
THE IMPACT OF VALUED MACROECONOMIC FACTORS BY TOP MANAGEMENT ON BUSINESS IN MEDIUM-SIZED INDUSTRIAL AND MEDIUM-SIZED AGRIBUSINESS ENTERPRISES

Milena Lutovac-Đaković¹

*Corresponding author E-mail: milena.lutovac@ekof.bg.ac.rs

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ABSTRACT

The aim of the research was to investigate the impact of macroeconomic factors on the operations of medium-sized industrial and medium-sized agribusiness enterprises. The subject of the research was medium-sized industrial and medium-sized agribusiness enterprises. The authors conducted a survey of top management in relation to the impact of 7 macroeconomic factors. The method of comparing the results obtained from both forms of enterprise organization in the research period (2023-2025) was used. The existence of differences in the evaluation of top management in relation to the form of enterprise organization was revealed. Agribusiness enterprises had more confidence in the analyzed macroeconomic factors: exports, subsidies and the impact of banking, while industrial enterprises had more confidence in the impact of gross domestic product, employment, imports and tax breaks.

Introduction

The impact of industrial enterprises' operations is such that it plays a dominant role within the overall economic activities of an economy. Considering industry as a significant factor in economic development is an existential issue for many economies. When considering the importance of the impact of a particular activity on general social development, one of the key issues is the inevitable recognition of macroeconomic influences and factors on making business or valid decisions by those who manage such organizations or enterprises.

Authors such as (Makoye et al., 2022) have focused on the importance of the influence of macroeconomic factors on the business results of the construction industry in a developing country, in a way that recognizes the general goal of development through a business model that can help economic policymakers in their efforts to develop a specific segment of the industry by making valid management and other business decisions in order to improve the overall business results of the economy.

¹ Milena Lutovac-Đaković, PhD, Assistant Professor, Faculty of Economics, University of Belgrade, Kamenička 6, 11000 Belgrade, Republic of Serbia, E-mail: milena.lutovac@ekof.bg.ac.rs, ORCID ID (<https://orcid.org/0000-0003-1932-071X>)

There is no universality in the development of industrial enterprises. Thus, the author (Wu, 2025) emphasizes that it is primary to observe the influence of macroeconomic factors in relation to the efficiency of real estate companies, taking into account the frontier analysis in their business. This emphasizes the technical component in observing the use of resources in the real estate industry, but with acknowledging the influence of macroeconomic factors in relation to making future business decisions within the aforementioned form of industry.

The influence of macroeconomic factors, for example, in middle-income countries can be focused by emphasizing the importance of accelerated infrastructure development and combining it with foreign direct investment, because in this way the creation of added value in the industry can be accelerated, taking into account the aforementioned as part of efforts to improve the making of valid management decisions by decision-makers (Bernard Azolibe, 2021).

Numerous macroeconomic factors, such as gross capital formation, infrastructure development, household consumption expenditure, bank loans, labour force, foreign direct investment, trade openness, and political stability, can have significant impacts on the operations of industrial companies, or on the making of key business decisions, which has been the focus of research by numerous authors such as (Issah & Antwi, 2017).

Influential macroeconomic factors (Vychytilová, et al., 2019) can be linked to the price of shares in the automotive industry, but also to the listing on the stock exchanges, which leads to a connection between the application of certain macroeconomic factors and the listing on the stock exchanges, with the factor of gross domestic product, unemployment, and others that should be taken into account in the real making of future key business decisions by decision-makers.

However, some authors observe the development of industry, especially in underdeveloped economies, which can be seen in works such as (Yitayaw, 2021) within credit relations, primarily from relations with commercial banks, as they saw a comprehensive connection between the development of industry and the banking sector as a whole, which implies the creation of conditions for the correction of industrial policy in an economy such as Serbia (Savić & Lutovac Đaković, 2019; Lutovac Đaković, 2024).

The development of the industry (Irani, et al., 2021) is increasingly influenced by macroeconomic factors such as share prices, for example, of tourism companies, but it is also necessary to take into account the influence of other factors such as increased political and economic risks, uncertainty of global economic policy and the real exchange rate on making valid management decisions by the top management of the specific industrial activity in question.

The development of the industry can primarily be observed through the essential management of working capital. This is necessary for the development of numerous

companies, which have their own business goals (Wang, et al., 2021; Makoye, 2024; Kotcharin & Jantadej, 2024; Bakmaz et al., 2025; Popović et al., 2025).

Making valid management decisions is not characteristic only for the observation of industry, but it should also be observed within less intensive activities, such as the agricultural organization of business. Thus, authors such as (Bakmaz et al., 2025-a) emphasize the importance of making business decisions in relation to the size category of legal entities (small and medium-sized enterprises), and authors such as (Popović et al., 2025-a) also include the factor of dynamism, that is, the factor of location as an important factor for making valid management decisions in future business.

Literature review

The influence of macroeconomic factors can be observed within the framework of economic practice related to making practical decisions regarding the operations of numerous legal entities in both industry and agribusiness. This was the basis for considering already published research that is based on considering the theoretical approaches of numerous authors.

In this paper, the author has taken into account the assumptions of published research results that come from the most populous country in the world. Specifically, the focus of the authors there on focusing on the influence of macroeconomic variables was taken into account, because they play a significant role in assessing the volatility of commodity futures market prices in India (Sreenu et al., 2021) which currently plays an important role in making management decisions in such an economy, but the same experiences can be largely applied to other economies, as can be seen in the papers (Bojaj & Aharon, 2024; Shahzad et al., 2024; Mohamed et al., 2024).

Focusing on only one macroeconomic factor that can influence economic development would not contribute to rapid and comprehensive economic growth in most economies, and the literature also mentions macroeconomic results of the impact on proper management decision-making in the broad functioning of different economies by using, for example, joint ventures as a factor in the development of heterogeneous legal entities (Colović et al., 2025).

In addition, there is a focus on examining the impact of macroeconomic variables and firm-specific factors on the profitability of enterprises in emerging economies during and after the global financial crisis, which draws important attention to the dynamic consideration of macroeconomic factors in management processes (Cheong & Hoang, 2021). Similar views that focus on business after major events such as accession to economic integration, wars and other in a wide range of effects on the development of certain segments of the economy (especially agriculture) are found in the literature (Bexxolli et al., 2023) but also by other authors as an important factor to consider when making important future management decisions in the economy (Thuy Tien, 2022).

Real business should take into account the presence of an analysis of real influencing

factors, especially macroeconomic influences on the economy and the achievement of overall results of the development of an economy, but also specifics such as determining the reality that the announcement of macroeconomic news is transmitted, for example, from the American to the Chinese commodity futures market as reality (Cai et al., 2020).

In addition to the economic impact on macroeconomic factors, the literature also emphasizes the importance of applying macroeconomic factors that take into account the limited reflections of political regimes (Mwinuka & Mwangoka, 2023). Similar views are found in the literature (Hussein Mohamud et al., 2025), which emphasizes the strong impact of constant military conflicts and economic instability, as well as the impact on the economy caused by environmental degradation, especially deforestation, as a general impact on a number of macroeconomic factors. At the same time, the aforementioned study recommends integrated strategies, including regulatory reform initiatives, which would contribute to raising environmental sustainability in a particular economy as part of a broader regional perspective.

The efficiency of numerous macroeconomic factors is the basis for the development of future important business plans in agriculture, which influences the application of macroeconomic factors of investments in agriculture, in agricultural production, and the reduction of gas emissions (Al-mulali et al., 2016), which is a similar observation within the framework of the real economy of other companies, especially industrial ones that have a key impact on overall development (Mkhabela et al., 2022; Bortz & Toftum, 2023; Rahman et al., 2023) which is primarily initially observed within the framework of making valid management decisions.

Business decision makers should assess numerous factors, primarily economic environment factors, as they can have a strong impact on the work and operations of agricultural companies (Epshtein et al., 2018) by focusing on adopting measures that will increase the resilience of domestic agriculture as a whole, but also of individual companies, primarily from agribusiness, thereby reducing the impact of external shocks, which is similarly encountered when clarifying the benefits of governance in the work of heterogeneous legal entities (Ljumovic et al., 2023; Zou & Hu, 2024; Diop et al., 2024).

The interconnectedness of macroeconomic factors in countries developing agribusiness requires the practical implementation of environmentally friendly norms (Adenaeuer et al., 2022), (such as reducing gas emissions) because they have a real impact on the development and performance of the overall economy, especially if the observation is carried out through an integrative approach, for example, accession to the EU and other associations (Gignarta et al., 2024; Deb, 2025).

State authorities, as well as top management of numerous companies, should consider the impact of various economic factors on the overall business operations of the economy, because the general postulate of economic activities is the achievement of the best possible economic results (profits) as an imperative for survival through the application, for example, of factors reducing environmental degradation due to high economic growth (Sadiq et al., 2022), which can enable real economic growth, increase

foreign direct investment, average inflation, and other things that can be seen in the example of strong economies (Kirui et al., 2023; Zhou et al., 2024; Trakem et al., 2024).

However, in the review of the literature used for the preparation of this study, it is noted that there is a gap in the practical application of comparing two categories of legal entities that are important for the economy, such as the economy of the Republic of Serbia. Namely, it was necessary to investigate the operations of industrial companies on the one hand as the leading driving locomotives of the economy that strives for integration, and on the other hand it was necessary to make a comparison with agribusiness legal entities in relation to the application of factors that can determine macroeconomic influences on making valid management decisions.

To fill the perceived gap, the author noticed and approached the analysis of the following factors: gross domestic product, employment, imports, exports, tax benefits, subsidies and the influence of banking, comparing industrial and agricultural enterprises through valuation by top management.

Thus, the goal of the study was achieved through the presentation of the comparison of the evaluated macroeconomic factors of the mentioned two forms of organization of the mentioned legal entities in the economy of the Republic of Serbia.

With this, the author believes and points out that the study can fill the mentioned gap, and the results he reached show the basic guidelines for action and making valid management decisions in relation to the mentioned industrial and agribusiness companies, both in the economy in Serbia and more widely in the economy, especially in the countries that once belonged to the once unified area of the former Yugoslavia.

Materials and methods

The aim of the study authors' research was to determine the possible impact of selected macroeconomic factors on the operations of medium-sized industrial and medium-sized agribusiness enterprises operating in the territory of the Republic of Serbia. The significance of the research subject was reflected in the connection of the theoretical approach and its impact through the analysis of selected macroeconomic factors on practical management decision-making in the two most common forms of enterprises in the Republic of Serbia.

The essential subject of the research was focused on medium-sized industrial and medium-sized agribusiness enterprises. The author of the study basically compared the results obtained from seven selected macroeconomic factors based on the evaluation of top management that makes important management decisions in the two mentioned forms of medium-sized enterprises on a daily basis.

The study included an analysis of the following macroeconomic factors: gross domestic product, employment in the economy, import of products, export of products and tax policy with its impact of subsidies and banking policy on the operations of the analyzed (surveyed) enterprises.

The fact is that the surveyed companies differ from each other in their business orientation and in essence very often operate differently, which is also a consequence of their position on the market, that is, they are very different companies in their orientation, and the point was to carry out a comparative analysis of their impact on business, that is, management, which is reflected in the decisions of their top management.

The author analyzed the assessment of the aforementioned seven factors in the research period, which was from February 1, 2023 to February 20, 2025, which covered the aforementioned two forms of organization of legal entities in the Serbian economy. The survey was completed by top managers who manage the aforementioned two types of surveyed companies on a daily basis, in relation to the seven factors that were defined and presented. The assessment option was in the assessment interval (1-10). The least confidence in the offered factor could be rated with a score of one. The highest confidence could be rated with a score of ten. For the purposes of the study, surveys were collected from 346 medium-sized enterprises, namely 192 industrial enterprises and 154 medium-sized agribusiness enterprises. All surveys were conducted in such a way that the questionnaires were filled out by general directors, financial directors or people authorized by the management body.

Respecting the above propositions, the authors decided to use statistical data processing in order to safely present the obtained differences in the assessment of the developed and analyzed macroeconomic factors by two relatively different forms of legal entities, i.e. industrial enterprises and agribusiness enterprises (Table 1-3). In addition, in the aforementioned tables, the comparison results are strengthened by the application of the t-test as well as by the display of significance, which reflects the real confidence of the top management in the estimated macroeconomic factors. In the following (Table 4-6), a substantive comparison of the estimated macroeconomic factors was performed using Person's correlation analysis in order to strengthen the authors' confidence in the obtained results and to show the real connection of the selected macroeconomic factors in the real business of two extremely important forms of enterprise organization in the Serbian economy.

Hypotheses

The hypotheses were formulated in order to achieve a realistic comparison of the obtained research results. For this purpose, valuation was used, which resulted in the evaluation of top management in relation to the analysed macroeconomic factors: gross domestic product, employment, import, export, tax breaks, subsidies and the influence of banking in relation to the operations of the two most common forms of medium-sized enterprises in the Republic of Serbia.

In order to determine the hypotheses with certainty, the authors' views were used, which focused on the importance of applying control mechanisms in the case of making valid management decisions (Bakmaz et al., 2024), which was the basis for formulating the first hypothesis.

Recognizing the basic motives for focusing on the application of selected macroeconomic factors in the operations of the two most common forms of organizing enterprises operating in the Republic of Serbia, the author decided to set the following hypotheses.

H1: There are no significant deviations based on the evaluation of top management of medium-sized industrial enterprises and medium-sized industrial agribusiness enterprises operating in the Republic of Serbia based on the evaluated analysed macroeconomic factors that are the basis for future business decision-making, for each individually observed year of the research.

Furthermore, in order to strengthen the views presented in the study and compare them with the views already presented by other authors (Katzv & Jung, 2024; Liu et al., 2025), i.e. that there is a significance of applying a comparative analysis of macroeconomic factors in the assessment of factors in the real operations of the two forms of enterprises, the author formulated another hypothesis.

H2: There is no strong relationship (linear dependence) between each individually evaluated analysed macroeconomic factor (GDP, employment, imports, exports, tax incentives, subsidies and banking influence) that can influence future business decisions made in the operations of medium-sized industrial and medium-sized agribusiness enterprises by the years of the research.

Data processing

After obtaining the data from the survey, a classical statistical analysis of the obtained data from the survey was performed. IBM SPSS software, version 25, was used in the work.

In the study, the author conducted a t-test, with the aim of showing possible differences in the evaluation of the analysed macroeconomic factors. In this way, the existence of real differences between medium-sized industrial enterprises and medium-sized agricultural enterprises would be seen.

In addition, the author applied Pearson correlation analysis, which strengthened the obtained results of the evaluation of the surveyed participants based on the data collected from the survey, with the note that the significance was done with 0.05.

Results

The results of the evaluation of macroeconomic factors that affect the operations of the aforementioned companies are presented by the author through the following sections that form a logical whole.

Presentation of evaluated macroeconomic factors in the work of the analysed companies

The results obtained in the study in the first year of observation, which related to the evaluated factors, are presented after their testing.

Table 1. The resulting differences in macroeconomic factors for 2023

	Industrial companies	Agricultural enterprises	t	p
	Average value			
Gross domestic product	3.66 ± 0.47	2.59 ± 0.49	20.538	<0.0005*
Employment	5.16 ± 0.68	3.77 ± 0.42	23.167	<0.0005*
Import of products	5.16 ± 0.68	2.36 ± 0.48	44.404	<0.0005*
Export	5.33 ± 0.47	5.36 ± 0.48	-10.511	<0.0005*
Tax incentives	6.83 ± 0.37	5.18 ± 0.38	40.216	<0.0005*
Subsidies	4.83 ± 0.37	6.18 ± 0.38	-32.837	<0.0005*
Banking	5.00 ± 0.81	5.36 ± 0.48	-5.141	<0.0005*
Total score	5.14 ± 0.39	3.97 ± 0.36	28.119	<0.0005*

Source: Author (2025).

A summary of the results of the seven analysed macroeconomic factors and their scores for 2024.

Table 2. Differences in macroeconomic factors for the year 2024

	Industrial companies	Agricultural enterprises	t	p
	Average value			
Gross domestic product	4.66 ± 0.47	3.77 ± 0.42	18.594	<0.0005*
Employment	5.50 ± 0.50	5.00 ± 0.00	13.820	<0.0005*
Import of products	5.66 ± 0.47	3.59 ± 0.49	39.630	<0.0005*
Export	5.33 ± 0.74	7.40 ± 0.49	-30.983	<0.0005*
Tax incentives	7.00 ± 0.57	6.40 ± 0.49	10.247	<0.0005*
Subsidies	4.66 ± 0.47	7.18 ± 0.38	-54.424	<0.0005*
Banking	5.66 ± 0.47	6.18 ± 0.38	-11.147	<0.0005*
Total score	5.50 ± 0.27	5.64 ± 0.25	-5.267	<0.0005*

Source: Author (2025).

The results that give an overview of each macroeconomic analysed factor and their score in the third year of research are shown in the following table with reinforcement through the performed test (column four).

Table 3. Differences in macroeconomic factors for the year 2025

	Industrial companies	Agricultural enterprises	t	p
	Average value			
Gross domestic product	6.50 ± 0.50	3.77 ± 0.42	55.024	<0.0005*
Employment	7.33 ± 0.47	5.00 ± 0.60	39.216	<0.0005*
Import of products	7.66 ± 0.47	3.36 ± 0.48	83.375	<0.0005*

	Industrial companies	Agricultural enterprises	t	p
	Average value			
Export	7.50 ± 0.50	8.00 ± 0.60	-8.236	<0.0005*
Tax incentives	7.66 ± 0.47	6.63 ± 1.02	12.359	<0.0005*
Subsidies	6.66 ± 1.10	8.22 ± 0.73	-15.666	<0.0005*
Banking	6.00 ± 0.81	7.22 ± 0.73	-14.485	<0.0005*
Total score	7.04 ± 0.48	6.03 ± 0.53	18.158	<0.0005*

Source: Author (2025).

In the third tabular representation of the results as well as the performed testing, the author gave the results, where you can see the existence of important differences for all factors as well as for their score.

Presentation of connection between macroeconomic factors 2023-2025

The obtained results that show the connection of macro-economic factors for the period from 2023 to 2025

The results obtained after applying Pearson's correlation analysis, i.e. the concretization of the results of macroeconomic influences, are given in the fourth presentation.

Table 4. Correlation of macroeconomic factors for 2023

	Gross domestic product	Employment	Import	Export	Tax incentives	Subsidies	Banking
Gross domestic product	1						
Employment	0.708**	1					
Import	0.771**	0.852**	1				
Export	0.823**	0.798**	0.904**	1			
Tax incentives	0.821**	0.849**	0.949**	0.923**	1		
Subsidies	-0.476**	-0.485**	-0.662**	-0.760**	-0.585**	1	
Banking	-0.059	0.150	-0.052	-0.148	-0.007	0.484**	1

Source: Author (2025).

The results obtained from the previous table indicate that there is a significant correlation of macroeconomic factors for 2023.

The presentation of the results in the second year of the research is given in Table 5.

Table 5. Correlation of macroeconomic factors for the year 2024

	Gross domestic product	Employment	Import	Export	Tax incentives	Subsidies	Banking
Gross domestic product	1						
Employment	0.717**	1					
Import	0.764**	0.685**	1				
Export	-0.583**	-0.640**	-0.796**	1			
Tax incentives	0.442**	-0.071	0.291**	0.014	1		
Subsidies	-0.605**	-0.524**	-0.929**	0.869**	-0.278**	1	
Banking	-0.202	0.281**	-0.650**	0.608**	-0.209	0.762**	1

Source: Author (2025).

The results shown in the fifth part of the tables indicate that there is a significant correlation of macroeconomic factors for 2024.

The presentation of the results in the third year of the research is given in Table 6.

Table 6. Correlation of macroeconomic factors for the year 2025

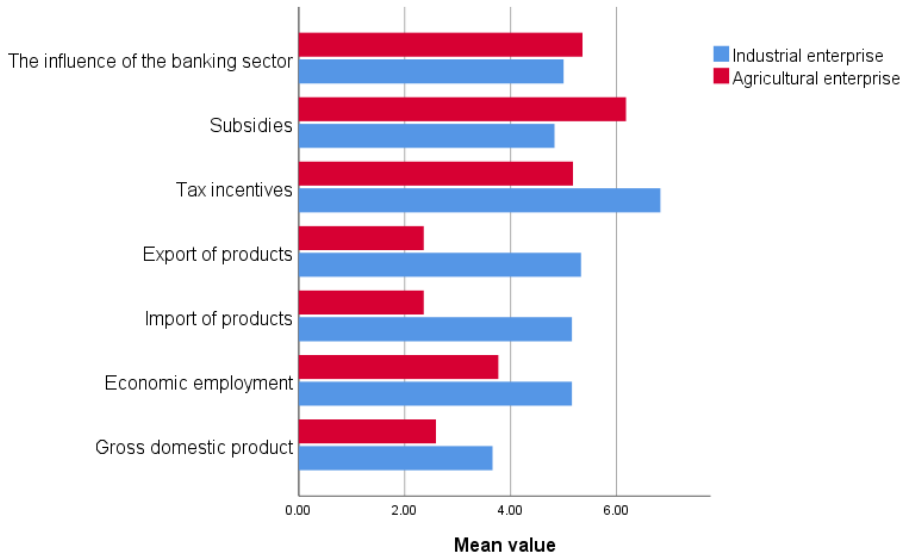
	Gross domestic product	Employment	Import	Export	Tax incentives	Subsidies	Banking
Gross domestic product	1						
Employment	0.910**	1					
Import	0.935**	0.905**	1				
Export	-0.337**	-0.164	-0.271**	1			
Tax incentives	0.643**	0.693**	0.568**	0.062	1		
Subsidies	-0.477**	-0.429**	-0.518**	0.727**	0.104	1	
Banking	-0.436**	-0.358**	-0.538**	0.680**	0.188	0.962**	1

Source: Author (2025).

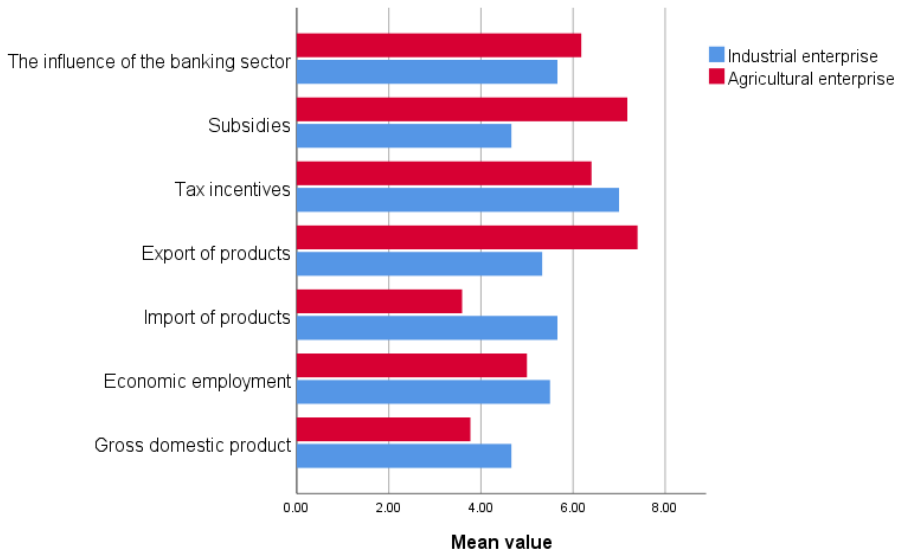
The sixth tabular presentation of the results indicates the existence of a significant correlation between macroeconomic factors for the third year, i.e. 2025.

Graphic presentation of the three-year valuation of macro-economic factors

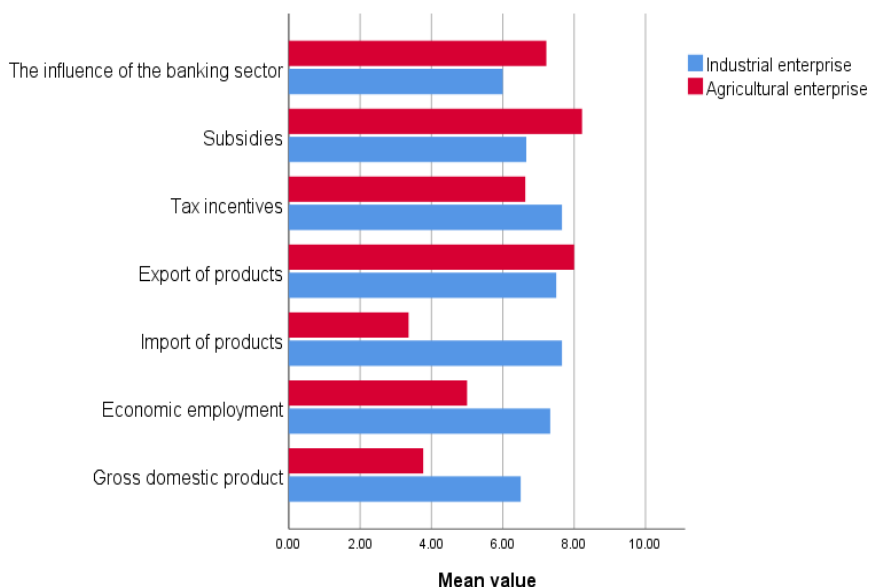
Presentation is given in the form of Figures 1-3, by years for which the research was done.

Figure 1. Comparison of macroeconomic factors for 2023

Source: Author (2025).

Figure 2. Comparison of macroeconomic factors for 2024

Source: Author (2025).

Figure 3. Comparison of macroeconomic factors for 2025

Source: Author (2025).

Discussion

The results in the first year of observation indicate that there is a significant difference in the valuation of macroeconomic factors for each individual macroeconomic factor, as well as for their overall result. At the same time, it can be seen that the macroeconomic factors: gross domestic product, employment in the economy, import of products, tax breaks and overall result have a higher value for medium-sized industrial enterprises, i.e. the results indicate that the top management of the enterprises mentioned has greater trust in them. At the same time, the macroeconomic factors: exports, subsidies and the influence of the banking system have a higher value for medium-sized agribusiness enterprises for 2023.

The results in the second year of observation indicate a continuation of the trend from the previous year of research, where macroeconomic factors: gross domestic product, employment, product imports and tax breaks are higher in medium-sized industrial enterprises, and the value of product exports, subsidies, the influence of the banking system and the overall score are higher in medium-sized agribusiness enterprises (Table 2).

The results in the third year are such that it can be seen that there are differences in macroeconomic factors, namely: gross domestic product, employment in the economy, product imports, tax breaks and the overall score, which are clearly higher in medium-sized industrial companies, while at the same time the macroeconomic factors: product exports, subsidies and the influence of the banking system are higher in medium-sized agribusiness enterprises (Table 3).

The previously presented results indicate that hypothesis H1 can be rejected, i.e. that there are significant deviations in the analyzed macroeconomic factors in all three years. This shows similarities with published works (Barbero et al., 2024) because they essentially presented the importance of spatial macroeconomic analysis. However, there are slightly different interpretations of the importance of macroeconomic factors in these works, which is evident from the fact that they still emphasized the application of the trade-off between fairness and efficiency in the management of European cohesion policy, unlike the study where the focus was on the analysis of business in Serbia.

The results of the comparative analysis of macroeconomic factors during the first year (Table 4) indicate that there is a significant relationship between gross domestic product and employment in the economy, imports and exports of products, tax breaks (positive and high correlation) and subsidies (medium and negative correlation). With the growth of gross domestic product, employment in the economy, imports and exports of products and tax breaks increase, while subsidies decrease. There is a significant relationship (positive) between employment in the economy, imports and exports of products, tax breaks and subsidies (medium and negative). As employment in the economy increases, imports and exports of products and tax breaks increase (high correlation), while subsidies decrease (negative). There is a significant relationship between exports of products with tax breaks (high and positive) and subsidies (high and negative). As exports of goods increase, tax breaks increase, while subsidies decrease. It can be seen that there is a significant relationship between tax breaks and subsidies, with subsidies decreasing as tax breaks increase. It can be seen that there is a significant relationship between subsidies and the influence of the banking sector (the relationship is positive and medium), with the influence of the banking sector (especially interest) increasing with the increase in subsidies.

The results of the comparative analysis in the second year (Table 5) show that with the growth of gross domestic product, employment in the economy, imports of goods, and tax breaks increase, while exports of goods, and subsidies decrease. As employment in the economy increases, imports increase, while exports, subsidies, and the influence of the banking sector decrease. With an increase in product imports, tax breaks increase, while exports, subsidies, and the influence of the banking sector decrease. It is also seen that there is a significant relationship between the export of products with subsidies and the influence of the banking sector. It is emphasized that there is a significant relationship between tax breaks and subsidies (the relationship is negative and small, where subsidies decrease with an increase in tax breaks).

The results of the comparative analysis of macroeconomic indicators in the third year (Table 6) show that there is a significant relationship between gross domestic product and employment, imports and exports of products, tax breaks, subsidies, and the influence of the banking sector. With an increase in gross domestic product, employment in the economy, imports of products, and tax breaks increase, while exports of products, subsidies, and the influence of the banking sector decrease. With an increase in employment in the economy, imports and tax breaks increase, while subsidies and the

influence of the banking sector decrease, and there is a significant relationship between imports of products and exports of products, tax breaks, subsidies and the influence of the banking sector. With an increase in imports of products, tax breaks increase, while exports, subsidies and the influence of the banking sector decrease. Furthermore, it can be seen that the relationship is positive and large for subsidies and the influence of the banking sector, where with an increase in exports, subsidies and the influence of the banking sector increase.

By reviewing the comparison in all three years individually, it can be seen that there is a strong relationship between each individually analyzed macroeconomic factor in the operations of medium-sized industrial and medium-sized agribusiness enterprises for all three years of observation, i.e. H_2 can be safely rejected because it can be seen that there is a strong relationship between each individually analyzed macroeconomic factor in the operations of medium-sized industrial and medium-sized agribusiness enterprises in all years of research.

The obtained results of the study coincide in the domain of focusing on two groups of extremely important companies, that is, they coincide with works such as (Kumar et al., 2024; Yex & Liou, 2024; Solarin et al., 2025) in which they emphasized the importance of the existence of the specificity of heterogeneous companies that strive for development within the industrial national complex. Similar views exist in works such as (Bardazzi et al., 2024; Boussetta et al., 2025) where identical views are clearly seen but within the focus on companies that are predominantly from agribusiness. Thus, the basic determination of the authors of this study coincides with the framework for defining the forms of legal entities in the already cited literature, emphasizing that the study is nevertheless specific because the analysis was carried out for the most important macroeconomic factors for the operations of the economy of Republic of Serbia.

A graphical visualization of the results obtained is made in the display in Figure 1-3 in order to see the overall trend of the evaluation of all seven analyzed factors, which essentially provide an overview of the comparison of medium-sized industrial enterprises with medium-sized agribusiness enterprises in the economy. The author emphasizes that this study can be expanded to include more macroeconomic factors in the following years or observation periods, thus fulfilling expectations, and that similar research can be applied to a number of other middle-income countries.

Conclusions

The study shows that macroeconomic factors in the leading economy of the so-called Western Balkans (conceptually created as a “neologism” in the 1990s, as a feature of the former Yugoslavia (except Slovenia) and Albania, which did not want to be identified with the negative image of the “Balkans”) are of exceptional importance, which is followed by research on the two most commonly used forms of business, namely medium-sized industrial and medium-sized agribusiness enterprises in the Republic of Serbia. The first conclusion would be that in the aforementioned observation period

(2023 to 2025), based on the evaluation of the top management of medium-sized industrial and medium-sized agribusiness enterprises, there is a strong deviation based on all analyzed macroeconomic factors, which means that the first hypothesis can be safely rejected. However, it should be noted that the study showed that top management of industrial companies has more confidence in the application of macroeconomic factors: gross domestic product, employment, imports, tax policy, or overall, observed through the total score of all analyzed macroeconomic factors, while top management of agribusiness companies has more confidence in the application of macroeconomic factors: exports, subsidies and the influence of banking on making valid management decisions. Another conclusion would be that through the application of Pearson's correlation analysis, it was shown that there is a strong connection between all analyzed macroeconomic factors in relation to the aforementioned two forms of companies based on the evaluation of top managers who manage them, which allows hypothesis 2 to be safely rejected. Namely, the results obtained confirmed the existence of these differences based on all analyzed macroeconomic factors and the existence of a specific connection for all macroeconomic factors for the mentioned period that exists in the evaluation of top management between medium-sized industrial and medium-sized agribusiness companies. Everything stated is also reinforced within the framework of a graphic display, i.e. a visualization of a comparative review of the evaluation of all seven macroeconomic factors that can influence the business management of the analyzed medium-sized enterprises in the economy of the Republic of Serbia, with the focus of the study being on business decision-making of medium-sized industrial and medium-sized enterprises operating in the field of agribusiness.

Conflict of Interests

The authors declare no conflicts of interest.

References

1. Adenauer, L., Breen, J., Witzke, P., Kesting, M., Hayden, A., & Donnellan, T. (2022). The potential impacts of an EU-wide agricultural mitigation target on the Irish agriculture sector. *Climate Policy*, 23(4), 495–508. <https://doi.org/10.1080/14693062.2022.2105791>
2. Al-mulali, U., Fereidouni, H. G., Bin Mohammed, M. A. H., & Lee, J. Y. M. (2016). Agriculture investment, output growth, and CO₂ emissions relationship. *Energy Sources, Part B: Economics, Planning, and Policy*, 11(7), 665–671. <https://doi.org/10.1080/15567249.2013.805856>
3. Bakmaz, O., Anđelić, S., Dragosavac, M., Grublješić, Ž., Nastić S., Popović, D., Tubić M. & Popović S. (2024). The importance of determining the efficiency of business of agricultural farms in relation to the use of credits in agriculture, the example of the Republic of Serbia, *Agricultural Engineering*, 49(1), 10-16. <https://scindeks.ceon.rs/article.aspx?artid=0554-55872401010B&lang=en>

4. Bakmaz, O., Vukčević, V., Laković, D., Arnautović, I., Nastić, S., Krstajić, G., Popović, S. (2025). Modern Management of Medium-sized Agricultural Enterprises and Reporting in English on Recent Change. *J Agron Technol Eng Manag* 8(1), 1429-1436. <https://www.fimek.edu.rs/jatem.html>
5. Bakmaz, O., Eremić-Đodić, J. Dragosavac, M. Sredojević, D. Dejanović, A. Arnautović, I. Krstajić, G. & Popović, S. (2025-a). Financial Management of Small and Medium-sized Farms using State Subsidies, it System of Records for Genetic Resources: Example of Republic of Serbia. *J Agron Technol Eng Manag*, 8(2), 1562-1572. [https://www.fimek.edu.rs/downloads/casopisi/jatem/issue/v8_2/11_\(11\)JATEM_1562_1572_PEMC9801.pdf](https://www.fimek.edu.rs/downloads/casopisi/jatem/issue/v8_2/11_(11)JATEM_1562_1572_PEMC9801.pdf)
6. Barbero, J., Christou, T., Crucitti, F., Rodríguez, A. G., Lazarou, N. J., Monfort, P., & Salotti, S. (2024). A spatial macroeconomic analysis of the equity-efficiency trade-off of the European cohesion policy. *Spatial Economic Analysis*, 19(3), 394–410. <https://doi.org/10.1080/17421772.2024.2306948>
7. Bardazzi, E., Standardi, G., Bosello, F., & Key Hernández, R. E. (2024). Toward the full implementation of the water-energy-food nexus in computable general equilibrium modelling: methods and macroeconomic implications. *Economic Systems Research*, 36(3), 422–450. <https://doi.org/10.1080/09535314.2024.2349881>
8. Bernard Azolibe, C. (2021). What accelerates industry value added in middle-income countries: is there a differential impact in low-income countries? *Transnational Corporations Review*, 14(2), 153–168. <https://doi.org/10.1080/19186444.2021.1930458>
9. Berxolli, A., Potryvaieva, N., Dovgal, O., Kuzoma, V., & Pavliuk, S. (2023). Innovation in Ukrainian agriculture to mitigate the impact of invasion. *International Journal of Environmental Studies*, 80(2), 307–313. <https://doi.org/10.1080/00207233.2022.2160080>
10. Bojaj, M. M., & Aharon, D. Y. (2024). The impact of ESG clean energy policies on key macroeconomic factors. *Applied Economics Letters*, 1–11. <https://doi.org/10.1080/13504851.2024.2333993>
11. Bortz, P. G., & Toftum, N. (2023). Changes in rainfall, agricultural exports and reserves: macroeconomic impacts of climate change in Argentina. *Journal of Environmental Economics and Policy*, 13(2), 243–258. <https://doi.org/10.1080/21606544.2023.2236987>
12. Boussetta, S., Dragotă, V., & Iordache, A. (2025). Military Conflicts and Stock Markets: The Effect of the Russia–Ukraine Conflict on the European Stock Market. *Eastern European Economics*, 1–43. <https://doi.org/10.1080/00128775.2025.2463436>
13. Cai, H., Ahmed, S., Jiang, Y., & Liu, X. (2020). The impact of US macroeconomic news announcements on Chinese commodity futures. *Quantitative Finance*, 20(12), 1927–1966. <https://doi.org/10.1080/14697688.2020.1814006>
14. Cheong, C., & Hoang, H. V. (2021). Macroeconomic factors or firm-specific factors? An examination of the impact on corporate profitability before, during and after the global financial crisis. *Cogent Economics & Finance*, 9(1). <https://doi.org/10.1080/23322039.2021.1959703>

15. Colović, M., Đuranović-Miličić, J., Gligović, D., Arnautović, I., Nastić, S. & Popović, S. (2024). Joint investments of the real economy and healthcare institutions in the Republic of Serbia, *Ekonomija Teorija i praksa*, 17(3) 97-108, <https://www.fimek.edu.rs/downloads/casopisi/ekonomija/arhiva/2024-ekonomija-br-3.pdf>
16. Deb, P. (2025). From feed to fish: The impact of input factor and uncertainty shocks in Bangladesh aquaculture market. *Aquaculture Economics & Management*, 1–22. <https://doi.org/10.1080/13657305.2025.2494588>
17. Diop, S., Asongu, S. A., & Tchamyou, V. S. (2024). Mitigating the macroeconomic impact of severe natural disasters in Africa: policy synergies. *Journal of Contemporary African Studies*, 42(1), 59–72. <https://doi.org/10.1080/02589001.2024.2317366>
18. Epshtein, D., Curtiss, J., Gagalyuk, T., & Gailhard, I. U. (2018). The Factors of Resilience of Agricultural Enterprises against External Shocks: (The Case of Russia's northwest). *Problems of Economic Transition*, 60(12), 883–906. <https://doi.org/10.1080/10611991.2018.1672476>
19. Gignarta, T. S., Borojo, D. G., & Guan, Z. (2024). The impacts of economic policy uncertainties on agriculture export. *Cogent Economics & Finance*, 12(1). <https://doi.org/10.1080/23322039.2024.2382359>
20. Hussein Mohamud, M., Abdirahman, F. S., & Gul, A. (2025). Analyzing the impact of macroeconomic variables on deforestation in Somalia: evidence from an ARDL model. *Cogent Economics & Finance*, 13(1). <https://doi.org/10.1080/23322039.2025.2496672>
21. Irani, F., Athari, S. A., & Hadood, A. Al. Al. (2021). The Impacts of Country Risk, Global Economic Policy Uncertainty, and Macroeconomic Factors on the Turkish Tourism Industry. *International Journal of Hospitality & Tourism Administration*, 23(6), 1242–1265. <https://doi.org/10.1080/15256480.2021.1935393>
22. Issah, M., & Antwi, S. (2017). Role of macroeconomic variables on firms' performance: Evidence from the UK. *Cogent Economics & Finance*, 5(1). <https://doi.org/10.1080/23322039.2017.1405581>
23. Katz, R., & Jung, J. (2024). Economic spillovers from cloud computing: evidence from OECD countries. *Information Technology for Development*, 30(1), 173–194. <https://doi.org/10.1080/02681102.2023.2292108>
24. Kirui, O. K., Kornher, L., & Bekchanov, M. (2023). Productivity growth and the role of mechanisation in African agriculture. *Agrekon*, 62(1), 80–97. <https://doi.org/10.1080/03031853.2023.2176894>
25. Kotcharin, S., & Jantadej, K. (2024). Behavior of small and medium shipping enterprises' working capital management: moderating role of firm-specific characteristics in times of crises and geopolitical risk. *Cogent Business & Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2396544>
26. Kumar, G., Engle, C., Aarattuthodi, S., van Senten, J., Hegde, S., Khoo, L. Dorman, L. (2024). Economic impact of Edwardsielliosis on the U.S. catfish industry. *Aquaculture Economics & Management*, 28(3), 415–438. <https://doi.org/10.1080/13657305.2024.2319083>

27. Liu, M., Sun, M., Zhang, X., Ge, M., & Hu, J. (2025). Real-time shop floor operations improvement based on dynamic value stream mapping and hybrid simulation in Industry 4.0: an economic perspective. *International Journal of Production Research*, 1–25. <https://doi.org/10.1080/00207543.2025.2487921>
28. Ljumovic, I., Kovacevic, V., & Jankovic, I. (2023). Understanding Financial Inclusion of Individuals Engaged in Agriculture: Evidence from Upper-Middle-Income Balkan Economies. *Eastern European Economics*, 62(6), 762–779. <https://doi.org/10.1080/00128775.2023.2279228>
29. Lutovac Đaković, M. (2024). New industrial policy of Serbia: possibilities and limitations, *Economics of Enterprise, Serbian Association of Economists Journal of Business Economics and Management*, 182-192. <https://scindeks-clanci.ceon.rs/data/pdf/0353-443X/2024/0353-443X2403182L.pdf>
30. Lutovac, J., Tomaš-Miskin, S. & Popović, S. (2025). Obtaining loans for energy efficiency depending on the influence of analyzed factors on the decision-making of citizens and small businesses in the Republic of Serbia, *International Review* 173-181. <https://www.international-review.com/index.php/ir/issue/view/32/16>
31. Makoye, M., Mlinga, R. S., & Ndanshau, M. O. A. (2022). Impact of macroeconomic factors on performance of construction industry in Tanzania. *International Journal of Construction Management*, 23(15), 2625–2636. <https://doi.org/10.1080/15623599.2022.2084259>
32. Makoye, M. (2024). Assessment of the influence of macroeconomic factors on participation of indigenous firms in Tanzania construction industry. *International Journal of Construction Management*, 1–11. <https://doi.org/10.1080/15623599.2024.2437178>
33. Mkhabela, T., Ntombela, S., & Mazibuko, N. (2022). An economy-wide impact assessment of agriculture land reform in South Africa. *Cogent Social Sciences*, 8(1). <https://doi.org/10.1080/23311886.2022.2137314>
34. Mohamed, A. A., Abdulle, A. Y., & Omar, M. M. (2024). The role of macroeconomic factors in shaping employment trends in Somalia. *Cogent Economics & Finance*, 12(1). <https://doi.org/10.1080/23322039.2024.2416989>
35. Mwinuka, L., & Mwangoka, V. C. (2023). Manufacturing sector's growth in Tanzania: Empirical lessons from macroeconomic factors, 1970–2021. *Cogent Economics & Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2223419>
36. Popović, S., Bakmaz, O., Popović, D., Dragosavac, M., Nastić, S., Pajović, I., Majstorović, A., Sredojević, D., Radaković, M. Petković, Z. (2025). Valuation of agricultural land in relation to location of city centers as a factor in the management of mentioned resource, *Agriculture & Forestry*, 71(1), 99-113, <https://doi.org/10.17707/AgricForest.71.1.08>
37. Popvić, S., Arnautović, I. & Krstajić, G. (2025). Realistic financial reporting and management of primary health care in Serbia, *Trendovi u poslovanju*, 25(1), 107-116. <https://www.trendovi.vspep.edu.rs/index.php/tp/issue/view/40/5>

38. Rahman, Md. H., Voumik, L. C., Nafi, S. Md., & Zimon, G. (2023). Effects of tourism and other macroeconomic variables on women's employment in agricultural, industry and service sectors: evidence from African countries. *Current Issues in Tourism*, 27(14), 2287–2307. <https://doi.org/10.1080/13683500.2023.2227767>
39. Sadiq, M., Ou, J. P., Duong, K. D., Van, L., Ngo, T. Q., & Bui, T. X. (2022). The influence of economic factors on the sustainable energy consumption: evidence from China. *Economic Research-Ekonomska Istraživanja*, 36(1), 1751–1773. <https://doi.org/10.1080/1331677X.2022.2093244>
40. Savić, Lj. & Lutovac, M. (2019). Industrial policy and state incentives in Serbia. *Ekonomika preduzeća*, (3-4), 261-272. DOI: 10.5937/EKOPRE1904261S.
41. Shahzad, L., Waheed, A., Sharif, F., Ghafoor, G. Z., & Rafique, A. (2024). Understanding role of climatic parameters and adaptation strategies in agriculture productivity of South Asian countries. *Sustainable Environment*, 10(1). <https://doi.org/10.1080/27658511.2024.2345453>
42. Solarin, S. A., Alhassan, A., Lasisi, T. T., & Bekun, F. V. (2025). The economic impact of educational tourism development: the role of educational tourism receipts. *Current Issues in Tourism*, 1–20. <https://doi.org/10.1080/13683500.2025.2482896>
43. Sreenu, N., Rao, K. S. S., & D, K. (2021). The macroeconomic variables impact on commodity futures volatility: A study on Indian markets. *Cogent Business & Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1939929>
44. Thuy Tien, H. (2022). Oil price shocks and Vietnam's macroeconomic fundamentals: quantile-on-quantile approach. *Cogent Economics & Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2095767>
45. Trakem, V., Fan, H., & Sam, D. (2024). The influence of agricultural trade liberalization on agricultural total factor productivity growth: Empirical evidence from ASEAN countries. *The Journal of International Trade & Economic Development*, 1–39. <https://doi.org/10.1080/09638199.2024.2443395>
46. Ulrich, J., Kavuma, S., Asimwe, W., & Yave, B. (2024). What Would Happen to Poverty in Africa if Most Aid Were Delivered as Social Cash Transfers? A Case Study of Uganda. *Forum for Development Studies*, 52(1), 107–134. <https://doi.org/10.1080/08039410.2024.2328031>
47. Vychytilová, J., Pavelková, D., Pham, H., & Urbánek, T. (2019). Macroeconomic factors explaining stock volatility: multi-country empirical evidence from the auto industry. *Economic Research-Ekonomska Istraživanja*, 32(1), 3333–3347. <https://doi.org/10.1080/1331677X.2019.1661003>
48. Wang, X., Zhang, Y., & Chen, N. (2021). Modern service industry agglomeration and its influencing factors: spatial interaction in Chinese cities. *Economic Research-Ekonomska Istraživanja*, 35(1), 3880–3899. <https://doi.org/10.1080/1331677X.2021.2006733>

49. Wu, J. S. (2025). Assessing the impact of macroeconomic factors on the efficiency of Taiwan's real estate firms using stochastic frontier analysis. *Journal of Asian Architecture and Building Engineering*, 1–13. <https://doi.org/10.1080/13467581.2025.2498726>
50. Yeh, C. H., & Liou, J. L. (2024). The economic analysis of impact and policy response of COVID-19 on tourism industry in Taiwan. *Current Issues in Tourism*, 28(8), 1342–1360. <https://doi.org/10.1080/13683500.2024.2333912>
51. Yitayaw, M. (2021). Firm-specific, industry-specific and macroeconomic determinants of commercial banks' lending in Ethiopia: Panel data approach. *Cogent Economics & Finance*, 9(1). <https://doi.org/10.1080/23322039.2021.1952718>
52. Zhou, X., Liu, B., & Ma, X. (2024). The nexus between firm-specific agriculture research and development and agriculture total factor productivity: new evidence from China. *Applied Economics Letters*, 1–8. <https://doi.org/10.1080/13504851.2024.2332563>
53. Zou, X., & Hu, J. (2024). The dynamic connectedness between macroeconomic uncertainty and commodity volatility: evidence from China. *Applied Economics*, 57(2), 169–190. <https://doi.org/10.1080/00036846.2024.2303406>