities.

The sample of the research entity was composed of 34 respondents, who were differentiated (as a part of research subsampling) into representatives of two types of acting in tourism: (1) active, successful entrepreneurs in Vojvodina's tourism (N=20) and (2) representatives of the bodies of local communities who are authorised to represent the field of tourism in local self-governments (N=14).

All respondents live and work in the territory of Vojvodina and during their selection, care was taken regarding the representation of Vojvodina municipalities at varying degrees of development (from degrees I to IV of economic development),

According to the methodological character, the empirical part of the study was formatted using the Survay method. The basic research instrument (used to estimate the respondents' perception of importance/impact of certain factors that could be significant for business success and development of entrepreneurship in Vojvodina's tourism) was a questionnaire. Its construct was based on the factor models of entrepreneurship (Kayne, 2000; Lordkipanidze, Brezet, & Backman, 2005), amended and adapted with item entries which can be deemed correspondent with particularities of the tourism environment of the AP of Vojvodina. The content of the instrument included a total of eight factors, which some of the research conducted so far (Morris & Lewis, 1995; Buhalis & Costa, 2006; Amorós & Bosma, 2013) proved to be dominant in terms of entrepreneurship development, and which can, theory-wise, be applicatively related with the development of entrepreneurship in Vojvodina's tourism (Škrbić, Mišković, Milošević, & Nešić, 2019). Those eight hypothetical factors, as basic research variables, included a necessary number of item indicators shown in Table 1.

Table 1. Overview of factors and item indicators

Factors	Item indicators
Finances	*Grants, Benefits, Subsidised loans, Guarantee funds, Donations, Own finances*
Education	*Formal education, Informal education, Business incubators, Knowledge transfer, Business experience*
Partnership	*Availability of information, Cooperation with customers, Marketing approach, Interest associations, Cooperation with state*
Personal traits	*Personal traits of the entrepreneur, Family support, Family business, Readiness to take risk, Work experience*
State policies	*Company registration, Financial levies, Bribery and corruption, Property relations, Grey economy, State administration, Influence of politics*
Market strategy	*Needs of tourists, Quality of the tourist product, Demand for tourist products, Work force, Promotion and marketing*
Local community	*Attitude towards entrepreneurship, Sex and age barriers, Environment, Quality of life, Tourism development plans, Trust*
Resources and infrastructure	*Tourist attractions, Intangible tourist values, General infrastructure, Tourist infrastructure, Tourist suprastructure*

Source: Authors research

The respondents' answers had the form of a rating on a value scale (a five-point scale of the Likert type) in which the numeric value of 1 (one) signified the lowest level of impact of an indicator, with 5 (five) having the highest level of impact/significance.

As a basis of quantitative analysis of empirical data of the applied statistical procedure, representative measures of central tendency and measures of variability were calculated – arithmetic mean (*Mean*), standard deviation (*Std. Dev.*) and frequency distribution. For testing the significance of differences between scalar averages calculated for the subsampled respondent categories, one-factor analysis of variance was applied (*One Way ANOVA*). All statistical inferences were performed with the significance level of 0.05 ($p<.05$).

Results

Distributions of the respondents' answers, overall, indicate that the given factors that may have an impact on the development of entrepreneurship in tourism are recognised as clear existing determinants. However, scalar averages indicate that actors in tourism rate their role as relatively low in their immediate environment, seeing as they range in intensity from low to moderate significance (1.64 – 3.52). In terms of their distribution on the value scale, it is possible, conditionally, to define the hierarchy of manifestation, where it is observable that respondents attach importance to the following factors: 1) Education (3.52), 2) Partnership (3.31) and 3) Personal traits of the entrepreneur (2.99). At the (conditionally) second level of importance there are: 4) Market strategy (2.31), 5) Finances (2.17) and 6) Resources and infrastructure (2.06); while the third level of importance is formed by: 7) State policy (1.80) and 8) Local community (1.64) (*Table 2*).

The importance of certain factors can be additionally complemented by the results of estimates of certain item indicators which clearly direct the respondents' attention

to those determinants that are most important for development of entrepreneurship in tourism. Thus, for example, the need perceived as the most intensive is that for the education of entrepreneurs through the processes of informal (4.53) and formal education (3.74), as well as entrepreneur's business experience (3.82). On the other hand, the "weakest link" in factors of development, as perceived by tourism actors in Vojvodina, is the capacity of their local community, especially: Environment (1.21), the quality of life in it (1.53), but also barriers of sex/age that can be recognised in everyday social life (1.35). The state policy towards the sector of tourism has also been recognised as one of the more problematic factors that can hinder the development of entrepreneurship in tourism, especially taking into account the indicators: grey economy (1.24), property relations (1.35), financial levies (1.50), influence of politics (1.59), etc. (*Table 2*).

Table 2. Factor distribution and scalar averages (sample total)

Factor	Mean	Std. Dev.	Item indicator of the factor	Mean
Finances	2.17	0.246	Grants	2.59
			Benefits	1.38
			Subsidised loans	2.41
			Guarantee funds	1.24
			Funds	1.97
			Own finances	3.14
Education	3.52	0.526	Formal education	3.74
			Informal education	4.53
			Business incubators	2.29
			Knowledge transfer	3.24
			Business experience	3.82
Partnership	3.31	0.320	Availability of information	3.59
			Cooperation with customers	3.74
			Marketing approach	2.00
			Interest associations	2.82
			Cooperation with state	4.38
Personal traits	2.99	1.067	Personal traits of the entrepreneur	3.09
			Family support	3.85
			Family business	2.82
			Readiness to take the risk	2.12
			Work experience	3.06
State policy	1.80	0.404	Company registration	2.38
			Financial levies	1.50
			Bribery and corruption	2.18
			Property relations	1.35
			Grey economy	1.24
			State administration	2.38
			Influence of politics	1.59

Factor	Mean	Std. Dev.	Item indicator of the factor	Mean
Marketing strategy	2.31	0.766	Tourists' needs	2.76
			Quality of the tourist product	2.32
			Demand for tourist products	1.97
			Work force	1.76
			Promotion and marketing	2.71
Local community	1.64	0.285	Attitude towards entrepreneurship	2.21
			Sex and age barriers	1.35
			Environment	1.21
			Quality of life	1.53
			Plans for development of tourism	2.18
			Trust	1.38
Resources and infrastructure	2.06	0.377	Tourist attractions	2.38
			Intangible tourism resources	1.97
			General infrastructure	1.88
			Tourist infrastructure	2.21
			Tourist suprastructure	1.88

Source: Authors research

In the context of analysis of distribution of respondents' answers based on the subsample to which they belong, certain differences were observed, largely having statistical significance, as well. In terms of hierarchical ranking of factor significance, the following distribution was observed in the entrepreneur subsample: 1) *Education* (3.86), 2) *Personal traits of the entrepreneur* (3.79), 3) *Partnership* (3.18), 4) *Finances* (2.18), 5) *State policy* (2.09), 6) *Resources* (1.92), 7) *Marketing strategy* (1.77) and 8) *Local community*. With the subsample of the representatives of the local self-government (RLS) hierarchical distributions can be represented in the following way: 1) *Partnership* (3.49), *Marketing strategy* (3.07), 3) *Education* (3.04), *Resources* (2.27), 5) *Finances* (2.14), 6) *Personal traits of the entrepreneur* (1.84), 7) *Local community* (1.73) and 8) *State policy* (1.40) (Table 2).

By analysing the values of statistical significance of factors between subsamples, it can be observed that they are within the range of high significance level – Education (*Sig.=0.000*), Partnership (*Sig.=0.004*), Personal traits (*Sig.=0.000*), State policy (*Sig.=0.000*), Marketing strategy (*Sig.=0.000*), Resources and infrastructure (*Sig.=0.000*). It is only in the factors of *Finances* and *Local community* that there are no statistically significant differences between subsamples, which can be observed from the values of their scalar averages (Table 3).

Table 3. Distribution of factors and scalar averages – subsamples

Factor	m	Entrepreneurs (m)	*Rank*	RLS (m)	*Rank*	*F*	*Sig.*
FINANCES	2.17	2.18	*4*	2.14	*5*	*.217*	*.644*
EDUCATION	3.52	3.86	***1***	3.04	*3*	*48.578*	***.000***

Factor	m	Entrepreneurs (m)	*Rank*	RLS (m)	*Rank*	*F*	***Sig.***
PARTNERSHIP	3.31	3.18	*3*	3.49	***1***	*9.440*	***.004***
PERSONAL TRAITS	2.99	3.79	***2***	1.84	*6*	*156.794*	***.000***
STTE POLICY	1.80	2.09	*5*	1.40	*8*	*83.490*	***.000***
MARKETING STRATEGY	2.31	1.77	*7*	3.07	***2***	*82.191*	***.000***
LOCAL COMMUNITY	1.64	1.58	*8*	1.73	*7*	*2.146*	*.153*
RESOURCES AND INFRASTRUCTURE	2.06	1.92	*6*	2.27	*4*	*8.843*	***.006***

Source: Authors research

Discussion

Education is recognised as a factor with the greatest level of influence. Educational process previously undergone by generations of now able-bodied people has not, (at least not significantly) focused on entrepreneurship as an employment option. Until recently, entrepreneurship, as a subject, was not in the curricula of institutions of elementary, high school and higher education, so generations of pupils and students did not, upon graduating, turn to exploring entrepreneurial ideas and their market realisation, but were streamlined towards state firms or state jobs, as a safe option of stable income and employment. Hence, their children did not have the opportunity to learn about entrepreneurship from the examples of their immediate environment, either. It is thus not surprising that *Education* features as a factor with the greatest scalar average. Taking into account the current tempo of life, the lack of time and the rapidity of market changes, it is unsurprising that, according to the respondents' opinion, the greatest importance is that of *Informal education*, which can offer the missing knowledge and skills in a short span of time to all generations of potential entrepreneurs. Considering the fact that, in terms of importance, the following two item indicators are *Business experience* and *Formal education*, one can observe the advantage of introducing a system of dual education, which will give both a theoretical basis and a practical business experience. A low rank of the item indicator of *Business incubator* can be explained only by the fact that the broad public is still not familiar with the notion of business incubators, i.e. their role and function. Business incubators are an instrument that selects potential entrepreneurial ideas and offers the necessary administrative, consulting and logistic support in the initial and most sensitive phases of development of the entrepreneurial idea and they do so in perhaps the best and the fastest way (Bošković, Andrić, & Tomić, 2011). A number of more recent studies underlines the need to support entrepreneurship. Especially from the perspective of the identified factor – gender representation in the overall population of entrepreneurs in the rural areas of the AP of Vojvodina (a significantly higher ratio of men), low level of education being recognised as one of the primary causes of such a state (Munitlak Ivanović, Mitić, & Raspopović, 2016).

In view of the above, primary activities should relate to: (1) non-formal education in order to develop entrepreneurship; (2) recognizing the role of the cluster; (3) inclusion of vulnerable social groups in entrepreneurship; (4) implementation of entrepreneurial activities in all levels of education. Implementers of education should be: formal educational institutions, NGO's, clusters, local goverments, Regional Development Agencies, Destination Management Organizations (DMO's), Tourism Organizations, and all those who aim to develop entrepreneurship in tourism and local development.

The high positioning of the ***Partnership*** factor by the representatives of the local self-government and tourism entrepreneurs points to the awareness of the existence of a value chain in which every link is equally important and in which all activities must be systematically planned and led in a coordinated manner, in the function of a common interest. In favour of this are the highly-rated item indicators of *Cooperation with customers* and *Availability of information,* as elements that are essential for an unhindered functioning of the value chain. The highest-rated item indicator of *Cooperation with the state* indicates a necessity of a proactive role by the state through its institutions and representatives. The *top-down* development principle is still assumed by entrepreneurs in tourism, but also by the representatives of the local self-government, as the state is still expected to be the one to take the first step. The lowest-rated item indicator of *Marketing approach* indicates an underdeveloped awareness of market as a very dynamic regulatory factor, especially in the field of tourism and that the product, regardless of how high in quality it might be, is not going to sell itself. The fact that needs to be emphasized here is that building a quality integral tourist product requires a functional cooperation of all participants of the value chain and that only joint marketing approaches in the form of a quality integral tourist product stand a chance on the market. It can also be concluded that there is low awareness of the fact that the market offers two-way communication in the form of essential feedback information which can significantly affect the business success of an entrepreneurial undertaking. This is corroborated by some earlier research that emphasizes the need to improve management processes, marketing skills and knowledge in the field of communication, so they could have a more intensive role in the development of entrepreneurship in Vojvodina (Bošković, Andrić, & Tomić, 2011).

When it comes to the factor of ***Personal traits of the entrepreneur***, one must take into account different aspects of perception of importance of this factor: entrepreneurs perceive this factor directly, from personal experience and through personal examples, while the representatives of the local community perceive this factor indirectly, without personal experience, so it is only real that there is a statistically significant difference between these two subsamples. *Family support* is the most important item indicator. The obtained result can be related to the educational structure, in the sense that an unfavourable educational structure leads to a lower degree of security and self-confidence, increasing the need to rely on people from close environment in everyday entrepreneurial activities and decision-making processes. This is corroborated by the results of previous research dealing with internal motives for commencing entrepreneurship (with entrepreneurs who

became ones out of necessity and were forced to employ themselves, they indicate that these entrepreneurs, in addition to poorer business results, on average, also have a smaller capital; they are, on average, older, lacking business skills and have a lower potential for recognising market circumstances, as well as a strong need to rely on people from their immediate environment) (Bobera, Marić, & Leković, 2015) (Škrbić, 2016).

These are followed by *Personal traits of the entrepreneur,* i.e. his/her *Work experience* up to the point. The item indicator of *Family business* is not highly ranked, which correlates with the timespan of the entrepreneurial culture and tradition in any one given area, i.e. there are few family firms engaging in tourism in the territory of the AP of Vojvodina with a longer tradition that could represent a direct entrepreneurial role model for younger generations. If parents or other close family members are entrepreneurs, there are significantly higher chances of children becoming entrepreneurs in the future, as well (Rakićević, Omerbegović Bijelović, & Ljamić-Ivanović, 2015). However, in the early phases of development of sustainable tourism in Vojvodina in the entrepreneurial form, the effects of engaging in this field are not visible, which causes a low level of motivation by the population to engage in this field (Bošković, Andrić, & Tomić, 2011).

Market strategy, as a factor, was represented by a relatively stable scalar average, overall. It is worth noticing here that the representatives of the local self-government rated this factor as far more important (rank 2) in relation to the significance attributed to this factor by entrepreneurs in tourism (rank 7). This can point to the need for additional education of entrepreneurs, since creating strategic plans that affect the quality of tourist products in accordance with the needs and demands of the market is one of the foundations of the current business practices.

Recognising the *Needs of tourists,* along with *Promotion and marketing* and *Quality of the tourist product* are item indicators which, according to the respondents' opinion, are the most important ones; i.e. they are the essential elements for successfully creating an integral tourist product. In addition to this, the obtained results confirm that the various forms of numerous trainings that have been realised in Vojvodina in recent years have increased the level of knowledge on creating a tourist product, even though the application of this knowledge is yet to yield significant results in practice.

In terms of ranking of the *Finances* factor, no statistically significant differences between subsamples were observed. It can thus be inferred that they do not represent the primary cause of slower development of entrepreneurship in tourism, although a commonly heard argument is precisely that of insufficient finances being the first and foremost reason for the lack of realisation in this field. Analysing the activities carried out so far by the provincial and republic-level authorities indicates that sources of financing directed towards developing tourism and stimulating entrepreneurial activities and capacities have existed. The AP of Vojvodina has recently been recognising the importance of developing tourism in Vojvodina, financially supporting the improvement of capacities of certain types of tourism (Njegovan, Demirović, & Radović, 2015). In

2018, the Provincial Secretariat for Economy and Tourism subsidised a part of the loan granted by the Development Fund of the AP of Vojvodina, the purpose of which was advancement of tourism (Pokrajinska vlada AP Vojvodine, 2018).

In the measurement of item indicators, the highest rated indicators were those that concerned providing financial resources not conditioned by payments of high interest rates (*Own finances, Grants and Subsidised loans). Guarantee funds* is an item indicator that was rated lowest. Just like with *Business incubators*, it is very likely that the lack of knowledge and information on the advantages of guarantee funds conditioned such a low value. It should be mentioned here that some studies emphasize the particular sensitivity of female population with respect to the lack of financial resources and in the context of starting business activities in rural areas (Munitlak Ivanović, Mitić, & Raspopović, 2016).

An important factor limiting the development of tourism is the lack of adequate support services and good **infrastructure**, such as transport, good roads, telecommunications networks, financial and other services, wastewater treatment facilities and good tourist suprastructure (Centar za konkurentnost, 2012). Observing the context of Vojvodina, it can be inferred that the problems of infrastructure are not a burden on the development of tourism, but also that the tourist infrastructure and suprastructure are often a problem. A great number of places in Vojvodina do not have adequate accommodation capacities, both from the aspect of quantity and the aspect of quality and market demands. The lack of accommodation capacities still hinders the development of certain forms of tourism that require accommodating a larger number of visitors at the same time. Certain tourist localities and attractions are present in the tourism market, but not in the form of a tourist product or a part thereof, but only in the form of a notice of their existence, without tourist valorisation and market concretization. This indicates that tourism resources and not tourism products are often promoted. The item indicator of *Intangible tourism resources* was rated as below average, which is opposed to the prevalent opinion that one of the main tourist assets of Vojvodina is its multiculturality, its way of life, events, etc. Traditionally, Vojvodina has been perceived as an agricultural region in which tourism is not a priority, unlike some other regions and destinations (Western Serbia, Kopaonik, Zlatibor, Vrnjačka Banja, etc.). There is a rich resource foundation for creating a quality tourist product in Vojvodina and the next phase is strategic creation of capacities that will transform resources into a tourist product.

In this study, state policies were not found to be a highly influential factor. Still, previous experience points to an important role of the state in developing tourism in the territory of Vojvodina (Njegovan, Demirović, & Radović, 2015). The state, at the republic, provincial and local levels, should use its policies and instruments to give incentive to the development of sustainable tourism through entrepreneurial initiatives. The specificity of tourism, as an industry with a highly multiplicative effect, is that it opens the possibilities to improve the quality of life of the local populace. Achieving the desired effects would also entail strategically planned and coordinated activities, and embracing public-private partnerships as a means to pursue common interests.

Conclusion

Taking into account the results obtained in the context of specificity of environment in the AP of Vojvodina, it can be inferred that entrepreneurs in tourism with some experience in business do not rate the factors that can affect the development of the entrepreneurial process like the representatives of local self-government do. Out of the eight assessed factors, as many as six are rated with a statistically significant difference for the subsamples observed. This result can indicate potential reasons for slower development of entrepreneurial activities in the field of tourism, as representatives of local authorities prioritise those factors that they consider to be the most important and they create incentive instruments in accordance with this, while, on the other hand, entrepreneurs find certain other factors more significant in the process of starting and developing entrepreneurial activities in tourism. This presumption was corroborated by the results obtained, seeing as they identify the factors of *Education* and *Partnership* as factors with the greatest impact. Partnership, cooperation and communication between all interested stakeholders from all three sectors (state, private and civil) are a prerequisite for creating a good strategy that will be aimed at developing sustainable tourism in Vojvodina. It is necessary to add that a proactive attitude of all sides is indispensable, as that is the only way that can yield the optimal effects.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Amorós, J. E., & Bosma, N. (2013). *Global Entrepreneurship Monitor 2013 Global Report Fifteen Years of Assessing Entrepreneurship Across the Globe.* Global Entrepreneurship Research Association: Desarrollo.
2. Ballantyne, R., Packer, J., & Axelsen, M. (2009). Trends in tourism research. *Annals of Tourism Research, 26*(1), 149–52.
3. Bobera, D., Marić, S., & Leković, B. (2015). Entrepreneurship as a consequence of external stimuli and/or internal incentives. *Economic Themes 53*(1), 85-103. [*in Serbian*: Bobera, D., Marić, S., & Leković, B. (2015). Preduzetništvo kao posledica eksternih podsticaja i/ili internih pobuda].

4. Bošković, T., Andrić, N., & Tomić, D. (2011). Human and Financial Resources – Factors of Development of Rural Tourism in AP Vojvodina. *The School of Business,* 32-41. [*in Serbian*: Bošković, T., Andrić, N., & Tomić, D. (2011). Humani i finansijski resursi- činioci razvoja ruralnog turizma u AP Vojvodini].
5. Buhalis, D., & Costa, C. (2006). *Tourism Management Dynamics.* Oxford: Elsevier.
6. Carayannis, E., & Campbell, D. (2010). Triple Helix, Quadruple Helix and Quintuple Helix and How Do Knowledge, Innovation and the Environment Relate To Each Other?: A Proposed Framework for a Trans-disciplinary Analysis of Sustainable Development and Social Ecology. *International Journal of Social Ecology and Sustainable Development, 1*(1), 41-69.
7. Competitiveness Center. (2012). *How to Incubate Tourism Services - Collaboration of Incubators and Clusters.* Novi Sad: Competitiveness Center. [*in Serbian*: Centar za konkurentnost. (2012). *Kako inkubirati turističke usluge- saradnja inkubatora i klastera*].
8. Etzkowitz, H., & Leydesdorff, L. (1995). The Triple Helix- University-Industry- Government Relations: A Laboratory For Knowledge Based Economic Development. *EASST Review, 14*(1), 14-19.
9. Kayne, J. (2000). Rural Entrepreneurship Initiative. *Second Minnesota Academy working session* (p. 8). Rochester, Minnesota: Kauffman Center for Entrepreneurial Leadershi.
10. Košić, K., Demirović, D., Pejanović, R., Lazić, L., & Stamenković, I. (2015). Key principles of rural tourism households development strategy - case study of Vojvodina. *Economics of Agriculture, 62*(4), 975-988.
11. Lordkipanidze, M., Brezet, H., & Backman, M. (2005). The entrepreneurship factor in sustainable tourism development. *Journal of Cleaner Production, 13*(8), 787–798.
12. Morris, M., & Lewis, S. (1995). The determinants of entrepreneurial activity: Implications for marketing. *European Journal of Marketing*, 31- 48.
13. Munitlak Ivanović, O., Mitić, P., & Raspopović, N. (2016). Gender equality - perspectives of rural women entrepreneurship in Vojvodina, *The Business Economics*, 157-172. [*in Serbian*: Munitlak Ivanović, O., Mitić, P., & Raspopović, N. (2016). Perspektive ruralnog ženskog preduzetništva u AP Vojvodini].
14. Njegovan, Z., Demirović, D., & Radović, G. (2015). Managing sustainable development of rural tourism in Vojvodina, *The School of Business*, 68-79. [*in Serbian*: Njegovan, Z., Demirović, D., & Radović, G. (2015). Upravljanje održivim razvojem ruralnog turizma u Vojvodini].
15. OECD. (2011). *Measuring Green Entrepreneurship, in Entrepreneurship at a Glance 2011.* OECD Publishing.
16. Page, C., & Ateljevic, J. (2009). *Tourism and Entrepreneurship: International Perspectives.* Oxford: Butterworth Heinemann.

17. Government of the Autonomous Province of Vojvodina. (2018). For tourism development in Vojvodina up to 20 million dinars for 7 years without interest. http://www.vojvodina.gov.rs [*in Serbian*: Pokrajinska vlada AP Vojvodine. (2018). *Za razvoj turizma u Vojvodini do 20 miliona dinara na 7 godina bez kamate*].
18. Rakićević, Z., Omerbegović Bijelović, J., & Ljamić-Ivanović, B. (2015). Virtual entrepreneurship: education in support of entrepreneurial readiness of students. *International Scientific Conference of IT and Business-Related Research* (pp. 635-641). Belgrade: Singidunum University.
19. Sundbo, J., & Gallouj, F. (2010). Innovation as a loosely coupled system in services. *International Journal of Services Technology and Management, 1*(1), 15-36.
20. Škrbić, I. (2016). Entrepreneurship Development Model in the Context of Pro-poor Tourism in Rural Areas - PhD thesis. Sremska Kamenica: Educons University, Faculty of Business Economics. [*in Serbian*: Škrbić, I. (2016). *Model razvoja preduzetništva u okviru pro-poor turizma u ruralnim sredinama - doktorska teza.*].
21. Škrbić, I., Mišković, I., Milošević, S., & Nešić, M. (2019). Entrepreneur models in function of sustainable tourism. *Business economics,* 81-99. [*in Serbian*: Škrbić, I., Mišković, I., Milošević, S., & Nešić, M. (2019). Preduzetnički modeli u funkciji održivog turizma].
22. United Nations Division for Sustainable Development. (1992). *Agenda 21, Chapter 30 - Strengthening role of bussines and industry, 30.17- Promoting responsible entrepreneurship.* Rio de Janerio: United Nations Division for Sustainable Development.
23. UNWTO. (2013). *Tourism Highlights, 2013 Edition.* UNWTO.
24. WTTC. (2019). *Worl Travel and Tourism Council Economic Impact 2018.* London: WTTC.

ACCESSIBLE TOURISM AS THE FACTOR IN CREATING THE IMAGE OF SERBIAN WINERIES AS A SEGMENT OF AGRITOURISM SUPPLY

Jelena Jević[1], Slobodan Čerović[2], Goran Jević[3], Miroslav Čavlin[4]
**Corresponding author E-mail:* jelenajevic1984@gmail.com

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ABSTRACT

Accessible tourism denotes tourism offering equity and full participation to all categories of customers in tourism. The aim of the paper is to examine the attitudes of owners and managers of wineries in order to determine the influence of dependable variable related to "attitude to special needs citizens" on image and reputation of wineries which is measured through the following independent variables: district where a winery is located, the size of a winery and membership in a cluster. With this aim in mind in 2017 a survey was conducted on a sample of 81 wineries. One of the conclusions of the analysis shows the influence of a membership in a cluster or association on the attitude of wineries` owners and managers towards the importance of accessibility of wineries to accessible tourism consumers as an elements of the supply that is relevant for the image and reputation of a winery.

Introduction

A large number of separate studies pointed to the issues of demand, offer and organization of travel for people with disabilities. In time, numerous research works have been focused on identifying more precisely the leisure activities of these customers, i.e.

1 Jelena Jević, M.A., Assistant, College of Tourism, Bulevar Zorana Djindjica no.152a, Belgrade, Serbia, phone number + 381 11 2698 222, e-mail: jelenajevic1984@gmail.com, ORCID ID (https://orcid.org/0000-0002-2100-791X)

2 Slobodan Čerović, Ph.D., Full Professor, Singidunum Universtity, Danijelova no. 32, Belgrade, Serbia, phone number + 381 11 30 93 275 e-mail: scerovic@singidunum.ac.rs, ORCID ID (https://orcid.org/0000-0002-4646-2476)

3 Goran Jević, Ph.D., Assistant, College of Tourism, Bulevar Zorana Djindjica no.152a, Belgrade, Serbia, phone number + 381 11 2698 222, e-mail: jevicgoran82@gmail.com, ORCID ID (https://orcid.org/0000-0002-3007-6714)

4 Miroslav Čavlin, Ph.D., Associate Professor, University Business Academy Novi Sad Faculty of Economics and Engineering Management, Cvećarska Street no. 2, 21000 Novi Sad, Serbia, phone number +381 63 581 714, e-mail: cmiros@gmail.com ORCID ID (https://orcid.org/0000-0001-7465-7441)

correlation between people with disabilities and tourism. Gradually, it was established that the main issue of their exclusion from tourism was due to various physical barriers and then from the society as a whole towards this customer category. This research was mostly related to the attitude of employees in tourism segments such as hospitality and transportation, while a small number of authors paid attention to the possibilities of accessible tourism development in rural areas characterized by wine production. From the standpoint of wine tourism, availability of wineries to accessible tourism consumers may bring not only economic benefits but also positive impact on the image and reputation of a winery in its geographical and business environment.

Accessible tourism

For the quality market research of accessible tourism, it is necessary to define the segments included in this market, i.e. its target market. UNWTO Compilation represents a retrospective of recommendations for the period of 1975-2015 and it considers accessible tourism as tourism aimed at visually impaired, hearing impaired, mobility impaired, cognitively impaired as well as those with temporary disability in addition to families with young children and people over 65 years old, iso-called third age (UNWTO, 2016: 107). It is noticeable that barriers are not related only to the persons with disabilities but to all customers who at some stage in their lives require accessible facilities, which points to the necessity for further research and definition of the correlation between tourism and accessibility, especially in the context of the need assessment of its users.

As the concept of accessible tourism was developed as non-discriminatory and inclusive, there have been different forms but not a general definition accepted by all. Judging by the attention and scope it gathers, this concept is still to be developed and defined. European Network for Accessible Tourism (ENAT, 2012) states that 'universal tourism', 'inclusive tourism', 'accessible tourism' is tourism accessible to everyone, with or without disabilities, including people who have difficulties with mobility, vision, hearing, cognitive or intellectual and psycho-social disability, seniors and people with temporary disability. In the references, the most quoted definition is by authors Darcy and Dickson, (2009: 34), and in 2013 it was accepted and confirmed by the UNWTO in the publication *Recommendations on Accessible Tourism* (UNWTO, 2013:4) according to which 'Accessible tourism allows people with access requirements, including mobility, visual, hearing and cognitive dimension of access, to function with equity and dignity through the delivery of universally designed tourism products, services and environments. This definition includes all people, including those travelling with children in prams, people with disabilities and seniors'. As stated in the ENAT report (Vos et al., 2007: 16), "All tourists, with or without disabilities, should have a choice of selecting accommodation, destinations and attractions they want to visit because of the location, atmosphere and price, and not only because it is the only accessible option adapted to their requirements, that is the key to accessible tourism".

Regarding the potential size of this market, it is estimated that over 750 million of people over the world and between 37 and 45 million of people in Europe have some disability (Buhalis et al., 2005). According to the OSSATE project, even 130 million of people in Europe have accessibility requirements, including seniors, which points to the strong connection between older age and disabilities, around 70% of this group have physical and financial means to travel. Economic aspect of this statement was approved by various international studies, e.g. 54.3% persons with disabilities travel in Germany. However, 37% gave up the idea of travelling since they could not find the appropriate offer and 48% would travel more often if there were accessible offers (Neumann et al., 2004). Although a large proportion of Europeans would support improvement of accessible tourism offers, a small number of tour operators is aware of this potential and a small number understands their needs and expectations (Praća et al., 2017). In addition to the size of the accessible market alone including the mentioned categories of customers, the added economic value to justify the investment in adapting first of all accommodation capacities lies in the fact that certain categories of these customers are not able to travel alone and they need to bring along someone they can trust, either a caregiver, member of the family, often a driver also, thus at least one person more and sometimes more than one will come with them (Mićović, 2019). The attention given to accessible tourism over the world is marked by the World Tourism Day in 2016 themed as 'Tourism for All – Promoting Universal Accessibility' by compiling examples of good practice in the accessible service chain, which confirms its global importance (UNWTO: 2016).

Without doubt, accessible tourism has brought numerous changes to accommodation sector that require efforts by the management and all available resources in order to maximize the use of accessible accommodation capacities to full occupancy. Accessibility required by this market is important in the aspect of the size of the market, i.e. its demand, as well as of their expenditure. Accessible tourism offers and experiences are still very limited, first and foremost, by obstacles such as physical barriers, limited transportation, accommodation and attraction options that are not adapted, then followed by information barriers, lack of information, inadequate and/or incomplete information or unadapted or badly designed web pages.

Wine tourism as an element of agritourism

Wine tourism includes independent or organized visits to vineyards, wineries, wine festivals, wine demonstrations with the purpose of wine tasting and gaining experience through a visit to a wine region (Kunc, 2009; Alant and Bruwer, 2004; Alant and Bruwer, 2010; Hall and Macionis, 1998; Lopez-Guzman, 2011; Koch et al., 2013; Hall et al., 2000b; Dodd, 2000). Grimstad (2011) views wine tourism as a combination of aesthetically pleasant landscape and wine consumption, while Razović (2015) states that the most important elements of wine tourism are: hospitality, winery staff expertise on wine, wine festivals, atractive scenery, affordable accomodation, availability of information, gastronomic specialties, traditional wine villages and the like. A number

of authors regard wine tourism as strongly connected with rural tourism (Mitchell et al., 2012; Marques, 2006; Schererr et al., 2009; Quadri, 2012; Razović, 2015), others see it as a type of special interest tourism (Bruwer, 2003) while Lopez-Guzman (2011) perceives a strong link between wine and gastronomic tourism. Yuan et al. (2005) state that wine tourism is represented in literature as a form of rural tourism, agritourism, cultural tourism, industrial tourism and special interest tourism. Thus, Jovanović et al. (2015) regard wine tourism as a means of development of agritourism and observe that numerous private wineries are located in rural areas. The authors state that wine tourists have the opportunity to try hands-on activities ranging from grape picking to wine making. A more precise position of wine tourism is defined by Robinson and Novelli (2005) who specify the existence of five niches, where wine tourism is a micro niche of rural tourism. Also, Bruwer (2003) agrees that wine tourism is a part of special interest tourism and its rural component, and emphasizes that this form of tourism is gaining importance in tourism economy of countries in the world. Rabotić (2013: 158) observes that it is „virtually impossible to draw a line between wine and rural tourism because vineyards, as well as most wineries, are situated in rural areas, so wine tourism is often regarded as a segment of rural tourism". Štetić (2007) views wine tourism as a part of rural tourism, stating that Timoc wineries are an important highlight of rural tourism in Eastern Serbia. The same opinion is shared by Mesarić-Žabćić and Breslauer (2010), emphasizing the importance of wine tourism for rural tourism of Medjumurska County, as well as by Jovanović (2013) who regards wineries of Gudurice village near Vrsac as a part of rural tourism of South banat region. In accordance with this statement is the research conducted by Tuck and Gartner (2014) in New England (USA) where the results show that 70% of wineries is located in rural areas.

Northwud (2000:14) claims that wine tourism as one aspect of rural and agritourism has become very popular in many countries with suitable growing conditions. According the same author wine tourism is a unique and specialised form of agri-tourism that is just beginning to be recognized as a profitable industry which generally causes little damage to the environment. The same author states that there are many links between wineries and rural tourism in Niagara region: not only does rural tourism depend on the wineries, but many of the wineries also depend on tourism in order to be sustained in the future. Tourism helps wine imdustry in many ways and brings a wide range of advantages for wineries and the region where wineries are located. Simultaniously, wine industry contributes to tourism and economy of Niagara region.

Certain authors explain the difference between agritourism, village and rural tourism, explaining that the term agritourism denotes all tourist and recreational activities related to agricultural activities (Hall et al., 2017; Hall and Jenkis, 1998), while village tourism denotes a complex activity that takes place away from urban areas, specifically in the countryside (Hall et al., 2017). Along the same lines Bramwell and Lane (1994) explain village tourism as multi-faceted activity which includes a country holiday as well as eco activities such as trekking, riding, adventure, education and the like. These authors view rural tourism as holidaymaking in rural areas. Popesku (2008) perceives

the difference between these two terms, stating that in many countries agritourism is considered as a type of village tourism, which can be perceived as a part of a wider term named rural tourism (Tasić, 2018). The same author states that agritourism takes place in agricultural areas where services are provided by agricultural producers, while the term rural tourism denotes village households, rural lifestyle and holidaymaking in rural areas. Similar attitude is shared by Lane (1994) who sees rural tourism as connected with tourist activities in the rural environment. On the other hand, Brčić-Stipčević et al. (2010) draw a line between rural and agritourism in the way the difference is stated by Croatian Chamber of Economy, where rural tourism denotes tourist activities in rural areas, while agritourism stands for economic linking of agricultural and tourism activities (Jovanović et al., 2017).

According to the above mentioned attitudes of a number of authors we can conclude that wine tourism is closely related to rural tourism. Namely, wine tourism supply imply rural areas because vineyards and wine cellars, being the basic elements of wine tourism, are typically situated in rural areas. However, if tourist activities of wine tourists include work in the vineyard (hoeing, pruning...) or participation in wine production, then we can perceive it as agritourism within rural tourism.

In our country wine tourism mainly takes place in rural areas where most of the wineries included in wine tourism are located and this type of tourism in Serbia is presented in the form of wine routs, just as it is the case in the majority of European countries.

According to the division adopted by Tourism Organization of Serbia, wine routes in Serbia are named after wine regions and these are: Pocersko-Valjevski wine route, wine route Negotin County (Negotinska krajina), Knjazevac wine route, Mlava wine route, Toplica wine route, Nis wine route, Leskovac wine route, Vranje wine route, wine route Three Morava Rivers, Belgrade wine route, Sumadija wine route, Srem wine route, Subotica wine route, wine route Telecka, Tisa region wine route, Banat wine route, South Banat wine route, South Metohija wine route (TOS, 2017: 2).

Wine tourism as an element of agritourism supply along with examples of tours adapted for accessible tourism consumers

There is a number of examples of wine tours adapted for accessible tourism consumers. American association “Wine road“ founded in California in 1976, encompasses wine route supply in the Alexander, Dry Creek, and Russian River valleys of Northern Sonoma County. From its modest beginning as an organization of 9 wineries, it has grown into an association of nearly 200 wineries and 50 lodgings and hosts numerous programmes, events and services designed to enhance the experience of the visitors to this region. On their website (WINEROAD, 2019) while browsing through wineries and wine routes, it is possible to choose a winery or wine route according to its name, region, type of wine, while it is also possible to search by amenity so that wine tours adapted to accessible tourism consumers can be easily found. There are 83 wineries adapted to accessible tourism consumers where they can buy and taste wine as well as savour the gastronomic

specialties of the region in a pleasant setting and travel through picturesque countryside. The level of attention to accessible tourism users can be seen in the fact that the website of the association, as well as the websites of each of the wineries, offer the option of accesibility menu where the entire websites` content is available to users with various forms of disabilities. For users of this type of tourism obtaining correct and unambiguous information is of utmost importance as it gives the sense of safety (WINEROAD, 2019)

One of the leading European websites which promotes services adapted to accessible tourism consumers (Disabled accessible travel, 2019) promotes wine tours in European countries famous for wine as a part of European city tours. Thus, among others, Italian wine routes and wineries are recommended (Disabled accessible travel, 2019). In this tour, beautiful wines can be tasted and visitors can experience firsthand the love for wines the family has. Depending on starting point, the timing of this accessible wine tour in Italy can vary accordingly. This visit offers an introduction to the family who makes the wines and of course their exquisite wines. On this guided tour, knowledge about the history of the family is shared through a short-movie and you can see how the wine is produced. Besides this, the winery's innovative architecture can be enjoyed. The tour includes wine tasting of three estate-grown wines. Visitors can see the vineyards, the cellar where the wine ages, and the beautiful architecture of the building. So not only taste buds have a joy-ride here, but eyes also have a wonderful time. The winery looks out over the beautiful Tuscany landscape, so it is definitely a must-visit. When it comes to touring Spanish wine regions and wineries, it is possible to go on a wine tour in the vicinity of one of the most famous and most visited tourist hubs, the city of Barcelona. After a 30-minute scenic drive enjoying the landscape, visitors arrive at the eye-catching vineyards. The family has experience in hosting disabled visitors so everything will go smoothly. (Disabled accessible travel, 2019) . Online tour operator (Rome and Italy, 2019). who deals mostly with promotiong tourism products of Rome as well as the whole Italy has a special segment on their website adapted to accessible tourism users, where along with tourist attractions of a region, wine tours and visits to wineries are also promoted as one of the most important tourism potentials of the country (Rome and Italy, 2019). Accessible tourism users can tour the wineries in the company of a licenced tour guide, taste famous wines along with bruschetta, olives and prosciutto, and enjoy a scenic drive through the region. Excursions throughout Italy are also promoted on a website of the association Fausta Accessible Transportation (Accessible transportation in Rome, 2019) that specializes in transfer of accessible tourism consumers, offering comfort and safety of travel, vehicles adapted to all categories of accessible tourism and professional staff. One of the specialized tours is named "Tuscany, Gastronomic and Cultural Tour, Wine Tasting" (Accessible transportation in Rome, 2019). On this tour visitors can explore and learn the history of "Chianti" by seeing the hills and vineyards that have made this particular wine one of the biggest names across the world. These hills will create an amazing backdrop for a tasting of this wine. Tour starts at "Castello Banfi", a stunning 13th century village located near Montalcino, which is now an independent vineyard. There are numerous castle wine cellars where people can experience different stages of wine production from the vineyard all the way through to the bottling but most importantly the different steps in the process of

creation of "Chianti" and "Brunello di Montalcino". In the "Glass Museum" it is possible to see and admire some extremely old and rare wine bottles and wine glasses with some examples coming from the Venetian glass area. In the "Balsameria" visitors can explore the secrets of ancient traditional seasoning which have been passed down for centuries within the castle known as the Etruscan balsamic vinegar which is obtained from the aging of the grape juice which makes this product a perfect addition to most dishes. The tour ends in Siena, where visitors can explore the amazing sights of the town. Some of the sights that visitors will explore will be the "Duomo", "Palazzo Comunale" in the "Piazza del Campo". With its unique structure in a shell shape the Piazza is the home to one of the oldest horse racing activities called the "Palio" that has been hosted at the Piazza for centuries. The Palio happens twice a year during summer season.

On behalf of the German federal government, German National Tourist Board plays an important role in the promotion of Germany as a travel destination on the international market. One of the tours is called „On a journey along the Wine Route. An accessible pilgrimage for all!" (GERMANYTRAVEL, 2019) . This trail from Koblenz to Konstanz boasts ever-changing scenery and exciting cultural history. The entire route is accessible, so it is perfect for hikers and accessible tourism users who like to hike with Riesling from the vineyards of the Romantic Middle Rhine Valley, which is hugely popular due to its mild Mediterranean climate. With top wines and plenty of holiday spirit sitting by Lake Constance, in Konstanz, where Wine Route ends, locals love to tell visitors the story of how the first ever Pinot Noir grapes were grown in the nearby village of Bodman by Charlemagne's great-grandson. This pilgrimage route takes hikers past ancient castles, churches, monasteries and chapels. It offers many opportunities to meditate, including historic sites and pleasant places to stop.

An example of a Serbian winery which focuses on accessible tourism users is Temet winery. Wishing to contribute to the concept of inclusion, and to offer accessible tourism users the pleasure of wine tasting and winery touring, Temet winery had ramps and accessible toilets constructed on their grounds. Moreover the wine labels are written in Braille Alphabet, which is a unique approach in this type of tourism in Serbia (TEMET, 2019).

Research Methodology

Surveys were sent to 140 wineries listed in the official catalogue of Tourism Organization of Serbia, and 65 answers were collected. In order to obtain more answers, and to receive even more precise information about attitudes to marketing activities, an additional survey was given to owners and managers of wineries that are not included in the official catalogue. Additional surveys were conducted during special wine events such as wine fairs, by face-to-face interview, subsequent email correspondence or phone conversation. Thus another 16 responses were obtained, which totalled 81 respondents. The research was conducted from 23 March 2017 to 28 September 2017.

Data processing

Starting from descriptive statistics measures we used arithmetic mean with standard deviation. Frequencies and percentages were used to show qualitative variables. The differences between groups were defined through one-factor analysis of variance (ANOVA). We also used Student t test for large independent samples. For the purposes of prediction, we used univariante linear regression. Statistical relevance was defined at the level of probability of zero hypothesis from $p \leq 0.05$. Statistical analysis was conducted in the SPSS version 24 (Statistical Package for the Social Sciences) for Windows.

Sample Characteristics

According to the region (Table 1), our sample mostly included Srem region (30,9%), Three Morava Rivers region (18,5%) and South Banat region (8,6%). The division of regions has been adopted from the official division of wine regions of Serbia. The regions are represented in this percentage because wineries are located mostly in these three regions.

According to the size of a winery (Table 1), in our sample, the largest percentage of 43,2% belonged to small wineries (5-30.000 litres), while middle range wineries (30-100.000 l) made up 33,3% of our research sample. In this sample, the majority of the wineries do not belong to a wine or tourism cluster, while 40,5% of the wineries are members of an association. Most of the wineries are members of the Association of wine-makers of Sumadija, while 14,3% belong to Fruska Gora cluster of grape producers and winemakers "Alma Mons", another 10,7% belong to the Association of grape producers and winemakers "Srem-Fruška gora", while 10,7% belong to the Association of wine-makers of Zupa "Knights` wine".

Table 1 What is the importance of the attitude to accessible tourism consumers for the image and reputation of a winery

	N=81
Region of the winery, n (%)	
Three Morava Rivers	15 (18,5 %)
South Banat region	7 (8,6%)
Srem region	25 (30,9%)
Šumadija region	6 (7,4%)
Belgrade region	6 (7,4%)
Other wine regions*	22 (27,2%)
Size of winery, n (%)	
Limited production (up to 1000 litres)	2 (2,5%)
Very small (from 1000 to 5000 litres)	8 (9,9%)
Small (from 5.000 to 30.000 litres)	35 (43,2%)

	N=81
Region of the winery, n (%)	
Middle- range (from 30 to 100.000 litres)	27 (33,3%)
Large (over 100.000 litres)	9 (11,1%)
Membership in a cluster of association n (%)	
Yes	32 (40,5%)
No	47 (59,5%)
What is the importance of the attitude to accessible tourism consumers for the image and reputation of a winery**,** M±SD (Min - Max)	3,24±1,27 (1-5)

*****Other wine regions encompass regions with less than 5 % in the sample: Negotinska krajna (N=4), Mlava region (N=2), Nis region (N=3), Subotica region (N=4), Toplica region (N=1), Vranje region (N=2), Knjazevac region (N=1), Backa region (N=2), Pocersko Valjevski Region (N=1), Potiski region (N=1) and Region Telecka (N=1).

Source: Author's calculation

The importance of the attitude to accessible tourism consumers for the image and reputation of a winery was assessed on 5-point scale of Likert type. Average importance equals 3,24±1,27 which represents middle- range evaluation of this characteristic of a winery.

Research results

The research investigated if there was a statistical difference in the way wineries in different regions assess the importance of attitude to accessible tourism users for the image of winery (Table 2). ANOVA test shows that there is no important statistical difference (p>0,05). All regions consider this aspect mildly important (mid-range on the scale): Three Morava Rivers Region (3,53±1,59), South Banat region (3,29±0,75), Srem region (3,25±1,39), Sumadija region (3,83±1,32), Belgrade region (2,20±0,44) and Other wine regions (3,10±1,04).

There are no significant differences that arise from the size of the winery. Namely, notwithstanding the size of the winery, the owners and managers similarly assess the importance of the attitude towards accessible tourism consumers for the image of the winery (p>0,05).

There is a statistically important difference in the perception of the importance of the attitude towards accessible tourism consumers for the image of the winery in relation to the membership in a cluster (p<0,01). Namely, the wineries that belong to a cluster or association give more importance to the influence of the attitude towards accessible tourism consumers on the image of the winery (3,73±1,36), compared to the wineries that are not members of a cluster or association (2,89±1,10).

Table 2 The importance of the attitude to accessible tourism consumers related to the region and size of a winery as well as its membership in a cluster

	N=81	p
Region of winery, n (%)		0,338 [a]
Three Morava Rivers	3,53±1,59	
South Banat region	3,29±0,75	
Srem region	3,25±1,39	
Sumadija region	3,83±1,32	
Belgrade regon	2,20±0,44	
Other wine regions	3,10±1,04	
Size of winery, n (%)		0,560 [a]
Limited production (up to 1000 liters)	3,00±2,82	
Very small (from 1000 to 5000 liters)	2,71±0,95	
Small (from 5.000 to 30.000 liters)	3,21±1,25	
Middle- range (from 30 to 100.000 liters)	3,54±1,27	
Large (over 100.000 liters)	3,00±1,32	
Membership in a cluster of association n (%)		< 0,01 [b]
Yes	3,73±1,36	
No	2,89±1,10	

[a]ANOVA test; [b]Student's t – test; p- statistical significance;

Note: mean±standard deviation are showen in table

Source: Author's calculation

Pivac (2012:147) holds a view that for wine networking it is important to create a connection between grape producers, wine producers, hoteliers, restaurants, employees in tourism sector as well as representatives of local authorities and researchers in the field of tourism.

By using univariante linear regression we researched the influence of membership in a cluster or association on the perception of importance of the attitude to accessible tourism consumers for the image and reputation of a winery (Table 3). The percentage of explained variance amounts to 9,4%, while the influence is statistically important (Beta=0,326 (0,276 – 1,408), $p< 0,05$). Membership in a cluster was coded as binary variable (1=there is membership in a cluster, 0= there is no membership in a cluster). Thus, the influence of belonging to a cluster was confirmed in terms of perception of the importance of the attitude to accessible tourism consumers. The wineries that are members of a cluster give more importance to this aspect.

Table 3 The influence of membership in a cluster on perception of importance of the attitude towards accessible tourism consumers

Dependent variables	Independent variables	Univariante linear regression analysis		
		Beta (95%CI)	p	Adjusted R Square
What is the importance of the attitude to accessible tourism consumers for the image and reputation of a winery?	Membership in a cluster or association	0,326 (0,276 – 1,408)	< 0,05	0,094

p - statistical significance

Source: Author's calculation

Authors of the paper hold the view that this result confirms the importance of wine clusters and associations for the development of wine tourism and implementation of world trends. Namely, owners and managers of Serbian wineries that are a part of wine or tourism clusters are included in education and training and are aware of the importance of accessibility for the image and reputation of the winery (their attitude is however usually limited to visitors with disabilities, notably wheelchair users). Adaptation of the supply to the accessible tourism consumers may serve as an additional basis for marketing activities and presentation of the company as socially responsible. Nowadays attention of consumers is paid to the image a company has in the society, and the way the company treats different target groups, so that adaptation to the accessibility tourism consumers and informing the society about it enables better positioning and influencing consumers through this aspect of socially responsible behaviour. By accepting this concept of doing business and informing the society about it through different sorts of communication, a winery can diversify itself from the competition which may enable better positioning on the market, greater loyalty of buyers because of the positive perception of the winery, and consequently better sales of products and services.

Conclusions

Creating and managing desired image and reputation represents a basis for successful positioning of a winery in the consciousness of visitors, no matter if they have already been wine tourists or it is their first encounter with the type of tourism. Examples from various countries in the world show that accessible tourism consumers start to visit wineries more frequently, which means that owners and managers of wineries are aware of the advantages of the diversification of the supply. Based on this research conducted among owners and managers of wineries about the importance of the attitude to accessible tourism consumers for the image and reputation of a winery the results showed that looking at the variable of region, the greatest importance to this is given in Sumadija region (3,83±1,32), while the least importance was perceived in wineries

of Belgrade region (2,20±0,44). As to the size of the winery, the research showed that midle-range wineries (wineries that produce from 30.000 to 100.000 litres of wine per year) consider accessibility most important (3,54±1,27). The least importance of accessibility is perceived in small wineries which produce from 5.000 to 30.000 litres of wine per year. Owners or managers of wineries that belong to a cluster or association showed higher level of awareness of the importance of accessibility (3,73±1,36) compared to wineries that are not members of a cluster or association (2,89±1,10).

Univariant regression model proved the influence of the membership in a cluster on the perception

Conflict of interests

The authors declare no conflict of interest.

References

1. Alant, K., Bruwer, J. (2004). Wine tourism behaviour in the context of a motivational framework for wine regions and cellar doors. *Journal of Wine Research*, 15:27-37.
2. Alant, K. Bruwer, J. (2010). Winery visitation sets. Intra-regional spatial movements of wine tourists in branded regions. *International Journal of Wine Business Research*, 22 (2): 191-210.
3. Accessible transportation in Rome, Specializes transfer in Rome for accessible tourism consumers, Retreived October 25, 2019, from https://accessibletransportationrome.com/
4. Accessible wine routes in Germany, Retrieved October 25, 2019, from https://www.germany.travel/en/leisure-and-recreation/spiritual-travel/pilgrimages/the-wine-route.html
5. Brčić-Stipčević, V., Petjak, K., Renko, S., (2010). Ekoagroturizam – pokretač održivog razvoja turizma, Zagreb: Ekonomski fakultet Zagreb.[*in English*: Brčić-Stipćević, V., Petjak, K., Renko, S., (2010). Eco-tourism – initiator for sustainable tourism development. Zagreb: Faculty of Economics and Business. Zagreb].
6. Bruwer, J. (2003). South African wine routes: Some perspectives on the wine tourism industry's structural dimensions and wine tourism product. *Tourism Management*, 24 (4): 423–435.
7. Buhalis, D., Eichhorn, V., Michopoulou, E., Miller, G., (2005). Accessible Market and Stakeholder Analysis, One-Stop-Shop for Accessible Tourism in Europe (OSSATE), University of Surrey, UK
8. Darcy, S. and Dickson, T. (2009). "A whole-of-life approach to tourism: the case for accessible tourism experiences". Journal of Hospitality and Tourism Management, Vol. 16 No. 1, pp. 10-11.
9. Disabled accessible travel, Accessible wine tour in Italy, Retreived October 23, 2019, from https://disabledaccessibletravel.com/accessible-destinations/italy/accessible-wine-tour-in-italy/

10. Disabled accessible travel, Accessible wine tasting near Barcelona, Retreived October 23, 2019, from https://disabledaccessibletravel.com/accessible-destinations/spain/accessible-barcelona/accessible-wine-tasting-near-barcelona-approx-4-hours/
11. Dodd, T. H., (2000). Influences on cellar door sales and determinants of wine tourism success: results from Texas wineries. In: Hall, M., Shapers, L., Cambourne B., and Macionis, N. (Ured.). *Wine tourism around the world-Development, management and markets* (136-149). England: Butterworth Heinemann
12. European Network for Accessible tourism (ENAT). (2012)., Takayama declaration, Retrieved October 17, 2019, from https://www.accessibletourism.org/resources/takayama_declaration_top-e-fin_171209.pdf
13. Getz, D., Brown, G. (2006). Benchmarking wine tourism development: The case of the Okanagan Valley, British Columbia, Canada. *International Journal of Wine Marketing*, 18 (2): 78-97.
14. Grimstad, S. (2011). Developing a framework for examining business-driven sustainability initiatives with relevance to wine tourism clusters. *International Journal of Wine Business Research*, 23 (1): 62-82.
15. Hall, C. M., Johnson, G., Cambourne, B., Macionis, N., Mitchell, R., Sharples, L. (2000b). Wine tourism: an introduction. U: Hall, M., Shapers, L., Cambourne B., and Macionis, N. (Ured.). *Wine tourism around the world-Development, management and markets*. (1-24). England: Butterworth Heinemann
16. Hall, C.M., Macionis, N. (1998). Wine tourism in Australia and New Zealand. U: Butler, R.W., Hall, C.M., Jenkins, J.M.(Ured.). *Tourism and Recreation in Rural Areas*. (267-298). John Wiley & Sons.
17. Jovanović, D., Muhi, B., Anđelković, A. (2015). Vinarije i putevi vina kao sredstvo za razvoj agroturizma u Srbiji. *Turističko poslovanje, 15*: 87-93.[*in English*: Jovanović, D., Muhi, B., Anđelković, A. (2015). Winaries and wine routes as a tool for the development of agritourism in Serbia. *Tourism Business, 15*, 87-93.].
18. Jovanović, D., Milenković, N., Damnjanović, R. (2017). Ocenjivanje i predviđanje potreba potrošača. *Oditor-časopis za Menadžment, finansije i pravo*, 3(1): 37-51. 70-79.[*in English*: Jovanović, D., Milenković, N., Damnjanović, R. (2017). Assessing and anticipating consumer needs. *Oditor-Journal of Management, Finance and Law, 3* (1): 37-51. 70-79.].
19. Jovanović, V. (2013). *Tematski turizam*. Beograd: Univerzitet Singidunum, [*in English*: Jovanović, V., (2013). *Thematic tourism.* Belgrade. Singidunum University].
20. Koch J., Martin, A. and Nash, R. (2013). Overview of perceptions of German wine tourism from the winery perspective. *International Journal of Wine Business Research*, 25 (1): 50-74.
21. Kunc, M. H. (2009). Forecasting the development of wine tourism: a case study in Chile. *International Journal of Wine Business Research*, 21 (4): 325-338
22. Lane, B., (1994). *What is rural tourism?* Journal of Sustainable Tourism, 2 (1-2):7-21.

23. Lopez-Guzman, T., Rodriguez-Garcia, J., Sanchez-Canizares, S. and Lujan-Garcia, M. J. (2011). The development of wine tourism in Spain. *International Journal of Wine Business Research*, 23 (4): 374-386.

24. Marques, H. (2006). Research report: Searching for complementarities between agriculture and tourism – the demarcated wine-producing regions of northern Portugal. *Tourism Economics*, 12 (1): 147–155.

25. Mesarić-Žabćić R.and Breslauer**,** V. (2010). *Međimurska vinska cesta kao generator razvoja županije*. Hrvatski znanstveno stručni skup o menadžmentu u turizmu i sportu, Međumursko Veleučilište u Čakovcu**,** 1 (1): 244-257. [*in English*: Mesarić-Žabćić R.and Breslauer**,** V. (2010). Međimurje Wine Road as a Generator of County Development. *Croatian Scientific Conference on Management in Tourism and Sport, Polytechnic of Međumurje in Čakovec, 1* (1): 244-257.].

26. Mićović, S. and Miletić, J. (2019). Poslovni subjekt kao osnova održivosti razvoja, *Održivi razvoj*, 1(1): 43-51.[*in English*: Mićović, S. and Miletić, J. (2019). Business as a base for Sustainable Development, *Sustainable Development, 1* (1): 43-51.].

27. Mitchell, R., Charters, S., Albrecht, J. N. (2012). Cultural systems and the wine tourism product. *Annals of Tourism Research*, 39 (1): 311-335.

28. Neumann, P., Reuber, P. (2004). Economic Impulses of Accessible Tourism for All (Vol. 526). Berlin: Study commissioned by the Federal Ministry of Economics and Technology & Federal Ministry of Economic and Labour (BMWA)

29. Northwoo, G.M. (2000). "The role of wine tourism in economic development: A case study of Niagara Region (Ontario)". Thesis and Dissertations (Comprehensive). 421.

30. Pivac, T. (2012). Vinski turizam Vojvodine. Novi Sad: Prirodno-matematički fakultet Univerziteta u Novom Sadu-Departman za geografiju, turizam i hotelijerstvo. [*in English*: Pivac, T. (2012). Wine tourism of Vojvodina. Novi Sad: Faculty of Science, University of Novi Sad - Department of Geography, Tourism and Hotel Management].

31. Popesku, J. (ed.) (2008). Menadžment turističke destinacije. Beograd, Univerzitet Singidunum.[*in English*: Popesku, J. (ed.) (2008). Management of the tourist destination. Belgrade, Singidunum University.].

32. Praća, N., Paspalj, M. and Paspalj, D. (2017). Impact of modern agriculture to sustainable development of guidelines. *Oditor-časopis za Menadžment, finansije i pravo*, 3(1): 37-51.

33. Quadri, D. L. (2012). *An experience economy analysis of tourism development along the Chautauqua-Lake Erie Wine Trail*. Doktorski rad, USA: Iowa State University

34. Rabotić, B. (2013). *Selektivni oblici turizma*. Beograd: Visoka turistička škola [*in English*: Rabotić, B. (2013). Selective forms of tourism. Belgrade: College of Tourism].

35. Razović, M. (2015). *Vinski turizam kao posebni oblik turističke ponude Dalmacije*. Zbornik radova Veleučilišta u Šibeniku, (3)4:51-67. [*in English*: Razović, M. (2015). Wine tourism as a special form of tourist offer in Dalmatia. *Proceedings of the Polytechnic of Šibenik*, (*3)* 4: 51-67].

36. Robinson, M., Novelli, N. (2005). Niche tourism: an introduction. U: Novelli, M. (Ured.). *Niche Tourism-contemporary issues, trends and cases*. (1-14), Oxford: Elsevier.
37. Rome and Italy, Accessible services, Retrieved October 23, 2019, from https://www.romeanditaly.com/accessible/
38. Scherrer, P., Alonso, A., Sheridan, L. (2009). Expanding the Destination Image: Wine Tourism in the Canary Islands. *International Journal of Tourism Research*, 11: 451–463.
39. Štetić, S. (2007). *Posebni oblici turizma.* Beograd: izdavač je autor [*in English*: Štetić, S. (2007). Special forms of tourism. Belgrade: Author is the publisher].
40. Temet winery, about the winery, Retrieved October 24, 2019, from http://www.temet.rs/temet_vinarija.php
41. Tourism Organization of Serbia (TOS). (2017). Serbian wine roads, Retrieved October 19, 2019, from http://www.srbija.travel/upload/documents/brosure/2017/putevivina2017.pdf
42. Tasić, J. (2018). Budući trendovi i pravci razvoja ruralnog turizma u Srbiji i u svetu. *Oditor - časopis za Menadžment, finansije i pravo, 4(3), 7-19.* [*in English*: Tasic, J. (2018). Future trends and directions of rural tourism development in Serbia and worldwide. Oditor - Journal of Management, Finance and Law, 4 (3), 7-19.].
43. Tuck, B., Gartner, W. (2014). Vineyards and Wineries in the New England *States, a status and economic contribution report*. Minesota: University of Minnesota Extension
44. Vos S., Ambrose I., (2007). Services and Facilities for Accessible Tourism in Europe, working together to make tourism in Europe accessible for all, ENAT, Retrieved October 25, 2019, from http://www.accessibletourism.org/resources/enat_study-2_services_and_facilities_en.pdf
45. Yuan, J. J., Cai, L. A., Morrison, A. M., Linton, S. (2005). An analysis of wine festival attendees' motivations: a synergy of wine, travel and special events? *Journal of Vacation Marketing, 1*1(1):41-58.
46. Wine road, Sonoma Country, CA, Winery search, Retrieved November 01,2019, from https://www.wineroad.com/wineries/page/3/?winery_name&region&wine_type&amenity=Handicap%20Accessible
47. World Tourism Organization (UNWTO). (2013). Recommendations on Accessible Tourism, Retrieved October 19, 2019, from http://cf.cdn.unwto.org/sites/all/files/docpdf/recommendationsaccesstourismforallenok.pdf
48. World Tourism Organization (UNWTO). (2016). Compilation of UNWTO Recommendations 1975-2015, Retrieved October 15, 2019, from https://www.e-unwto.org/doi/book/10.18111/9789284417797
49. World Tourism Organization (UNWTO). (2016). World Tourism Day, Retrieved October 16, 2019, from http://cf.cdn.unwto.org/sites/all/files/pdf/wtd_message_unwtosg_2016_en.pdf

REGIONAL SUSTAINABILITY OF LOCAL AND RURAL DEVELOPMENT

Mladenka Balaban[1], Slobodan S. Župljanin[2], Dragana Nešović[3]

**Corresponding author E-mail: mladenka.balaban@bba.edu.rs*

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ABSTRACT

The paper examines the essential preconditions for the sustainable development of local and rural communities, as well as the obstacles faced by developing and countries in transition. This paper aim is to identify, through a comparative analysis of countries in the region and Serbia, the real potential for sustainable and rural development, starting from regional competitiveness and national development strategies. The method of comparing data on economic and demographic trends and basic parameters of growth functioning in certain groups of countries wants to point out the specificities of sustainable growth of individual economies. The research results show that a long-term imbalance of inputs and outputs is created due to the lack of a concept of sustainability which causes irrational use of resources and energy. Started of the fact that all countries in the region generally have high quality natural, cultural and traditional heritage, as well as respectable renewable resources, the emphasis in the coming period must be on developing level strategies that will be based on the rational management of natural resources so that they can be achieved better sustainable development results.

Introduction

In the last decades of development, the global economy has undergone various changes, often very dramatic. The conditions for acquiring and maintaining competitive advantage and ways to create and increase wealth have changed. These changes were

1 Mladenka Balaban, Professor, Belgrade Banking Academy, Zmaj Jovina 12, 11000 Belgrade, phone number +38169310572, e-mail mladenka.balaban@bba.edu.rs, ORCID ID 0000-0003-0170-6622

2 Slobodan S. Župljanin, Professor, Independent University, Faculty of Economic, 78000 Banja Luka, BIH,, phone number +38765663468, e-mail slobodan.zupljanin@nubl.org, ORCID ID 0000-0002-4064-3129

3 Dragana Nešović, Assistance Professor, Faculty of Law, Security and Traffic Management, Zetska 3, 18000 Niš, Republic of Serbia, phone number .+38162205480, e-mail dragana.nesovich@gmail.com, ORCID ID 0000-0002-1224-9650

reflected in the constant demand for reducing the cost of collecting, disseminating and using information, shortening the life of the product, accelerated technological development, changing consumer habits and needs, accelerated internationalization and business liberalization.

These changes have also affected the overall transformation of the global society, which today is referred to as the "knowledge economy" or "information society". Especially driven by the current economic and financial crisis, new models of economic development based on competitiveness and sustainable development are being developed. „Modern information technologies and new knowledge must be able to create conditions for increasing competitiveness and sustainable development in the long run. This is especially important for countries that have not yet completed the transition process and have not found their clear position on the global stage." (Barbier & Markandya, 1989.)

Therefore, in this paper, we will point out the basic determinants and importance of sustainable development, the state of sustainable development in the world and the region, and the possibilities of creating and managing local and rural development.

Materials and methods

Sustainable development - Sustainable development is a fundamental feature of natural resource and environmental economics. There are different approaches and definitions of sustainable development. Nevertheless, it is central to elaborating on the long-term perspective of humanity's survival and development. Humanity's activity is unthinkable without sustainable development.

The classical theory is the first to analyze and define the concept of sustainable development. Smith, Ricardo, and Malthus, as economic classics, studied and analyzed the limitations of natural resources, declining production yields, and demographic growth. In the early stages of the development of economic thought, the idea of the necessity of a long-term unchanged state emerged, without economic and demographic growth - a zero growth rate of the economy and society was proposed as the only possible and stable one. This thesis of development was later negated by many economic schools and directions.

At the end of the 19th century, technological advances and new scientific discoveries offered a more optimistic vision of the future of humanity. Then there is talk in scientific circles of the need to analyze the optimal use of exhaustive resources.

In the twentieth century, the neoclassical theory of growth emerged, which radically negated the zero growth of the economy and society, and the question of the exhaustion of natural resources lost importance. Technical and technological progress is considered to be a fundamental factor in the development of the economy and society. This belief was contributed by the decades-long growth of numerous economies since World War II.

The seventies of the twentieth century refute such understandings and beliefs. The first oil crises are occurring, accompanied by rising world prices for many raw materials and energy inputs. The issue of resource exhaustion and growth is now being re-actualized. The international public is preoccupied with issues related to the concept and strategy of sustainable development.

Numerous reasons determine activities by state and non-governmental organizations around the world led in 1992 to the United Nations Conference on Environment and Development - UNCED in Rio de Janeiro, which adopted numerous environmental and sustainable development documents.

Defining a sustainable development strategy is one of the very important aspects of humanity's survival and development. The basis for sustainable development lies in the fact that economic activities must be sustainable.

It seems logical and just to make the moral demand that the present generation leaves to future generations no less opportunity for development than what it has today. The right of the present generation to exploit resources must not jeopardize the same right to future generations.

Environmental protection is the basis and the need for sustainable development. Various theories point to the fact that man is part of nature, which has value, and as part of it has no right to irreversibly change it and adversely affect it. Bearing in mind this fact, man as such has an obligation to generations and also to nature as a whole.

A third important reason for sustainable development is the efficient use of available resources. Failure to adhere to the concept of sustainability certainly leads to poor development, that is, irrational use of resources and energy, thus creating a long-term imbalance of growth results in the national economy as a whole.

Sustainable development in the world - The concept of sustainable development is a serious milestone in the global approach to development and environmental protection. This concept is based on the fact that there must be a responsibility for environmental protection, but also for the responsibility of present generations to future generations. Sustainable development stands out in three aspects:

Environmental Aspect – "An environmentally sustainable system must have the capability to keep resources stable (renewable resources not overexploited and nonrenewable according to the possibility of finding a suitable replacement) without compromising their vital function. Such a requirement implies maintaining biodiversity, the stability of the atmosphere, and the functions of other ecosystems, which are not economic resources." (Beard & Lozada, 1999).

Social aspect – "Sustainable society must distribute capital in such a way as to ensure adequate provision of services in all spheres of social life. These include the social aspect, health, education, culture, gender equality, political action and all forms of responsibility" (Pejanović et. al., 2007). In underdeveloped countries,

the natural environment is more threatened, the reason being that highly developed countries are relocating their production to these countries, using cheaper human and natural resources. Domestic authorities pressure foreign companies to comply with environmental standards and sustainable development requirements.

Table 1. - Characteristics of growth in an undeveloped country

Region	Frecuencyand the duration of growth period					Awerage growthbefore, duringand after growth period				
	No. of countries	No.of periods	Mean duration (years)	% Periodslasting at least		Awerage growth			3 years	
				10 years	16 years	Before	During	After	Before	During
Complete growth period										
Developed countries	37	2	13.0	100.0	00.0	3.3	6.0	1.2	2.6	3.4
Developing countries in Asia	22	3	18.0	33.3	33.3	-0.7	9.1	1.4	1.4	1.9
Latin America	18	5	14.4	60.0	40.0	1.1	4.8	1.3	1.3	-1.3
Sub-Saharan Africa	43	3	8.3	00.0	00.0	-2.7	9.9	-4.0	-11	-6.5
Other countries in development	20	7	10.7	42.9	14.3	-1.6	5.0	-0.9	-1.4	-2.0
Total (including the full period of growth)										
Developed countries	37	11	24.4	100.0	63.6	0.7	5.7	N.a	-0.1	N.a
Developing countries in Asia	22	16	24.2	87.5	56.2	-0.3	5.8	N.a	0.4	N.a
Latin America	18	7	15.7	71.4	42.9	0.4	4.4	N.a	0.1	N.a
Sub-Saharan Africa	43	18	13.6	66.7	22.2	4.0	6.3	N.a	7.7	Na
Other countries in development	20	12	13.5	66.7	33.3	-2.1	5.0	N.a	2.8	N.a

Source: Krstić et al., 2018.

In developing countries and non-developed countries, growth can be very uneven. The previous table gives an example of the sustainability of growth in developing countries in Africa, Latin America, and Asia. Sustainable growth in these countries is variable, as indicated by data over the observed period. However, some studies show that many countries have long declines and even depressions for this long year's growth, which is the case with Africa (Krstić et al., 2018).

Sustainable development in the EU and region -„ The goal of sustainable development is to meet the needs of today's generations without compromising the ability of future generations to meet their own needs. Sustainable development involves a comprehensive approach in which economic, social and environmental aspects are integrated and mutually reinforcing. The UN Program by 2030, which was accepted by world leaders in 2015, is a new global framework for sustainable development and sets out 17 sustainable development goals. It represents a commitment to eradicating poverty and achieving sustainable development by 2030 worldwide, leaving no one at a disadvantage. The EU is in a favorable starting position when it comes to sustainable development and is fully committed, together with its Member States, to a leading role in the implementation of the UN Program by 2030 Key measures for the implementation of the Program by 2030:

- ✓ mainstreaming sustainable development goals into EU policies and initiatives at all levels, with
- ✓ sustainable development being a necessary guiding principle in all European Commission policies
- ✓ regular reporting on EU progress since 2017
- ✓ progress in implementing the Program by 2030 in cooperation with EU governments, the European Parliament, other European institutions, international organizations, civil society organizations, citizens and other stakeholders
- ✓ launching a high-level multi-stakeholder platform to support the exchange of best practices in implementation across sectors at national and EU level
- ✓ developing a longer-term vision for the post-2020 period. (European Commission Report, 2016)

The problem of rural growth sustainability of the European Union includes three components – economic, ecologic and social. Less favorable economic parameters are characteristic for the rural environment of Eastern and Central European countries when it comes to the members of the European Union, while the most advantageous economic indicators occur in Western and Southern European countries. Besides that, the worst ecologic parameters are possessed by some of the older members of the EU (Đokić, 2019).

Few countries in the region are serious about sustainable development. This is confirmed by the fact that some of the countries have not adopted their development strategies, and especially not sustainable development strategies. "To analyze the state of sustainable development, we will elaborate on the situation and situation in the countries of the former Yugoslavia before its dissolution and today. Industrial companies of the former Yugoslavia made full use of installed capacity. The production facilities worked in two shifts, and often in three shifts. The production programs were, for the most part, export-oriented, almost equal to the western and eastern markets". (Bogdanov, 2007).The production programs were licensed - they were made under the licenses of well-known international companies, and there were companies established under the Joint Venture model. There were also direct purchases and technology transfers to our businesses. Thus, some of the world's leading companies have become domestic partners.

The manufacturing facilities are equipped with state-of-the-art proprietary and foreign technology to produce complex and highly-characterized products for the international market. A foreign partner used cheap domestic labor, on the one hand, supplying key materials or semi-finished products assembled in our manufacturing facilities. Domestic companies have achieved significant technical and technological development. This development has been accompanied by employment growth, productivity growth, which has created a better competitive position. Some of the companies have achieved significant technical and technological development, while others have remained at the initial level

of knowledge and ability. True, competitiveness was maintained with a low personal income of employees, poor protection at work, poor general working conditions and, nevertheless, slow technical and technological development. Sustainable development has stagnated due to further privatization, lack of quality financial resources, lack of modern technologies. With this in mind, it is necessary to work on improving the conditions of sustainable development through the growth of investments, defining development plans, investing in the environment and rational use of available resources, as well as raising awareness and responsibility of present generations. The starting point for sustainable development is the development strategy of the Republic of Serbia, followed by the sustainable development strategy, which defines sectoral development policies including various projects contributing to sustainable development.

Results

Competitive and innovative ability - Global Competitiveness Index (GSI) measures the set of institutions, policies, and factors that set the sustainable current and medium-term levels of economic prosperity. Competitiveness is the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve. The GCI combines 114 indicators that capture concepts that matter for productivity and long-term prosperity.

These indicators are grouped into 12 pillars: institutions, infrastructure, macroeconomic, environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. These pillars are in turn organized into three sub-indexes: Basic requirements, efficiency enhancers, and innovation and sophistication factors (Schwab, 2017).

According to the Global Competitiveness Report 2015 - 2017, WEF, among the top ten most competitive countries in the world by the WEF GCI method, is Switzerland in 2015-2017. took the number one place. For eight years in a row, Switzerland has been ranked first on 4 pillars: labor market efficiency, business sophistication, innovation, and technology. The most innovative country was Japan, which ranked sixth in 2015-2016 in terms of competitiveness, ranking 8th in 2016-2017.

Table 2. Review of competitiveness 2015-2017

Country	2016-2017		2015-2016	
	GSI (score 1-7)	Rang	GSI (score 1-7)	Rang
Switzerland	5.81	1	5.76	1
Singapore	5.72	2	5.68	2
United States	5.7	3	5.61	3
Netherlands	5.57	4	5.5	5
Germany	5.57	5	5.53	4
Sweden	5.53	6	5.43	9
United Kingdom	5.49	7	5.43	10

Country	2016-2017		2015-2016	
	GSI (score 1-7)	Rang	GSI (score 1-7)	Rang
Japan	5.48	8	5.47	6
Hong Kong	5.48	9	5.46	7
Finland	5.44	10	5.45	8

Source: Authors creation by Retrieved data from The Global Competitiveness Report 2016 –2017

The review presented shows that the Nordic countries have taken a high place in terms of competitiveness. If we analyze more deeply the situation in these countries, then we can conclude that these countries have for years been well politically governed, have well-developed market institutions, sound macroeconomic policies, but also rational higher education, vocational training and education, rule of law, efficiency of judicial institutions, efficient public administration and developed infrastructure. Such performance enables them to be highly productive, which is interrelated with the use of modern technologies and innovation. In developing economic and development policies, the focus is on those areas and indicators that contribute more to international competitiveness.

Table 3. Review of competitiveness in 2018

Country	2018	
	GSI (score 0-100)	Rang
United States	85.6	1
Singapore	83.5	2
Germany	82.8	3
Switzerland	82.6	4
Japan	82.5	5
Netherlands	82.4	6
Hong Kong	82.3	7
United Kingdom	82.0	8
Sweden	81.7	9
Denmark	80.6	10

Source: Authors creation by Retrieved data from The Global Competitiveness Report 2018

In 2018, the method of calculating the competitiveness index is based on a new methodology. „With the inclusion of new concepts and extensive new data-gathering efforts, the GCI 4.0 provides novel and more nuanced insights on the factors that will grow in significance as the 4IR gathers pace: human capital, innovation, resilience, and agility. These qualities are captured through several new, critically important concepts (e.g. entrepreneurial culture, companies embracing disruptive ideas, multistakeholder collaboration, critical thinking, meritocracy, social trust) complementing more traditional components (e.g. ICT and physical infrastructure, macroeconomic stability, property rights, years of schooling). GCI 4.0 introduces a new progress score ranging from 0 to 100”. (Schwab, 2018).

According to the new methodology, the ranking of countries according to competitiveness has changed, now the first in the competitiveness index is the United States of America,

followed by Singapore, Germany, Switzerland, Japan. It can be observed that the Scandinavian countries, which have had a high level of competitiveness in recent years due to the steady economic development, remain in the lead in competitiveness.

Table 4. Value IGK by pillars of competitiveness (2017-2018)

	2017	Change	2018
Institutions	53	↘	51.6
Infrastructure	71.9	↗	73
Adoption of ICT	55.3	↗	56.9
Macroeconomic stabilization	70	↗	75
Health care	89.9	↗	81.5
Skills	65.7	↗	67.5
The goods market	54.7	↗	56.5
Job market	60.5	↗	61.5
The financial system	51.9	↗	55.9
Market size	50.2	↗	50.7
Business Dynamics	59.3	↗	60.9
The ability to innovate	37.1	↗	39.7

Source Tanaskovic, 2018.

Today, Serbia ranks 65th in terms of competitiveness indicator, out of 140 countries observed in the world. If the previous period is analyzed, in 2007 Serbia was 97th according to the Competitiveness Index and held this position for 5 years. Bearing in mind that the macroeconomic environment has improved significantly, ie that the budget deficit has been reduced, that there has been an increase in national savings, an increase in credit rating, which has significantly contributed to the improvement of Serbia's competitive position. The table clearly shows through which pillars Serbia has improved its competitive position, especially in terms of infrastructure, innovation.

Compared to the surrounding countries, Serbia has made the most progress in the last two years, as it ranked 65th in 2017 with 65.9 60.9 index points. The best position in the region in Slovenia, which ranks 35th in the competitiveness index, Hungary 48th, Bulgaria 51st, Romania 52nd, while other countries Croatia, BiH, Macedonia, Montenegro are behind Serbia.

Sustainable local and rural development - Sustainable local rural development is becoming one of the major development priorities of many developing countries. Countries that base their development policies on sustainable local and rural development have a clear vision of their future and demonstrate a responsible attitude in managing the resources available. They practically prove this by creating incentive measures and programs.

The social awareness of the local community is constantly growing. Local communities are increasingly working to raise awareness of the importance of improving the living

and working conditions of citizens, through raising environmental awareness, making more rational use of natural and energy resources.

There are numerous communities and civil society associations working to raise awareness of the population and the local community as a whole of the need for a rational, scientifically-based balance of available financial, technical and human resources. Some of these institutions and agencies are FDI Promotion Agencies, Export Councils, SME Development Agency, regional and local development agencies, and numerous civil society associations. Special attention was paid to topics related to the better use of renewable and non-renewable sources, as well as to creating a more responsible attitude towards the environment, with full respect for intergenerational solidarity.

In their strategic development plans, local communities should take into account all the factors that can stimulate development, but also those factors that can slow down that development. This approach is very important as financial crises are a common occurrence in the global economy. There are numerous reasons for the local community's interest in sustainable development.

The first reason may be related to the fact that all local development projects require an organized and coordinated action of different levels of local government and local government with state administrations. In order to fulfill local development plans and programs, the roles of all entities as well as the tasks that they must fulfill over a given period of time must be clearly defined. The strategic plan is the starting point The basic prerequisites for creating an adequate strategic plan of the local community are: spatial planning, existence of certain urban and spatial documents, resolved property-legal relations, existence of partners for the regional component of the project (inter-municipal and cross-border cooperation), quality of municipal infrastructure, minimum funding for the start of the project, etc. Many local communities cannot achieve their strategic plans precisely because of unresolved legal, spatial and urban issues.

Another reason is the ability to access European pre-accession funds (IPAs) through EC Delegations in the Stabilization and Association countries. In addition to being able to use these funds, there is considerable support from experts who, together with various new authorities, are working to develop an administrative environment to absorb these funds in accordance with EU rules.

The third reason is that the preparation and implementation of multi-annual strategic programs, plans and projects involves the involvement of the general public, citizens and their associations, representatives of economic and business associations, as well as formally marginalized social groups in this process. Local community development plans contain both local and rural development as well as a way to implement them. It is very necessary to involve all members of the local community in the creation of the plan, as this ensures easier implementation and realization of strategic goals of local development.

Sustainable local - rural development takes place through continuous development activities, programs, and projects, especially in the following areas:

- Conservation and development integration of the environment, as well as the natural, cultural and traditional heritage, which constitute the local capital and perspectives

of local community development;

- Development of communal and social infrastructure, and establishment of a supportive development and social environment;
- Economic development - restructuring and development of sustainable agriculture, crafts and small entrepreneurship, diversification of activities and job creation;
- Improving standards and quality of life through developing competitiveness and recognition.

Local capital - Based on the development potential of local communities is precisely the natural, cultural and traditional heritage. The local community should constantly work to preserve these values, but also plan to preserve and maintain their wealth through their developmental perspective.

Every local community should work to protect its wealth and capital, to recognize its value and to put it to the best of its ability in the sustainable development function. To achieve this goal it is necessary to carry out:

- Identification, systematization, and valorization of all values of local heritage;
- To protect, enhance and put into service all valuable elements of local heritage to enable them to be integrated into the function of sustainable development of the local community as an element of its recognition;
- Cultivating the natural environment and preventing the devastation of valuable destinations in the local community.

Communal and social infrastructure - It is unthinkable to develop any local community without developing adequate communal and social infrastructure. As local development in the world is the responsibility of local communities, so local communities are additionally responsible for developing their infrastructure as an indispensable influential factor in economic and social development. Numerous programs and projects for the construction and improvement of local infrastructure are being created in contemporary local communities through the implementation of various instruments of local economic development. In a race to reduce costs and increase competitiveness, the world's most famous companies are moving their capital to cheaper and more infrastructure-ready destinations. In this regard, local communities must:

- Identify local needs effectively with clear dynamics and priorities;
- Plan local infrastructure in line with expected technological developments;
- Dynamically and qualitatively prepare investment projects in the field of utility and social infrastructure;
- Align the local budget with planned projects and find alternative financial sources.

This approach enables local communities to independently create, launch and finance infrastructure projects from local and rural development support funds, in line with good practice in the EU Member States.

Discussions

The economic development of local communities - Analyzing the practice of successful regions in the EU, but also in the surrounding countries, we can conclude that the dynamic economic development of local communities is based on a targeted strategic approach and the realization of the following assumptions:

- Identification of local products and services that have the potential to be competitive and constantly create increased added value - creating a local brand;
- Preparation of local development programs, respecting the opportunities of local producers and entrepreneurs to engage in various forms of joint market entry, with a view to joint development of local products and joint market entry; (European Commission Report, 2011)

The basis of the EU sustainable agricultural and rural development policy is the preservation of sufficient stocks of natural, human and financial capital. Thus, parameters that indicate the state of various types of capital and variations in capital stocks are at the beginning of the sustainability indicators list. These indicators are especially important since resources must be reasonably used, considering the uncertainty of substitution between different types of capital, future demand, and possibilities to increase the efficiency of the transformation process (Jovanović, 2018).

Development of entrepreneurial infrastructure, which includes:

- Developing awareness and information on development opportunities and directions,
- Preparation of standard projects,
- Education,
- Construction and establishment of special entrepreneurial zones.

The Ministry of Agriculture of the Republic of Serbia adopted the Strategy of Agriculture and Rural Development for the period 2014-2024 stating that rural areas in the territory of the Republic of Serbia are characterized by a high degree of differentiation in terms of natural, economic, infrastructural and other conditions for agricultural production (which causes its especially the regional aspect), other economic and non-economic activities, proximity to the market and opportunities for market placement of products, as well as in terms of size and morphology of the populated place. The aforementioned diversity points to the heterogeneity of rural space in terms of economic and social development, cultural and demographic characteristics and trends, all of which strongly reflect the quality of life in rural areas.

Areas with difficult working conditions in agriculture are considered the territories of those municipalities which are prescribed by a special regulation defining areas with difficult working conditions in agriculture. According to the aforementioned Rulebook, the status of POURP, for a period of three years, is populated in the territory of the Republic of Serbia which fulfills at least one of the following three criteria, namely:

- are located at an altitude of 500 and over 500 meters (according to the data of the Republic Geodetic Authority),
- they are within the boundaries of the national park area defined by the National Parks Act ("RS Official Gazette", No. 84/15), and
- have a number of employees that are less than 100 per 1,000 inhabitants (according to data published by Statistical Office of the Republic in the 2015 publication of Municipalities and Regions in the Republic of Serbia) (Ministry of Agriculture, 2014).

Renewable Energy Management - The basic problems of humanity in the 21st century are global warming, environmental pollution, and environmental devastation. These are also the basic developmental issues of the modern world. In these circumstances, the use and management of renewable energy sources (biomass, biogas, solar, wind) and technologies aimed at the sustainable use of available, above all, natural resources become global priorities.

For this reason, EU funds significantly and strongly encourage the development and subsidize the use of renewable energy sources. Practice in the EU shows that local communities investing in renewable energy are experiencing accelerated growth and creating development prospects and ever-increasing competitiveness.

The available natural resources of renewable character in the region are an enormous value that opens new perspectives for development. Therefore, it is necessary to continuously invest in sustainable development through the development and implementation of development projects and upcoming technologies:

- Biogas plants - are important for the sustainable development of agriculture, environmental protection, development of new products and improvement of quality of life;
- Solar energy - is a source of clean energy and provides a strong impetus to the technological development of the local economy and to increase the competitiveness of the local product;
- Biomass plants - enable efficient protection, maintenance, and cultivation of the environment, especially important for sustainable agriculture;
- Decentralized sewage and sewage treatment systems - allow for the phased development of local sewage and sewage treatment systems.

So, renewable energy and the use of clean technologies are being developed through a series of smaller projects that generate development opportunities and benefits:

- Preserving and cultivating the human environment;
- Strengthening economic and economic activity;
- Diversification and job creation;
- Strengthening local technological capacity;
- Strengthening the competitiveness of the local product;
- Creating long-term development perspectives;

- Improving the quality of life in the local community.

Conclusions

Based on our research into the possibilities of regional sustainability of local and rural development and elaboration of the good experiences of developed European countries, we can draw some conclusions:

- Sustainable development of local and rural communities is a key priority of EU Member States as well as other countries in the process of stabilization and association;
- The European Union strongly supports sustainable development, allocating around 40% of the funds from the rural development budget, as an important component of sustainable development;
- According to European standards, sustainable development is the responsibility of local communities, and this practice is accepted by most countries in the region;
- The main task of local communities is to identify their development opportunities, define their development mission, vision and goals, adopt strategic plans and design and implement sustainable development programs and projects;
- An innovative approach to creating sustainable development significantly improves the competitiveness of the local community;
- Sustainable local - rural development is based the continuous implementation of various activities in the fields of preservation and development integration of human environment, natural, cultural and traditional heritage (local capital), communal and social infrastructure, economic development and improvement of standards and quality of life, and rational renewable energy management and clean technologies;
- Some countries in the region do not yet have an approved development strategy or a sustainable development strategy, without which it is not possible to seriously create sustainable development and develop detailed sectoral strategic plans;
- Local communities in the countries of the region must insist on the adoption of development strategies and sustainable development strategies to align their development priorities with the development priorities of the state and entities;
- Local community development strategies touch superficially on sustainable development issues;
- All countries in the region generally have high quality natural, cultural and traditional heritage, as well as respectable renewable resources, whose rational management could fulfill the basic requirement of sustainable development: “to leave the future with more than we inherited from the past!”

Conflict of interests

The authors declare no conflict of interest.

References

1. Barbier, E. B., & Markandya, A. (1989). *The conditions for achieving environmentally sustainable development* (Vol. 89, No. 1). London Environmental Economics Centre.
2. Beard, T.R., Lozada, G . (1999), Economics, *Entropy and the Environment Cheltenham*, Edward Elager, UK,
3. Bogdanov N., (2007). Small rural households in Serbia and rural non-agricultural economy, UNDP, *Ministry of Agriculture, Forestry and Water Management*, Belgrade.
4. Đokić, M. (2019). Sustainable agricultural and rural development in the European Union. Economics of sustainable development, 3(1), 29-43.
5. European Commission Report (2016), Communication from the commission to the European Parliament, the council, the European Economic and Social Committee and the committee of the regions, Strasbourg, Retrieved from https://eur-lex.europa.eu (November 5, 2019)
6. European Commission (2011). Agriculture and Rural Development. Rural areas and the Europe 2020 strategy: employment. Brussels: EC. Retrieved from: https://eur-lex.europa.eu (November 6, 2019)
7. Jovanović, M., Rađenović, T., & Stanojević, J. (2018). Human capital as the determinant of the development of the EU rural areas. Ekonomski izazovi, 7(13), 1-16. doi: 10.5937/EkoIzazov1813001J
8. Krstić, B., Sekulić, V., Jovanović, M. (2018): Evolutionary approach in the theory of sustainable development, *Economics of sustainable development, 2(1),* 17-31
9. Ministry of Agriculture, Forestry and Water Management: Strategy of Agriculture and Rural Development of the Republic of Serbia for the period 2014-2024., the *Government Republic of Serbia*, Retrieved from https://www.fren.org.rs (November 2, 2019)
10. Pejanović R., Njegovan Z., Tica N., (2007),. Transition Rural Development and Agrarian Policy, Monography, Faculty of Agriculture, Novi Sad.
11. Schwab K., (2017): The Global Competitiveness Report 2016-2017, *World Economic Forum*, Geneva, Retrieved from http://www3.weforum.org/ (November 12, 2019)
12. Schwab K., (2018) The Global Competitiveness Report 2017-2018, *World Economic Forum,* Geneva, Retrieved from http://www3.weforum.org/ (November 18, 2019)
13. Tanaskovic. S. (2018). Competitive position Serbia in 2018 according to World Economic Forum reports. Retrieved November 3, 2019, from https://www.fren.org.rs
14. RS Official Gazette", No. 84/15, *Government of Republic of Serbia.*

FACTORS OF THE RURAL TOURISM DEVELOPMENT OF SIRINICKA ZUPA IN KOSOVO AND METOHIJA

Goran Maksimović[1], Tatjana Ivanović[2], Božidar Milošević[3], Dejan Sekulić[4]

**Corresponding author E-mail: goran.maksimovic@pr.ac.rs*

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ABSTRACT

The authors analyse a current problem from the economic point of view on the rural development of Sirinicka Zupa and the significance of financing rural tourism. Starting hypothesis of authors is that the rural tourism directs a total agro complex towards the sustainable development of this Serbian enclave. The term "agro tourism" refers to an unbreakable interdependence between agriculture and tourism, and therefore is inevitable to solve in parallel the issues of agricultural holdings funding in the Serbian enclave Sirinicka Zupa in Kosovo and Metohija. The quality observation method, the analysis method, the synthesis method and interviews helped the authors in getting the information on business problems of agricultural holdings, and the authors were trying to give the answers, suggestions and solutions in order to help Serbian people in enclaves to engage in and develop tourism, and therefore also to survive and live on the centuries-old hearths.

Introduction

Agriculture in rural area is an important factor of the rural tourism development. It ensures the development of all forms of tourism in rural area, since agriculture in the urban forms of tourism represents an important economic activity, which provides food and beverage to the tourist facilities and tourists. The development of agriculture in

1 Goran Maksimović Ph.D., Associate Professor, University of Priština, Faculty of Agriculture, Kopaonička Street nn, 38219, Lešak, Serbia, +381 63 419 757. E-mail: goran.maksimovic@pr.ac.rs, ORCID ID (https://orcid.org/0000-0001-5420-4293)

2 Tatjana Ivanović Ph.D., Assistant Professor, Universty of Priština, Faculty of Agriculture, Kopaonička Street nn, 38219, Lešak, Serbia, Phone +381 66 005 605, E-mail: tatjana.ivanovic@pr.ac.rs,ORCID ID (https://orcid.org/0000-0001-7172-8160)

3 Božidar Milošević Ph. D., Full Professor, University of Priština, Faculty of Agriculture, Kopaonička Street nn, 38219, Lešak, Serbia, +381 64 150 5273. E-mail: bozidar.milosevic@pr.ac.rs, ORCID ID (https://orcid.org/0000-0003-4381-0276)

4 Dejan Sekulić, PhD, Assistant, University of Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Vojvođanska bb, 36210 Vrnjačka Banja, Serbia, +38162602902, dejan.sekulic@kg.ac.rs, (https://orcid.org/0000-0002-3816-3679)

same area depends on numerous assumptions, and especially the following ones:

- The existence of agricultural land,
- Favourable climate, pedological and other conditions for the development of agriculture,
- Favourable market-economic environment.

In recent years the tourism has become a significant segment of many countries' economies and therefore it is in the focus of numerous researches. Rural and eco-tourism are considered as a way of rural (village) revitalization and the growth of income through a supply of completely different services for tourists (Blažević et al., 2018). The rural tourism is the most important segment of a multifunctional agriculture regarding that it can create the fastest diversification and the development of rural economy. Significance of rural tourism is derived from the multiplicative influence of tourism onto the economy development. The Republic of Serbia has all necessary resources for the development of rural tourism, but its development isn't in accordance with a resource base. The most important restrictions of the rural tourism development in the Republic of Serbia are depopulation of rural areas and the lack of quality financial resources that are necessary in all segments of the rural tourist supply development. The development of rural tourism would ensure the development of agrarian entrepreneurship, rural development and the increase of employment in rural areas. Aiming to develop a domicile rural tourism in accordance with the European standards, it is inevitable to educate the entities of rural tourism, as well as defining the education financing modalities. The development of agriculture and related activities should provide the creation of new workplaces and stopping the process of rural areas demographic discharge, and also a good market for self-employment (Smith, Kubala, 2018). Rural tourism is a result of the development of cities and industry. Modern trends in tourism, in the era of increasing urbanization, environmental pollution, detachment from nature have led to an increasing orientation of tourism flows towards rural areas, rural destinations. (Lakićević, Sagić, 2019).

Interdisciplinary analysis of interdependence of these two activities (above all tourism, less agriculture) grades agro tourism as a citadel of total tourism, which is based in agriculture. The agro tourism directs an entire agro complex toward the sustainable development, the production of healthy food and its marketing. It doesn't encourage and support only the orientation of tourist activities towards an original meaning of the term "agro", but toward the sustainable integral development with the primary agriculture in the centre. Tourism meets a series of activities connected to agribusiness indirectly, through an integral development concept (Pejanović et al., 2015). End-users show increasing interest in all aspects of quality, safety and trust in organic food ingredients. If the participants in the supply chain, i.e. the producers (processors), farmers and trade companies are trying to improve the placement of these products, the supply chain management needs to focus in particular on the following indicators: quality label, product origin, composition of raw materials, freshness, price, taste, place of sale and packaging (Končar et al., 2019; Nunes et al., 2018).

Compatibility and integrativity of natural and anthropogenic values of rural areas and tourism with all its peculiarities (tourist demand, motives, needs, etc.) point out to the necessity of calculating all functions of tourism, primarily of those social and economic (Pejanović, 2013).

Materials and methods

In this paper was perceived the current situation in rural area of Sirinicka Zupa on Kosovo and Metohija, using the quality observing method; doing business of agricultural holdings and their opportunities for being engaged in rural tourism was studied by using the analysis method; and some assumptions and possibilities for more successful work and functioning of agricultural holdings in the Serbian enclave Sirinicka Zupa on Kosovo and Metohija was given by using the synthesis method. Empirical research was realized through visits to family agricultural households, in which was determined the facts on the field in the enclave and were done some interviews with the holdings' owners. Information on problems in the business of agricultural holdings were gathered through interviews, and in this paper the authors will try to give some answers, suggestions and solutions in order to help the Serbian people in enclaves to be engaged and develop the rural tourism, and therefore their survival and life on the centuries-old hearths. The published material of the Office for Kosovo and Metohija of the Republic of Serbia and some other professional literature were used, besides the collected information in the field.

Results and Discussion

Sirinicka Zupa (Strpce municipality, around 13,000 inhabitants of Serbian nationality) occupies an area of 250 km^2 with one urban and fifteen rural settlements. It represents the mountain area with a specifically indented entirety and altitude that ranges from 900 m in the Lepenac Valley to 2,500 m on the Ljuboten peak. One of five national parks, Sar Planina, which is in Sirinicka Zupa, has been founded in 1986, in area of 22,805 hectares. The National Park was established in order to preserve forest and high mountain vegetation and their habitats and population of wild flora and fauna, especially rich fauna of the daily butterflies, birds (gray hawk, western capercaillie, rock partridge), mammals (European snow vole, brown bear, wolf, chamois, etc.); area with a series of characteristic features.

The National Park Sar Planina is a cradle of Serbian spirituality, sovereignty and history. In this area lie 45 facilities of cultural heritage, and 14 among them are categorized cultural property of exceptional importance built in the period from 12th to 16th Century. There also lie a hermitage cell of an ascetic and the monastery St. Peter Koriski from XIII Century, the church of St.Petka from the 14th Century, the church of St. Mother of God Ogiditrija from the XIV Century, the monastery Holy Trinity from the 15th Century, the remains of Dusan's city and the monastery complex Holy Archangels from the 14th Century in the vicinity of Prizren, and other cultural monuments of the greatest national importance (Cvijanović, Ružić. 2017).

The altitude and climate conditions point out to the fact that the area of Sirinicka Zupa is extremely favourable for the development of livestock breeding, fruit- and vegetable growing. Pastures with 38.8% and meadows with 25% prevail in the structure of agricultural land in Sirinicka Zupa, which shows that the area is very favourable for the development of livestock breeding, especially sheep- and goat breeding. There could be made some preconditions for the production of top quality dairy products, and the possibility for creating a brand of Sar Planina cheese, well-known by its quality ex-Yu wide, by putting into operation the existing cheese factory, as well as by an organized supply of population with foundation stocks of sheep and goats. There are as well good conditions for the development of fruit growing, first of all berries, the agro-economic conditions of Sirinicka Zupa provide the great quality of raspberry and a high yield per area unit. Raising plantations in several localities would increase the population employment (Maksimovic et al., 2015).

Sirinicka Zupa disposes with the excellent natural conditions for agricultural production, and has a significant number of family agricultural holdings, which are engaged not only in the production of agricultural-food products, but also have real capacities for the development of rural tourism. At the same time, the agricultural holdings produce surpluses of agro-food products that are not easy to sell on the market; however, those products could be sold to tourists through meals for tourists or takeaway food. Furthermore, the rural tourism activates an unused capital, such as the important uncultivated agricultural areas, empty or semi-empty houses, stables, water mills and other facilities in rural areas. From everything the above mentioned, there could be concluded that the Serbian enclave Sirinicka Zupa has sufficient agricultural land and a sufficient number of agricultural holdings with their own land, and these are two important preconditions necessary for the development of rural tourism.

The multifunctional agriculture means the activities directed not only to the increase in production and being engaged in agriculture, but other benefits of rural life as well, such as: 1) benefit of the environmental preservation (biodiversity, flood protection, erosion, the conservation of natural landscapes); 2) benefit of providing food safety in rural areas; 3) development of rural areas (providing employment and connecting agriculture with other sectors); 4) social-economic benefit (preservation of the traditional rural values, cultural inheritance, promotion of the traditional gastronomy, etc.). It is about the transition from agriculture in order to produce to agriculture in order to protect.

Multifunctionality is a key word for a new EU agrarian and rural policy, which often has been connected to a rural development syntagma. Agricultural activities in this context aren't related only with land cultivation and food production, but with the environmental management, as well as with providing services to a local community and the entire society. In the basic meaning, it is not a new concept, since agriculture previously has had a multifunctional role in the economic development; however conditions nowadays have been pretty much modified. The approach to interpretation of multifunctionality is based on numerous functions of agriculture, not only in the production process, but also in other functions that are derived and entrusted by the society. That is to say, in highly

developed European states, during past several decades, have occurred numerous entrepreneurs, who started some agricultural activity, and successively had introducing the new profitable non-agricultural activities, as well. There are many similar reviews of such rural entrepreneurship, which show that the multifunctionality concept is strictly related to presence of agricultural and non-agricultural activities within a same holding, with the joint use of the resources. In this case, the multifunctionality of agriculture represents much more than the possibility of generating extra revenue. Basically, it is about a new organizational form of entrepreneurship that connects (association) agricultural production with other activities, such as: tourism, food industry, commerce, manufacturing and service trades, cooperative system of different types, education, services, culture, health care, the preservation of landscapes and environment, land lease and house renting, and other professional activities. Thereby the rural entrepreneurship mustn't be located only in rural areas (primary rural settlements, the centres of the villages or the centres of the village communities), but in the vicinity of larger urban settlements with the potential demand for agro-food products, as well as the activities related to rehabilitation, recreation or the care on victims of the urban area social pathology (Pejanović, Vujović, 2008). The multifunctional agriculture paves the way for rural development, as well as the small agricultural and family holdings and the development of hilly-mountain area of Sirinicka Zupa.

The rural tourism, as a part of tourist supply, has the multiple implications for the integral development of agricultural production and village. In villages were built modern houses, which provided conditions for the development of rural tourism, besides other contents, surroundings, and ecological food. World Tourist Organization (WTO) was defined goals, strategy of development, organization, marketing and investments in the development of rural tourism. Tasks of the rural tourism development are based on the following facts:

- Rural tourism ensures generating revenues and workplaces,
- There should regulate the environmental protection in order to develop the rural tourism,
- Rural tourism revives the vital existing roles in a village and the quality of life;
- Rural tourism preserves the cultural heritage; and
- Affirms the market economy.

Positioning the rural tourism should be within the overall positioning of the destination. As tools for positioning the tourist destinations, and instantaneously for creating a mental image and association of destination, there are often used rural symbols, the symbols that point out to rural activities including the symbols of nature and culture, the symbols of rural accommodation including farms, traditional villages, as well as the examples of rural architecture, while the human symbols reflect soul and heart of the rural and multifunctional surrounding (Maksimović et al., 2016).

The rural tourism vision is based on the principles of alternative mass market tourism, sustainable approach to economic development, joint strategy for planning the partnership of private and public sector, harmonization of standard in tourism, balance among the forces of progress, stagnation and employment. Strategic principles of the rural tourism are:

- Good organization and cooperation,
- Connecting and the cooperation network among participants in rural tourism,
- Legal approach to natural and cultural advantages of destinations, and
- Group of companies in a village for making a critical mass of facilities.

Efficient organization of the rural tourism comprises the municipal organizations, accommodation services providers, other tourist services providers and a local-regional administration. It is responsible for determining vision and strategy, organization and maintaining a classification system, marketing of the rural tourism by fields, providing services to the rural tourism carriers, exchange of experiences, training, financing and lobbying with government and non-government organizations. Training and education are the key conditions for the development of rural tourism and implies training of trainers, training of service providers in the rural tourism (care of the consumer), knowledge of foreign languages, standardization of products, understanding the partner needs, knowledge on a product, elemental marketing and internet training of the local government officials. Besides investments, it is important to invest in human resources. Legal regulatory rules of the environment protection and legal regulations are important for the development of rural tourism (agro tourism). Farmers are good hosts and ready to accept and host tourists. The modern marketing concept is necessary in the presentation of rural supply with all activities (contents) and a competitive price of accommodation, including all sanitary measures. Integral relation between tourism and agriculture is based on satisfying the needs as a part of a wide list of tourist consumption, creating possibilities for better and more complete use of labour in the rural environment and dynamizing the development of rural areas. A share of agrarian and final products is increasing in a value of hospitability services together with the development of tourism and the increase of service quality. Through the valorisation of the attractive rural landscapes, tourism represents an important factor of the under developed areas development, supplementary occupations and extra revenues of rural population. It promotes the production and the quality of products, affects demand and changing the culture of rural life. Tourists are supplied with food from this rural area, there increases the employment, creates conditions for the rural development and therefore increase the standard of living of the domicile population. From the social point of view, the rural tourism is a dam for migrations of Serbian population from Sirinicka Zupa to the central Serbia. Tourism has an effect on the spatial and urban organization, the increase in educational-cultural level of rural population. From the consumption point of view, tourism affects the development of agrarian production, the employment in agriculture

and rural area, the life and working conditions in the village. The village is involving in a tourist supply through vacations in the rural environment, together with engaging households in tourist services, hunting tourism with the accommodation and food services, fishing with extra services, tourist manifestations organization in the scope of agriculture-harvest and events. There is a direct demand of a tourist economy for the agrarian products, which has an effect on a volume, type and quality of products, as well as a higher income of farmers. In other words, tourism is a great consumer of agrarian products and it affects the stable development of agriculture. It is also an additional activity of agriculture through land lease for the construction of facilities, additional employment in tourism, and provides accommodation and food in the village. Tourism has an effect on the quality of life in the village, as well. The rural tourism effects are relevant from the aspect of a total rural development, extra revenues, employment and raising general living culture, the development of service activities and home craft. The rural tourism development requires also more significant investments in facilities and equipment, infrastructure and sports content. Rural, spa, mountain, health, sports and transit tourism have perspective and influence on the development of ecological food production, higher incomes, more quality life and development. It is necessary to develop eco-tourism (valorisation of the area ecological values), agro-tourism (participation in agricultural activities and food), agro-bio-tourism (organic food, education, food, vacation), recreational, health and educational tourism within the rural development, together or separately from the rural tourism. The key factors of tourism influence on agriculture are: in production, tourism represents an additional activity to agricultural production; furthermore, it is the agrarian products' market and a factor of developmental trends in agriculture; it strengthens the economic basis of development and rural standards. In non-economic field, tourism is a factor of stopping migrations, and it affects the growth of educational and cultural level in the village, urbanization and farmerization (Pejanović, 2013).

Rural tourism in the concept of economic, regional and economic development

Therefore the rural tourism is a part of the multifunctional agriculture concept, i.e. observed in a broader sense, a concept of the integral rural development. The rural tourism is primarily a part of the tourist activity, which comprises totality of relations and businesses related to traveling and temporary stay of people outside their residences, due to vacation, entertainment, etc. Tourism can be: rural, hunting, health, entertaining, cultural, sports, excursion, and resort-oriented; season and off-season tourism; domestic, foreign and border tourism; individual and collective, etc. It is important for the local and national economy, because it generates revenues. The development of rural tourism leads to a faster improvement of all related activities (commerce, industry, agriculture, utility services, cultural institutions, home craft, and hospitability). Organizationally simplification of the regional tourist brands, by highlighting the well-known geographical terms, differentiated positioning of clusters in the market, more efficient operation on attractiveness, marketing, productivity and managing destinations would be achieved by forming clusters, as the widest functionally-market and spatial

entirety of tourism in the Serbian enclave Sirinicka Zupa (Maksimović et al., 2015). Disposition of the characteristic clusters in the Republic of Serbia anticipated by the strategy is not based on the administrative borders, which currently exist within the country, but first of all, it is based on the rational strongholds in different forms of the economics of experience that can be developed in some regions of the country (Cvijanović et al., 2018). The goals of a cluster's members, farmers, suppliers, and other entrepreneurs and institutions in the enclaves, which unite resources and thereby make and increase the competitive capacities on the market, are achieved by improving and developing clusters and their activities. Personnel, finances (access to favourable credit sources) and the possibility of joint ventures realization, raw materials, new knowledge and technology are something they try to make up by joining the clusters. There are realized as well the wider economic, social and general social interests of the Serbian community, such as: growth of employment in rural areas, stimulation of youth to stay in Kosovo and Metohija, as well as the increase in productivity and improvement of agricultural production and the environment preservation and other aspects in rural areas (Živković, Maksimović, 2018).

Tourism is of utmost interest for the employment of population. This is why all countries, especially the ones that have favourable natural conditions for the tourism development (Serbia), establish special organizations (educational, tourist, etc.) and agencies, which deal with the improvement of tourism. There is continuously monitored the tourist demand, tourist supply, tourist policy, and carry out the scientific research of a tourist market, due to permanent improvement of tourism, anticipation of trends and realistic expectations. We will pay attention briefly to the basic issues of rural tourism. A tourist destination is defined spatial entirety, which has capacity for the stay of tourists, but also the attractive power to them. A content of every tourist destination should be adjusted, as much as possible, to requirements and needs of tourists for the usable and aesthetic values. Creating the tourist destination supply starts from the insight and analysis of advantages and weaknesses of every destination. The insight of Sirinicka Zupa natural attractions like: rural environment, rivers, springs, caves, mountains, favourable climate, flora and fauna diversity ensures the assessment of advantages and weaknesses of the tourist destination. The tourist destinations have their cultural, natural, demographic, economic and architectural specificities. Attractiveness of some destinations depends however on the social potentials for the development of tourism, such as the way of living and amenities of population, folklore, but also economic development and stability, as well as of sports, culture, science and education. The tourist values are consisted of tourist services with included various types of goods and the specific values of a country, and these are ecologically preserved nature, cultural-historical heritage, safety of the political and social-economic system, infrastructure (roads, hospitability, commerce, craft, health care, tourist agencies, utilities, science etc.), which by creates preconditions for satisfying the tourist demand. Most of the tourist supply segments have been non-transferable, cannot be multiplied or spent, and only get the market valorisation in tourism (e.g. climate, nature, cultural heritage). The tourist demand

is an amount of tourist values, services and goods that tourists are willing to accept according to a certain price level. A base for defining the tourist demand represents a combination of tourist needs to travel, rest and getting to know new destinations, people and communication. It is possible to transform need into a real tourist demand only if it is completed with the effective purchasing power of population, as a crucial assumption of inclusion in the tourist market. The basic characteristics of the tourist demand are: seasonal character and a high level of flexibility, which causes are often uneconomical. As regard to economic criteria, demand mainly depends on: available income of individual or household, prices of tourist services, tourist marketing, as well as of the individual reasons, i.e. desires and preferences of a man, satisfaction and fulfilment of expectations, etc. It is about a special market type (sui generis), not after the constitutional elements (supply, demand, objects of exchange – services and prices), but after interaction among these elements, from which arise numerous specificities (for example, very high heterogeneity in demand, its expressed flexibility to changes of prices, income and promotion, mobility, expressed heterogeneity of supply and its rigidity, seasonal business character and other characteristics: superposition of process and consumption, impossibility of storage, advance sale of product, etc.). Tourist marketing is a significant activity within the tourist market. The marketing task in tourism, which is becoming more important, is making and keeping the competitive advantages of tourist companies, organizations, agencies, as well as tourism as an economic branch. Staring from the economic and social importance of tourism, a state in high developed countries tends to formulate an adequate tourist policy, as a base for the development of tourism. Affirmation of the tourist policy in many countries has provided a successful development of tourism, which should be a guidepost for our country as well. Thereby, the development of rural tourism, as a segment of tourism, doesn't get in the way of the agricultural development, but it surely supplements it.

The rural tourism increasingly covers some regions, and therefore it becomes a regional macro-economic challenge. Problem is however that the rural tourism impact on the regional development neither has been sufficiently drawn-out, nor methods for the successful quantification of the impact have been determined. Hence, the influence of rural tourism on the regional development isn't yet systematically followed, there is no necessary indicators that can support the verification, so there is hard to determine the total results of tourism impact on the development of the specific region. If the rural tourism had influenced the change of economic image of some regions, we could see from a fact that it wasn't only economic, but also sociological, geo-strategic and political category. Nowadays, the rural tourism represents a part of unique function of the socio-economic system, which furthermore means that it activates all parts of a secondary products of other branches and activities in making the most quality rural tourist product. Experiences of rural and regional development within the EU shows that the development of rural tourism provides: stabilisation of the total regional development, complete valorisation of natural and anthropogenic values of rural areas, preservation of tradition, culture and recognizable identity of rural communities,

optimisation of relations between rural and urban entireties of the region, increase of the competitive ability of the region as a tourist destination. Parallel development of all economic activities of the region, the rural space itself and management efforts to consider a tourist product from rural areas an adequate integral part of the total regional gross domestic product (GDP).

The EU satisfies the following, by accepting the challenges of the rural tourism regional development in high-developed countries: its identity (economic, social, political and ecological), establishes optimal relationships of urban and rural areas (since majority population of urban areas in our country originates from a rural setting, there accomplishes so called "going back to the roots"). Economic redistribution of the tourist product´s secondary parts, social stability, creating the adequate tourist culture in accordance with the international codes of conduct, compatibility in all segments of the social-economic development, achieving full employment, as surplus in living space, as well as surplus in labour (primarily women), determining the tourist accommodation capacities in accordance with disposable resources of the region. Rural population within the EU increasingly accepts tourism as one of the sustainable development strategies of a local community. The rural tourism in those areas not considered as the tourist destinations in traditional sense, has developing twofold; on the one hand, it arises as a result of entrepreneurial activities directed to the attraction of tourists, and on the other hand, the increase in number of tourists in rural areas leads to generating demand for tourist services, which leads to the increase of entrepreneurial activities on a local level.

Adequate quality and quantity valuation of interdependence and connectivity between the rural development and tourism is determined through an analysis of economic effects of tourism and partly mutual economic effects. As the direct ones, there are manifested the following influences of tourism on agriculture: higher production and higher sales of agricultural products, higher salaries, new workplaces, the development of underdeveloped and poorly developed areas, stopping emigrations from some villages and municipalities due to the lack of job, the stimulation of the natural population increase, protection and valorisation of the cultural-historical values (monuments, monasteries, galleries etc.). Tourism, through the indirect economic impacts on agriculture, encourages directly also a series of other activities in a segment of the wider economic system: including economy into the international division of labour, the general economic and cultural development, social and pension policy, etc. The economic effects for rural area of Sirinicka Zupa are very important and numerous: development of many abandoned rural communities by valorising neglected properties and houses in the village. The essence of the supply in rural areas is staying in renovated traditional village houses, with the possibility of independent preparation of food, getting to know the traditional cultural values and customs, and everything in the ecologically healthy environment. Accommodation and nutrition of tourists in this way are much more attractive, economically cheaper and at the same time healthier than the usual hotel accommodation and food. It means that the independent food preparation in rural houses unites the classical accommodation and food services into one, unlike the classical hospitability services. Furthermore, this form

of tourism in rural areas would be realised during the whole year, unlike the seasonal character of other selective forms of tourism. As a special significance of rural tourism and its advantage comparing all other forms of tourism can be its non-seasonal character, i.e. functionality of 365 days. Tourism encourages continuously a series of other activities in the rural area, which participate directly or indirectly in providing services to tourists (traffic, commerce, manufacturers of food and beverages, construction and other activities that take part in supply).

The development of tourism encourages or has an effect on the macro-state level: impact on a balance of payment of a country, influence on the population employment and life standard, incentive of the other economic activities development included in the tourist economy. Extensive separation of the tourist demand and supply of the specific rural area or destination points out to the significance of organizational activities in the sense of establishing efficient relationships between the carriers of demand and supply. Cases in practice confirm that volume of a tourist turnover and consumption depend on the efficient organization of rural development and tourism in general, and especially in the sense of establishing favourable relationships between the carriers of tourist demand and supply (Pejanović, 2013).

All forms of rural tourism in the area of Sirinicka Zupa represent a chance to employ the unemployed people, as well as many displaced population (after the war in 1999 and 2004) from other regions in Kosovo and Metohija in Sirinicka Zupa, who seek for their chance in agricultural production, tourism, trade and crafts and other activities that have the comparative advantage in regard to other areas must base their activity on the modern marketing activities, i.e. to manufacture those products and services desirable in the market, in order to be successful in their new engagements.

Conclusions

The development of rural tourism in the Serbian enclave in Sirinicka Zupa is both opportunity and necessity, having in mind all disposable resources, and by realizing the economic under development, it is inevitable to implement the project "Rural tourism in terms of the regional development". Rural tourism would provide the diversification of rural economy, additional incomes to rural population, the decrease of unemployment, as well as reducing differences in the economic development of rural and urban areas. Tourism is the opportunity for agricultural holdings, which are mainly engaged in selling the primary (unprocessed) agricultural products, to sell food products to tourists on their own holdings. Education of hosts and members of holdings and the good marketing would provide tourists the stay in nature in the rural environment of Sirinicka Zupa: possibilities for walking, recreation, hunting and fishery, picking medicinal herbs and forest fruits. Tourists can be involved, at their own request, in performing farm works, preparing fruit juices and jams of fresh picked organic fruits. It is necessary to finance the development of rural tourism and comprise: infrastructure, personnel, tourist activities, and is necessary to apply the adequate standardization and categorization of services, especially the adequate conditions for accommodation, promotions and sales

channels of agro-tourist products in the Republic of Serbia, countries in the region and in this way to support the Serbian population in Kosovo and Metohija; there would be stopped migrations through creating elemental conditions for the general, a much higher standard of Sirinicka Zupa rural population.

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Conflict of interests

The authors declare no conflict of interest.

References

1. Blažević, M., Peters, K., & Chen, G. (2018). Developing rural tourism in minority ethnic villages: Zlot and Xiaocang She Ethnic Township. *Hotel and Tourism Management*, 6(2), 71-78. https://doi.org/10.5937/menhottur1802079B
2. Cvijanovic, D., & Ruzic, P. (2017). *Rural Tourism*. University of Kragujevac, Faculty of Hotel management and Tourism in Vrnjacka Banja.: Cvijanovic, D., & Ruzic, P. (2017). *Ruralni turizam.* Univerzitet u Kragujevcu, Fakultet za hotelijerstvo i turizam u Vrnjackoj Banji, Vrnjacka Banja].
3. Cvijanovic, D., Vujovic, S., & Maksimovic, G. (2018). *Mechanisms and specifics of the functioning of the supply and demand in the tourism market*, Developmental Academy of Agriculture of Serbia. [*in Serbian*: Cvijanovic, D., Vujovic, S., & Maksimovic, G. (2018). *Mehanizmi i specificnosti funkcionisanja ponude i traznje na turistickom trzistu,* Razvojna Akademija poljoprivrede Srbije, Beograd].
4. Končar, J., Grubor, A., & Marić, R. (2019). Improving the placement of food products of organic origin on the AP Vojvodina market. *Strategic Management*, 24(3), 24-32.
5. Lakićević, M., & Sagić, Z. (2019). Accommodation capacities and their utilization in the function of tourism development: Case of Ivanjica. *Ekonomika*, 65(3), 77-88.
6. Maksimović, G., Milosević, B., Babić, V. (2015). Agricultural cooperatives as development factor of Serbian Enclaves in Kosovo and Metohija. *Agrieconomica*, 44, 136-148.
7. Maksimović, G., Milošević, B., Milenković, M., & Đorđević, Lj. (2015). Clusters as a factor of Serbian enclaves subsistence in Kosovo. *Agro-knowledge Journal*, 16(2), 263-272.

8. Maksimović, G., Milošević, B., & Jovanović, R. (2017). Research of consumers' attitudes on the organic food consumption in the Serbian enclaves in Kosovo. *Economics of Agriculture*, 64(3), 987-1003.

9. Maksimović, M., Urošević, S., & Karabašević, D. (2016). The positioning strategy of rural tourism on Stara Planina. *Hotel and Tourism Management*, 4(2), 112-121.

10. Nunes, F. G., Martins, L., & Mozzicafreddo, J. (2018). The influence of service climate, identity strength, and contextual ambidexterity upon the performance of public organizations. *The influence of service climate, identity strength, and contextual ambidexterity upon the performance of public organizations*, (31), 6-20.

11. Pejanovic, R., & Vujovic, S. (2008). Rural development and agrotourism, *Agrieconomica*, 38. 5-14.

12. Pejanović, R. (2013). *Rural Development and Agritourism. Tours in Agricultural and Rural Economics.* Faculty of Agriculture, Novi Sad. [*in Serbian*: Pejanović, R. (2013). *Ruralni razvoj i Agroturizam*. *Ogledi iz agrarne i ruralne ekonomije*. Poljoprivredni fakultet, Novi Sad, 269-279].

13. Pejanović, R., Maksimović, G., Radović, G., & Njegovan, Z. (2015). Rural Development and Agrarian Entrepreneurship - Potentials for Family Business. *Proceedings - How to increase employment in Serbia*. University of Novi Sad, 99-109 [*in Serbian*: Pejanović, R., Maksimović, G., Radović, G., & Njegovan, Z. (2015). Ruralni razvoj i agrarno preduzetništvo – potencijali za porodičan biznis. *Zbornik radova - Kako povećati zaposlenost u Srbiji*. Univerzitet u Novom Sadu, 99-109].

14. Radović, G., Pejanović, R., & Njegovan, Z. (2015). Rural tourism as a factor in the development of agrarian entrepreneurship and employment growth in the Republic of Serbia. *Proceedings - How to Increase Employment in Serbia*, University of Novi Sad, 109-117, [*in Serbian*: Radović, G., Pejanović, R., & Njegovan, Z. (2015). Ruralni turizam kao faktor razvoja agrarnog preduzetništva i rasta zapošljavanja u Republici Srbiji. *Zbornik radova - Kako povećati zaposlenost u Srbiji*, Univerziteta u Novom Sadu, 109-117].

15. Smith, S., & Kubala, P. (2018). Social Justice in the Workplace: Are On-Demand Companies Exploiting Current Regulatory Ambiguities and Workforce Precarity?. *Psychosociological Issues in Human Resource Management*, 6(1), 166-171.

16. Živković. B., & Maksimović. G. (2018). Strategic managment of rural tourism development. *International Scientific Conference – Thematic Proceedings: Tourism in function of development of the Republic of Serbia*, 556-574.

SUSTAINABILITY OF AGRICULTURAL FARM FINANCING IN THE REPUBLIC OF SERBIA

Ivana Ljubicic[1], Danijela Radenkovic[2], Ivan Bulatovic[3]

**Corresponding author E-mail: ivana.ljubicic@bpa.edu.rs*

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ABSTRACT

Small and medium-sized enterprises, as well as entrepreneurs in agrobusiness, make a major contribution to the economic growth and development of a country's economy. The current legislative and executive branches of government create fiscal policy of a country, which plays a significant role in supporting entrepreneurship. In a way, farms can be considered as a form of SME, because no agricultural farm, except privatized but previously fragmented agricultural combines, falls into the category of large enterprises or large farms. The state should promote the integration of new technologies and farmers should be provided training for the adoption of technologies, and given grants for innovations which is also the subject of research in this paper.

Introduction

Agricultural companies in the Republic of Serbia has a smaller number of full-time employees and operate with relatively low capital employed. The main problem these farms face is certainly the lack of financial resources, especially if it involves a specific production process and a slow turnover of funds and especially if we now that agriculture makes a very significant contribution to the development of national economies (Pjanić et al., 2018).

Activities of small and medium-sized farms must be harmonized with the applicable legal regulations. The interaction between these businesses and the natural environment in the long run must be based on survival with acceptable production growth.

1 IvanaLjubičić, MA, Belgrade Business Academy for Applied Studies, Kraljice Marije br.73, Belgrade Serbia, Phone: +381 11 3042-311, E-mail:ivana.ljubicic@bpa.edu.rs, https://orcid.org/0000-0002-5493-1690

2 Prof. Danijela Radenković, PhD, Belgrade Business Academy for Applied Studies, KraljiceMarije br.73, Belgrade, Serbia, Phone: +381 11 3042-377, E-mail: danijela.radenkovic@bpa.edu.rs, https://orcid.org/0000-0001-6539-1979

3 Prof. Ivan Bulatović, PhD, Belgrade Business Academy for Applied Studies, KraljiceMarije br.73, Belgrade, Serbia, Phone: +381 11 3042-377, E-mail: ivan.bulatovic@bpa.edu.rs, https://orcid.org/0000-0002-5107-6289

Agricultural entrepreneurs plays major role in the growth and development of national economies and the reduction of poverty. Success depends largely on the institutional support that a particular country provides through its mechanisms. Serbia is faced with low levels of economic activity, high unemployment rates, low investment and competitiveness rates, mainly large, inefficient state and public enterprises, and the development of small and medium-sized enterprises and agricultural entrepreneurs is a great development opportunity for it.

Another problem is the problem of land ownership and difficulties in the formal registration of immovable property. The possibility of free access to the real estate market, and first and foremost to construction land, is very important for the development of entrepreneurship. Serbia has some limitations here that do not exist in the developed world. The issue of restitution is still unresolved.(Financing of small and medium enterprises, 2012)

The real estate catastre is very poor and it seriously blocks many entrepreneurial opportunities. As a result, many entrepreneurs are unable to obtain mortgage loans as a source of funds for starting a business.(Milojević & Mihajlović, 2019)

When the growth phase, which is very demanding financially, occurs, the funds of the entrepreneur himself are mostly already exhausted and financing from external sources becomes important. Loans and venture capital are becoming an increasingly attractive source of financing. A loan is an expensive source of financing for SMEs, farms and entrepreneurs. Banks are not willing to lend to farms because they are at high risk of not being able to return the funds. Also, this type of financing is accompanied by high administrative and processing costs, and farms do not usually have adequate accounting records, business plans and financial statements.

Research methodology

The research methodology aims to analyze the role of financial mechanisms in the sustainability of financing farms. It covers the descriptive method and content analysis of available literature by reference national and foreign authors. Using this methodology, we will emphasize the importance of financing on the quality of sustainability of management and business efficiency of agricultural holdings, with the use of innovations as a basis for the success of modern business systems.

Farms in the modern economy

Today's business is characterized by highly industrialized production, increasingly stringent regulations in the field of consumer protection, the ever-increasing and ever-expanding demands of the consumer society, all of which affect the survival of businesses. Rapid technological development and economic growth, rapid implementation of new developments, increasingly complex business, and the need for adaptation and planning are just some of the hallmarks of competitive struggle.

Small and medium-sized enterprises and entrepreneurs, as well as farms, play a significant role in the economy of our country, because by improving the quality of goods, services and competitiveness in the market, they are more adaptable to changes, innovations and new technologies, compared to state-owned enterprises. Some segments of their comparative advantages in the market are their small size, which makes them more flexible, and tradition, which allows them to have a long experience in the production process as well as knowledge of the distribution chain based on old contacts.

One part of the problem stems from the education system, poor encouragement of entrepreneurial thinking and the placement of young people's ideas for starting their own businesses, while one part may be attributed to the heritage of 45 years of socialism and the previous heritage of 200 to 500 years of Ottoman rule, depending on the part of Serbia we are talking about. Neither the communist ideology nor the Turkish system of government were benevolent to capitalist entrepreneurial initiatives, but almost exclusively promoted the idea of petty entrepreneurship and craft that was either passed from generation to generation or was simply too small to create a prevalent entrepreneurial spirit in citizenship that would try to enforce the creation of an entrepreneurial-oriented society. As far as farms are concerned, they existed in socialism, unlike in other, much more restrictive countries, such as the Soviet Union, but their size was limited to 10 hectares, or 17 acres. This did not have a positive effect on the development of entrepreneurial culture, but the fairly equal farmers were networked in secure distribution chains through state-owned agricultural combines, which were particularly effective in the Pannonian lowlands (Vojvodina, Belgrade and northern Central Serbia).

SMEs are a leading force in the economic development of each country.(Domínguez-Torreiro & Soliño, 2015; Đokić, 2018) They empower the economy in many ways: they target specific areas of the market and consumers, they respond more quickly to the emergence of opportunities and threats that they perceive in the environment, they adapt more quickly to change, they are more flexible, they represent a good source of entrepreneurial and innovative ideas, they create jobs. As a result of the development of the Internet and telecommunications technologies, SMEs are increasingly contributing to the globalization of business.

The advantage of these companies is that they can meet specific or periodic needs for certain products that are needed in smaller quantities, operate more efficiently and faster when it comes to changing the organizational structure in line with market dynamics.

The disadvantages of small and medium-sized enterprises are a lack of resources, primarily financial resources, as well as knowledge and institutional infrastructure. (Brankov & Lovre, 2017) Management in these enterprises takes the form of management of an enterprise but with limited resources. In a way, farms can be considered as a form of small and medium-sized enterprise, because no agricultural farm, except privatized but previously fragmented agricultural combines, falls into the category of large enterprises or large farms, such as those in North America, or those of latifundia in Latin America. Therefore, the experience of small and medium-sized enterprises is largely applicable to all aspects of the farm business.

Financing of agricultural farms

Farms are characterized by labor-intensive processes that have an impact on reducing income inequality, resulting in a drop in poverty. In this sphere, jobs are created for people from more modest backgrounds, women and other groups who do not have too many job opportunities.). In practice, the tax is also considered to be an instrument for securing necessary budget funds, but it is also used for achieving other goals (Rapajić et al., 2019). Good is example of author Macháček (2017) who proposed effective business support tools at the region and municipality level.

The agricultural sector also contributes to a better allocation of resources. Harmony is established between the abundance of labor and scarce capital. Also, participatin ih highly automated society can be one of solutions (Vochozka et al., 2018; Popescu, 2018) and cognitive technology-driven automation (Hardingham et al., 2018) will change future of work (Neary et al., 2018; Hyers & Kovacova, 2018; Koppel & Kolencik, 2018; Taylor & Kliestikova, 2018; 32. Tuyls & Pera, 2019). It contributes to better geographical allocation, the distribution of entrepreneurial ideas, and the reduction of the economic gap between poor rural and affluent urban areas. Also, Blažević et al. (2018) said that rural and eco-tourism has been emerging as a way for revitalizing villages. Development potentials of agricultural holdings are (Botezatu & Andrei, 2012):

- Rapid adoption of new technologies
- Rapid adoption of new management styles and management methods
- Fast learning and development
- Risk taking
- Flexibility
- Specialization opportunity
- Adaptation to consumer requirements
- Quick communication with the market

These businesses are more dynamic and adaptable than big ones. Their disadvantages are(Done et All., 2012):

- They are too small to produce the effects of the economies of scale
- Lower productivity
- They do not have the opportunity to internationalize their business
- They cannot carry out complex business ventures

The basic problem that prevents and slows down the development of entrepreneurship is the insufficient separation of the economic environment. Numerous administrative barriers are present, followed by complicated procedures. The 2015 World Bank Business Report confirms that there has not been sufficient work done in Serbia to

improve the economic environment. Serbia ranks 91st out of 189 countries in the ranking of countries ranked according to this criterion. The year before, it had taken the place of 93. There is some progress, but is very slow.(Vujicic, & Ristić, 2012)

First of all, there are problems of financing; it is difficult to collect receivables, there is a high credit indebtedness (Serbia has the highest interest rates in the region accompanied by high banking costs, and another problem is also the issue of securing loans as well as limited amounts of loans). About 80% of entrepreneurs settle their obligations to suppliers within a period of less than 45 days, while about 57% manage to collect their claims within the same period. In the construction sector, the longest payment is expected, with as much as 54% waiting over 45 days. The following is a wholesale business where every other firm waits longer than 45 days to receive their money. This is very disadvantageous for farms that have their own production or licensed brands (organic food, dairy products, etc.).

The most important sources of financing a business is personal funds, especially when it comes to financing working capital and investments. If external funds are used, they are mostly bank loans and they participate in the financing structure at 35%. They are followed by overdrafts with a share of 8% and loans from friends that make up 7%.

There are problems with the enforcement process related to its efficiency and cost. The problem is the lack of adequate collaterals and frequent changes to the existing regulations and procedures.

Agricultural entrepreneurs and small and medium-sized enterprises mostly serve the local markets, followed by the markets of Serbia and the Region. As many as 81% of firms have not patented any form of intellectual property, and those who have patented it most commonly protected their trademark and the industrial design. The main problems related to the issue of market competitiveness are quality and price, which results in a lower export orientation and the creation of innovative products of higher processing stages.(Tasić, 2018)

The most important market constraints are strong competition and weak demand. Public procurement is practically inaccessible to agricultural companies.(Cremer-Schulte & Dissart, 2015) A large number of small firms do not have a developed sales network or a strategically planned pricing policy, so they balance sales and the delivery of goods.

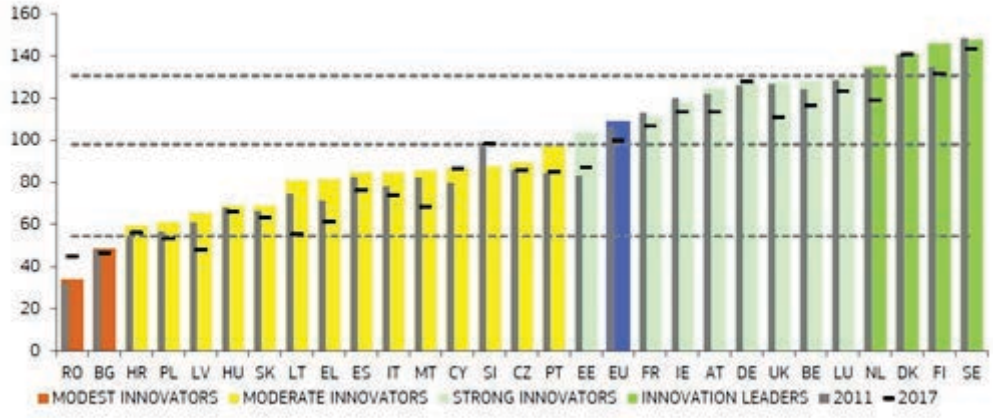
Another problem is the average age of equipment, which is about 5-10 years, while every fourth company works with equipment that is more than 10 years old. Older equipment is mainly owned by manufacturing and agricultural enterprises, as well as medium-sized enterprises from the non-agricultural sector.

The highest investments are related to the procurement of equipment, then to business premises, and the least is invested in patents and licenses. Every fourth company has quality standards and certificates, while only one in ten have plans to introduce them at all. The largest number of certificates are held by medium-sized enterprises in the sphere of production and processing, computer and information technology, catering and recycling. Mainly ISO 9001 and HASSP standards.

Innovation and human resource

Republic of Serbia is in a group of less developed European countries and its development is not driven by knowledge and innovation. The importance and role of knowledge and innovation in the development of the Serbian economy is low, the innovation of domestic SMEs is weak because very few SMEs innovate. The growth in the number of SMEs is not accompanied by the growth of innovation that would provide a competitive advantage that is sustainable in both the domestic and global markets. The same conclusions can be drawn for farms.

Figure 1. Performance of EU member states innovation systems



Source: European Inovation Scoreboard 2017

A very important factor in the development of entrepreneurship are human resources. Characteristics of the labor market in Serbia are: disharmony of labor supply and demand, mismatch in the qualification, age and professional structure of the staff, long-term unemployment, a large number of young people from 15 to 24 who are unemployed, high unemployment of people with lower and secondary education, as well as large regional disproportions.(Stanojević, Mišković, & Jeftić, 2017; Nica, 2017; Nica et al, 2017; Nica, 2018).

They are otherwise the most important resource in the economy, but limited. The reasons are that demographic flows are, above all, unfavorable. The population is getting older, a lot of people are moving to more developed countries, birth rate is low. This leads to the depopulation of a country, and depopulation is most pronounced in agricultural centers.(Mićović & Miletić 2019; Stanojević, Đorđević, & Volf, 2017) At the time of sanctions, during the 1990s, villages and the agricultural sector were the richest part of the country on which not only development but the very survival of the state and the people were based, while today it is quite the opposite - agriculture is the branch that is most regressing. Another problem is the unenviable structure of education. Serbia has a high illiteracy rate and a low percentage of highly educated people - about 7-8%. Another problem is the health of the nation, both physically and mentally, which is also low.

Physical capital and historical perspective

In order to achieve the most successful development of entrepreneurship, we especially emphasize the need to use the scarce financial (budgetary) means and funds, in a purposeful, rational and economically justified way.(Popescu, 2014)

Serbia has solid physical capital - arable land, meadows, pastures, forests, water, as well as human capital. Only the financial capital is limited. For this reason, the management of financial capital must be sharpened, primarily through intended and rational use, as well as monitoring its effect in a short and long term.

Economic growth and development has taken place in an attempt to achieve, at the same time, the growth of personal and public consumption growth, to positively influence growth and increase employment. Market reforms, privatization and the attracted foreign investment have been carried out in order to create the institutional and material prerequisites for stable economic development.(Oostindie, 2015)

However, only partial results were achieved because GDP did not achieve sufficient growth, and due to the negligent use of rising GDP, foreign trade imbalance increased, as foreign trade and current wage deficits increased. In the years 2001-2008, the so-called years of transition, there was a rise in real wages as a result of foreign donations, economic subsidies and appreciation of the dinar. This did not increase employment, but unemployment. The inflow from the sale of state and former social capital was used to a large extent to finance the balance of payments deficit and the budget deficit, with the services sector favored over the manufacturing sector.(Milojević, Mihajlović, & Vladisavljević, 2018)

Such a policy certainly did not lead to the creation of a stimulating economic environment, but rather a decline in the initial expansion of a competitive private sector. After the unsuccessful transition, the global economic crisis occurred which, as a consequence, brought about: rising unemployment rates, rising poverty, fall in demand, impoverishing population, declining purchasing power of people. At the same time, the SME sector encountered problems in the form of lack of funds, complicated laws and procedures, lack of essential information on technologies and markets, qualified personnel, non-compliance with standards, etc.

The biggest problem was the limited access to funding sources in the money and capital markets. Firms had to rely primarily on their own resources, which were insufficient and could not meet the growing needs for capital, which occurred especially in the later stages of their life cycle.

Regarding bank loans, the biggest problems were(Milosavljević, Pantelejić & Međedović, 2019):

- Lack of funds to secure loans
- Lack of documentation on company and business ventures
- Lack of competencies to properly present the project to creditors

Creditors focused on financing large enterprises, lacking a methodology for evaluating small projects, which made the assessment expensive, especially when compared to small individual loan amounts (Paunović, 2017; Naldi, 2015). Fundraising on the stock market through initial public sale of shares was problematic, as the companies here are simply not attractive to investors. The SME sector is an "oasis" of national economic sovereignty and a potential lever for development economic policy, for countries like Serbia (Stamatović, 2013).

National economies of weak states are not and cannot be equal partners to multinational and global companies and giants. Creating a conducive institutional framework and stimulating business environment is a challenge faced by policy makers and decision makers in all countries that have become aware of the role and importance of the SME sector. This applies particularly to developing and transition countries.

More then 1% of SMEs and farms says that they mainly use non-banking sources of financing, such as, for example, leasing. Although close to 1/3 of the firms have received funding from state programs, only 2% of SMEs and farms claim that the state is their main financier. There are also gender differences among funding beneficiaries.

A very low percentage of financing appears to be used for investment. About 80% of SMEs state that they borrow to invest in current assets and for other short-term needs. Dedicated loans are commonly used.

Long-term loans cover only 15-25% of fixed assets, most of fixed assets are not financed from external sources. The leverage of the MPS sector is not adequate. The average debt to equity ratio is less than 1.7. This is much less than considered the normal debt threshold in other developed markets. The normal debt threshold is considered to be between 1.5 and 2. Low leverage indicates that firms finance their operations from internal or informal sources.

Credit products and services are not properly aligned with the needs of firms. Firms are the least satisfied with interest rates and fees. They find that they are too high and discourage from taking loans. Firms are not satisfied with the quality or efficiency, as well as the time required to obtain a loan.

Conclusion

When it comes to equity, the following resources are available to farms: personal resources, resources of family and friends and investors.

When a company is at the beginning of its life cycle, there are not many available sources of financing. Data on financial and other features of business ventures are limited, so it is difficult to attract external financiers. Credit ability is poor when a company is young.

As a business grows older and larger, the number of funding sources grows. In the early stages, the company is usually financed from its own resources and those of family

and friends, and then opportunities arise to access external capital - investment funds, business angels, bank loans, etc.

Access to finances also depends largely on the type of firm, whether it is a traditional enterprise that aims to provide income for an individual, family, and a small group of employees, or whether it is an innovative enterprise that has high growth potential.

As we have said, in the first stages farms rely on personal and family resources, while loans from banks and other financial institutions are only taken if absolutely necessary, since borrowing is very risky at this stage. The risk is high and the outcome is uncertain. Loans are also accompanied by high costs.

Another source of funding are various state support programs for beginners in business. When an entrepreneur has some innovative idea and concept, he or she may have access to business angels who are a more affordable and accessible source than obtaining finance from formal investors.

Conflict of interests

The authors declare no conflict of interest.

References

1. Botezatu, M., & Andrei, J. (2012). Implications of the environmental factors on the economic efficiency of capital investments. A Romanian perspective in terms of a sustainable economy. *Journal of Environmental Protection and Ecology,* 13(1) 382-391
2. Blažević, M., Peters, K., & Chen, G. (2018). Developing rural tourism in minority ethnic villages: Zlot and Xiaocang She Ethnic Township. *Hotel and Tourism Management*, 6(2), 71-78. https://doi.org/10.5937/menhottur1802079B
3. Brankov, T., & Lovre, I. (2017). Food security in the former Yugoslav republics. *Ekonomika poljoprivrede,* 64(2), 701-721.
4. Cremer-Schulte, D., & Dissart, J.C., (2015). Evaluating rural development in French Regional Nature Parks. *Journal of Environmental Planning and Management,* 58(3), 383-403
5. Done, I., Chivu, L., Andrei, J., & Matei, M. (2012). Using labor force and green investments in valuing the Romanian agriculture potential. *Journal of Food Agriculture & Environment,* 10 (3&4), 737-741
6. Domínguez-Torreiro, M., & Soliño, M. (2015). Measuring social preferences for rural development in Southern Europe. *International Journal of Environmental Research,* 9(1), 27-34
7. Đokić, I. (2018). Economic effects of integrated marketing communications: The case of food products. *Ekonomika poljoprivrede,* 65(3), 985-994.

8. Financing of small and medium enterprises, recommendation book, USAID, Serbia, 2012
9. Hardingham, E., Vrbka, J., Kliestik, T., & Kliestikova, J. (2018). Will Cognitive Technology-Driven Automation Lead to Economic Growth?. *Journal of Self-Governance and Management Economics,* 6(4), 13.
10. Hyers, D., & Kovacova, M. (2018). The economics of the online gig economy: Algorithmic hiring practices, digital labor-market intermediation, and rights for platform workers. *Psychosociological Issues in Human Resource Management*, 6(1), 160-165.
11. Koppel, J., & Kolencik, J. (2018). The future of workers: Contingent forms of labor contracting in the platform economy. *Psychosociological Issues in Human Resource Management*, 6(1), 172-177.
12. Macháček, J. (2017). Promoting entrepreneurship on the part of municipalities. Revista» *Administratie si Management Public «(RAMP),* (29), 74-90.
13. Milojević, I., & Mihajlović, M. (2019). Implementation of the method of assessing investment projects in the public sector. *Oditor - časopis za Menadžment, finansije i pravo,* 5(1), 19-31.
14. Milosavljević, S., Pantelejić, Đ., & Međedović, D. (2019). Primena i mogućnost unapređenja ekonomskih činilaca u realizaciji održivog razvoja. *Održivi razvoj,* 1(1), 7-14. [*in English:* Application and possibility of improvement of economic factors in realization of sustainable development. *Sustainable Development*]
15. Mićović, S., & Miletić, J. (2019). Poslovni subjekt kao osnova održivosti razvoja. *Održivi razvoj,* 1(1), 41-49. [*in English:* Business entity as a basis for sustainability of development.. *Sustainable Development*]
16. Milojević, I. M., Mihajlović, M. B., & Vladisavljević, V. D. (2018). Methodological aspect of controlling corporate income tax. *Vojno delo,* 70(1), 103-111.
17. Naldi, L., Nilsson, P., Westlund, H., & Wixe, S. (2015). What is smart rural development? *Journal of Rural Studies,* 40, 90-10
18. Nica, E. (2017). Techno-pedagogy knowledge in smart learning environments. Economics, *Management, and Financial Markets*, 12(1), 75-81.
19. Nica, E., Comănescu, M., & Manole, C. (2017). Digital reputation and economic trust in the knowledge labor market. Journal of Self-Governance and Management Economics, 5(3), 83.
20. Neary, B., Horák, J., Kovacova, M., & Valaskova, K. (2018). The future of work: Disruptive business practices, technology-driven economic growth, and computer-induced job displacement. Journal of Self-Governance and Management Economics, 6(4), 19-24.
21. Nica, E. (2018). Gig-based working arrangements: Business patterns, labor-management practices, and regulations. Economics, Management, and Financial Markets, 13(1), 100-105.

22. Oostindie, H., Van Broekhuizen, R., Soldaat, B., & Van Der Ploeg, J.D. (2015). Towards the characterization of actors engaged in rural development processes in the north west of Europe. *Research in Rural Sociology and Development,* 22, 239-254
23. Paunović, G. (2017). The role of small and medium-sized enterprises and entrepreneurship in the development of national economy. *Ekonomija: teorija i praksa,* 10(1), 44-63.
24. Pjanić, M., Vuković, B., & Mijić, K. (2018). Analysis of the market concentration of agricultural enterprises in AP Vojvodina. *Strategic Management*, 23(4), 40-45. DOI:10.5937/StraMan1804040P
25. Popescu, G.H. (2014). The economic impact of rising temperatures. *Journal of Self-Governance and Management Economics,* 2(1), 44-49
26. Popescu, G. H. (2018). Participation in the sharing economy: Labor, exchange, and consumption. An empirical analysis. *Journal of Self-Governance and Management Economics*, 6(1), 122-127.
27. Rapajić, M., Lapčević, M., & Miladinović, V. (2019). Dinamism of property tax reform in Serbia: Administrative and fiscal aspects. *Ekonomika*, 65(1), 35-46.
28. Stamatović, M.LJ. (2013). Business performance management of SMEs. Novi Sad: University of Economics Academy
29. Stanojević, S., Đorđević, N., & Volf, D. (2017). Applying the machine learning method in predicting business winners vs. losers through financial reports. *Oditor - časopis za Menadžment, finansije i pravo,* 3(1), 92-101.
30. Stanojević, P., Mišković, V., & Jeftić, Z. (2017). Contemporary interpretation of the concept of national logistics. *Vojno delo,* 69(3), 280-302.
31. Tasić, J. (2018). Future trends and development laws rural tourism in Serbia and the world. *Oditor - časopis za Menadžment, finansije i pravo,* 4(3), 7-19.
32. Taylor, L., & Kliestikova, J. (2018). The operational coherence of the workforce-as-a-service pattern: Digitally mediated service work, the contingency of on-demand employment, and the low-income labor market. *Psychosociological Issues in Human Resource Management,* 6(1), 178-183.
33. Tuyls, R., & Pera, A. (2019). Innovative Data-driven Smart Urban Ecosystems: Environmental Sustainability, Governance Networks, and the Cognitive Internet of Things. Geopolitics, *History and International Relations*, 11(1), 116-121.
34. Vujicic, M., & Ristic L. (2012). European integration and rural development policy of the republic of Serbia and West Balkan countries. *Bulgarian Journal of Agricultural Science,* 18 (4), 519-530
35. Vochozka, M., Kliestik, T., Kliestikova, J., and Sion, G.(2018). Participating in a highly automated society: How artificial intelligence disrupts the job market. *Economics, Management, and Financial Markets*, 13(4), 57-62.

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Table 1. The distribution cost of packaged goods from Subotica to retail-store objects

Indicators	Period			Total
	Month 1	Month 2	Month 3	
Distance crossed (km)	12.926	11.295	13.208	37.429
Fuel consumption (litre)	3.231	2.823	3.302	9.356
Value of fuel consumption (RSD)	242.378	211.790	247.653	701.821
Total time spend on touring (hour)	314	266	417	997
Value of total time spend on touring (RSD)	47.048	39.890	62.570	149.508
Number of tours	98	77	102	277
Toll value (RSD)	0	0	0	0
Number of pallets transported (piece)	1.179	976	1358	3.513
Total weight transported (kg)	602.600	429.225	711.116	1.742.941
Vehicle maintenance costs (RSD)	203.858	164.970	224.806	593.634
Lease costs (RSD)	480.938	454.214	565.784	1.500.936
Total sum (RSD)	974.222	870.864	1.100.813	2.945.899

Source: Petrović, 2012

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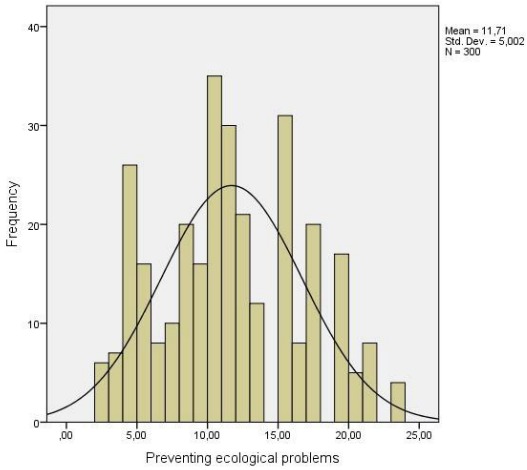
Figure 1. Agriculture, value added (% of GDP)



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