COMPARATIVE FINANCIAL ANALYSIS OF AGRICULTURE AND INDUSTRY IN MONTENEGRO

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ABSTRACT

Along with tourism, agriculture and industry are the most important sectors of the Montenegrin economy. The paper gives a financial analysis of these two sectors compared against the average for the Montenegrin economy. The analysis is based on the submitted final accounts for the period 2005 - 2019. The financial analysis in the paper showed that the growth of assets in agriculture was faster than the national average in the observed period, while in the case of industry it was slower. It also showed that agriculture has satisfactory solvency, while that in industry is a matter of concern, and although the debt level of the former is lower than that of the latter, the trend of debt growth is concerning. As for liquidity, it remains unsatisfactory in both sectors, but it is somewhat more favourable in industry.

Keywords: Agriculture, Industry, Montenegro, Financial Analysis.

JEL: 013, 014, and G39.

Introductory remarks and methods

Montenegro is a small and highly open economy that is predominantly service-oriented. Its economic development over the past three decades has been very turbulent, facing numerous negative shocks such as transition, UN economic sanctions, hyperinflation, the global financial crisis, and the latest coronavirus pandemic.

These shocks have shown that too much focus on the service sector, especially tourism, is wrong, with this being even more so obvious during the global financial crisis and the coronavirus pandemic. The service sector was one of the most affected sectors during both crises and Montenegro faced a significant decline in economic activity, much higher than that experienced by countries with similar levels of development. One of the reasons for such a severe decline is the significant neglect of agriculture and industry as two sectors that played a much bigger role in the past than the one they have today.

Montenegro has exceptional natural conditions for the development of agriculture because 22.5 percent of its territory is farmland and 60 percent of the territory is

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covered in forests (Monstat, 2020). Also, Montenegro has a long history of industrial development as the leading branch in the period between World War II and the beginning of the transition process.

The neglect of these two sectors resulted in the obsolescence of their production capacities as well as unfavourable financial indicators that limit their further development. Therefore, this paper aims to provide a comparative financial analysis of these two sectors in order to give a realistic assessment of the state of affairs and the actions that need to be taken for their revival.

The aim of this study is to carry out a comparative financial analysis of industry and agriculture. The aim is to determine the profitability, liquidity, indebtedness, and solvency of agriculture and industry and, based on these indicators, formulate recommendations for improving the current situation. The analysis of financial and other business indicators is based on the final accounts (income statements and balance sheets), which all legal entities are obliged to submit at the end of the year. The Central Bank of Montenegro has entered all balances into the electronic database and the author has calculated the required indicators for the two observed sectors on the basis of the created software. The balance sheets of all legal entities with agriculture and industry listed as their primary activity are aggregated from the database. The time series covers the period from 2005, when the final accounts became available, until 2019 as the last available year. The number of submitted final accounts varied from year to year, which was expected given the establishment of new and closure of existing companies, with 27,482 final accounts being submitted and processed for the last analysed year.

According to the best knowledge of the author, research of this type is unique in the world because due to the huge volume of work in other countries, income statements and balance sheets are not aggregated, which unfortunately leaves economic policymakers without a large number of very useful indicators. This is precisely the first contribution of this study. The second contribution is reflected in the fact that so far no research study has dealt with the comparative analysis of financial indicators of agriculture and industry in Montenegro, and the third contribution is that recommendations for macroeconomic policymakers have been formulated on the basis of the obtained financial indicators.

The paper consists of five parts. After introductory remarks, a brief overview is given of the development of Montenegro’s agriculture and industry as of the end of the Second World War to date. The third part gives a comparative financial analysis of agriculture and industry. In the fourth part, recommendations are given to the creators of macroeconomic policy to improve the situation and the paper ends with concluding remarks.

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2 Therefore, the paper does not start from the approach often used in the literature to formulate research hypotheses that are subject to testing.
Social and economic development of industry and agriculture

Montenegro has natural conditions for agricultural development and a long tradition in agricultural production. In addition to its basic function, the importance of agriculture is manifold. It is the backbone of the development of food industry and tourism. It is an important factor in a balanced regional development, i.e. preventing migration from the north of the country. It provides a basic or additional source of income for a significant part of the population and thus contributes to alleviating social tensions (Central Bank of Montenegro, 2020).

After World War II, Montenegro was a backward agrarian area, with a traditional organisation of economic life and over 80 percent of the population living from agriculture, while only fifteen percent engaged in crafts, trade and other activities. In the post-war period, Montenegro has undergone several major structural changes. It started the process of accelerated industrialisation immediately after the war as this was a general trend in countries of the Western Europe and because it was considered at the time that industrialisation leads to a faster exit from poverty (Temin, 2002). The industry was constantly increasing its share in GDP creation, from 25.6 percent in 1952 to 38.5 percent in 1986, only to welcome the beginning of the transition in 1989 with a share of 45.3 percent (Žugić, 2012). Also, the development of the industry was uneven as it was in line with the socialist concept that was looking to bring to the forefront heavy large industry as the key driver of economic development so most investments and the fastest development was achieved in the metal industry and energy. During the pre-transition period, energy increased its share in GDP by more than four times, while that of the metal industry rose by more than 17 times. The following graph shows the pace of development of industry in Montenegro in the post-war period. Compared to the level shortly after the Second World War, the level of industrial production increased as much as 147 times.

**Figure 1.** Industrial production index in Montenegro (1955=100)

![Graph showing industrial production index in Montenegro](http://ea.bg.ac.rs)
During this period, agriculture was continuously discouraged for ideological reasons and a policy of low prices of agricultural products was pursued in order to provide cheap food for industrial workers, with this resulting in the transfer of accumulation from agriculture to industry. Thus, after World War II, agriculture created 40 percent of Montenegro’s GDP, yet the country welcomed the transition process with this share standing at a mere 6.1 percent of GDP. This model of development also initiated the migration the population from the rural to urban areas, which led to both absolute and relative reduction in agricultural population that has shrunk from over 80 percent after the war to just 2.5 percent, as per the latest census (Monstat, 2012).

The main changes in the structure of population in Montenegro in the period after the Second World War went in the direction of reduction of agricultural population in favour of industrial population until the mid-1990s, and then on from industry to the service sector (Fabris, 2021). Certainly, the main reasons for migration should be sought in the pushing of industrialisation, forced relocation of a part of the rural population to other parts of Yugoslavia (Vojvodina), inadequate infrastructure, lack of investment, and poorer quality of life in the countryside.

According to the World Bank study (2021) important challenges for Montenegrin agriculture are: country’s low adoption of modern technology, small and fragmented farms, underdeveloped processing, low application of food safety standards, and high dependence on food imports.

These trends, namely the growth rates of industry, agriculture, and the average GDP growth rate in the SFRY in the period after the Second World War until the beginning of the transition process are shown in table below. It is obvious that the industry in Montenegro developed faster than average, while the discouraged branch of agriculture lagged significantly behind. The country’s industrial production, amounting to around 5% in 1947, grew to over one third of overall economic output by the 1970s and the number of industrial workers exceeded agricultural employment significantly (ERIH, 2023). The table also indicates that structural changes in Montenegro were much more intense than those experienced throughout Yugoslavia.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Industry</th>
<th>Agriculture</th>
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<tbody>
<tr>
<td>SFRY</td>
<td>5.5</td>
<td>7.9</td>
<td>2.7</td>
</tr>
<tr>
<td>Montenegro</td>
<td>5.3</td>
<td>11.1</td>
<td>1.4</td>
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Source: Author’s calculations

The 1990s were an extremely difficult period for industry, so the share of industry fell to 12 percent of GDP in 2000. This was a big drop from 45.3 percent in 1989 and probably

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3 For more details on the reasons for migration see the “National Strategy for Sustainable Development until 2030”, the paper “KolonizacijaCrnogoraca u Vojvodinu 1945-1946” and the book “Makroekonomski model razvoja Crne Gore”.

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http://ea.bg.ac.rs
the biggest structural change in the creation of Montenegro’s GDP. The industry welcomed the 21st century with worn-out and obsolete equipment, redundancies, low-quality products, and inefficient production. This is also the reason why a large number of industrial companies went bankrupt and foreign investors showed interest only in the energy and metal industries.

During the last decade of the 20th century and the first decade of this century, structural changes continued but it seems that the most significant structural changes took place in the three-year period of economic boom (2005–2008) when the average growth rate of Montenegro’s GDP was 8 percent (Fabris & Jandrić, 2011). In this period, the service sector experienced a rapid growth, while industry and agriculture were completely neglected. Industry recorded negative growth and agriculture saw only a modest growth that lagged significantly behind the average rate of the country’s economic growth.

**Figure 2.** Rates of growth of selected sectors of Montenegro’s economy over the period 2005–2019

![Bar chart showing rates of growth of selected sectors of Montenegro's economy](chart.png)


Therefore, it is not surprising that industry continued to reduce its share in GDP creation, with smaller annual oscillations, dropping to as low as 5.6 percent in 2009. During the second decade of this century, it slightly recovered and reached 8 percent in 2019.

As a result of decline of a large number of industrial enterprises during the 1990s and the realisation of how important the food security is (both for domestic consumption and as an input for tourism), the share of agricultural production rose to 11.3 percent of GDP in 2000. However, with the further lagging of the north of the country and large population migrations to more developed parts of Montenegro, the share of agriculture

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4 Agriculture, forestry and fishing observed together.
had been declining gradually and fell to 6.4 percent in 2019, which was just above the 1989 level. Over the past decade, the share of agriculture has continued to decline as it has failed to attract any significant level of foreign direct investments, production has not been modernized, there have been no land consolidations, and modern agrotechnical measure have not been sufficiently applied.

One of the structural characteristics of Montenegro is higher share of agriculture in gross domestic product than of the food-processing industry, that indicates a low level of finalization of agricultural products (Martinovic, et. al, 2020). This also indicates the existence of significant room for further connecting of industry and agriculture and increasing the volume of production. The Russian-Ukrainian conflict has additionally highlighted the importance of food security, and as pointed in World Bank study (2023), there are growing risks in food supply and risks posed by trade policies of big countries.

**Results of Financial analysis of agriculture and industry**

The first indicator that we analyse is the movement of agricultural and industrial assets. Assets of both industry and agriculture rose during the observed period, as indicated in the graph below. However, agricultural assets were drastically lower than those of industry.

![Figure 3. Agriculture and industry assets (000 EUR)](image)

Assets of Montenegrin agriculture was on an uptrend and declines were seen in 2014, 2015, and 2017. They rose from 46 to 226 million euros, which is a very dynamic growth and an indicator of promising prospects of this sector. Industry assets increased by over 60 percent, being on the rise in the period from 2005 to 2011, then declining for the next three years, with the growth cycle picking up pace afterwards. However, unlike agriculture, which in the observed period increased its share in total assets of the
Montenegrin economy from 0.8 to 1.1 percent, industry reduced its share from 41.2 to 17.6 percent. Although industry is a capital-intensive activity, it is particularly interesting that with a share of 1.1 percent in total Montenegrin assets, agriculture generated 6.4 percent of GDP in 2019, while industry with its share of 17.6 percent generated only 8 percent of GDP, which points to the inefficient deployment of assets in industry.

When it comes to profitability analysis, we can conclude that agriculture kept recording positive net profit rates over the entire observed period. However, considering the committed funds, it is safe to say that they were still low. The cumulative profit of agriculture amounted to 39.2 million euros or an average of 2.6 million euros per year. Compared to the economy’s average, the net profit rate was lower only in the last observed year. Industry was achieving positive net profit rate since 2013 and its average exceeded that of the Montenegrin economy, being similar to the rate of profit of agriculture. If we look at the entire period, then we can see that industry ran a cumulative loss of 588 million euros.

**Figure 4.** Net profit of Montenegro’s economy, agriculture and industry over the period 2005–2019 (in EUR)

![Net profit graph](image)

*Source: Author’s calculations*

Liquidity movement over this period is also of great importance. The quick ratio is determined by offsetting current liabilities with cash and cash equivalents and current receivables. This indicator of current liquidity shows the ability to repay it short-term liabilities (Matz, 2005).
The graph above clearly shows that liquidity of agriculture was unsatisfactory and it was only better than the average for the Montenegrin economy in the period 2007-2008, being continuously worse than industry as of 2009. When it comes to industry, we can conclude that liquidity was also unsatisfactory albeit some improvement in the last five years but still it was worse than the economy’s average in most of the observed years.

The asset turnover ratio shows the relation between income and asset, i.e. the amount of income per euro of deployed assets. There is no general recommendation in the literature on the desirable value of this coefficient so this value should be sought by comparing the sector value and that of the closest competitor (Spasić, 2012). Theoretically, the higher the value of this indicator, the better the performance.
The values of the observed ratio, both for the entire economy and for agriculture, cannot be considered satisfactory because they indicate a low income capacity compared to total deployed assets. The situation in agriculture can be estimated as rather unfavourable given that we witnessed a continued downtrend of this ratio as of 2014. As for industry, the situation is even more unfavourable because the ratio was worse than the average of the Montenegrin economy throughout the observed period, being more favourable in relation to agriculture only during the period 2006-2009. However, this is partly the expected given that the value of this ratio is lower in capital-intensive activities such as industry that have a high level of fixed assets. Apart from some minor fluctuations, the value of this ratio was relatively stable for industry in the entire observed period.

Net working capital shows the coverage of current assets by long-term sources. There is no universal value of this indicator in the literature that would be considered acceptable, but it is emphasized that it depends on the activity, procurement policy, production and sales, growth and development of the company, etc. (Jakšić, 2006). Some authors recommend that this amount should be kept to a minimum, but to the extent that it does not jeopardize profitability and operating activities (Pupos, Peter & Demeter, 2009). Nevertheless, there is a consensus in the literature that a positive value of this indicator is desirable in order to be able to finance operating activities and cover short-term liabilities (Swarup, 2011).

**Figure 7.** Net working capital of Montenegro’s economy, agriculture and industry

![Net working capital of Montenegro’s economy, agriculture and industry](image)

*Source: Author’s calculations*

Net working capital of Montenegro’s agriculture were positive over the entire observed period, albeit at a relatively low level. A good indicator is that they have a tendency to grow slightly. When it comes to industry, the value of this ratio had been negative until 2013 (with the exception of 2007), being continuously higher compared to that of agriculture thereafter.
Considering the inadequate profitability of both agriculture and industry, we debate the issue of indebtedness of these two sectors. As an indicator of indebtedness, we use the debt ratio, which is the ratio of capital to total liabilities (capital and reserves / (short + long-term liabilities)). As indicated in Investopedia (2012), this ratio is used for assessing a company’s risk profile. A debt ratio less than 1.0 indicates that a company’s liabilities exceed its capital.

**Figure 8.** Debt ratio for Montenegro’s economy, agriculture and industry

The graph above shows that Montenegro’s agriculture is not highly indebted unlike the country’s economy (which debt level exceeded capital and reserves in the observed period, with the exception of 2005 and 2006). However, the fact that this indicator tended to deteriorate in the last ten years is the reason for some concern. When it comes to industry, the level of indebtedness maintained acceptable levels since 2013 but industry remained more indebted than agriculture over the entire period.

The indicator showing the ratio of capital (reserves included) to fixed assets can be used to approximate solvency. Solvency indicators are important as they show financial security of a company, i.e. they reflect long-term risks of investing in the company (Jakšić, 2006). However, unlike banking where the value of the solvency ratio (capital adequacy ratio) is strictly regulated and is subject to the strictest controls (Kozarić & Fabris, 2012), there is no strict control for the non-financial sectors and solvency management is left to the companies. The value of this indicator of 1 suggests that fixed assets are fully covered by capital and this is usually considered as the minimum acceptable value. If it is below 1, a part of fixed assets is covered from funds of lower quality and shorter maturity. The following graph shows the movement of the solvency ratio for the Montenegrin economy, industry and agriculture.
Figure 9. Solvency ratios of Montenegro’s economy, agriculture and industry

In the case of agriculture we can see that the solvency ratio was greater than 1 in all the observed years and fixed assets were covered by capital increased by reserves. On the other hand, the value of this coefficient was less than 1 for the economy of Montenegro the entire time. When it comes to industry, apart from the first three years, this indicator was lower than 1 over the remainder of the period, which indicates inadequate solvency and high risks that exist in this sector.

**Recommendation to economic policy makers**

It is obvious that Montenegro must not leave agriculture to the operation of the free market alone, but a comprehensive program of support and development is necessary that should be based on improving the competitiveness of producers, sustainable management of resources, and raising the quality of life in the rural areas.

The financial analysis showed that agriculture has a low level of profitability, but that it is in the “positive result” zone. The ratio analysis showed that the key problem of Montenegrin agriculture is liquidity, while agriculture is not highly indebted and has no problem with solvency. Therefore, the priority task for improving the situation in the field of agricultural production should be the provision of liquidity loans. In the situation of insufficient interest of the banking sector in supporting agriculture, the alternative is for the state to encourage agriculture to a greater extent through the Development and Investment Fund or to directly subsidize banking loans for agriculture.

In order to raise the quality of life in the countryside and stop migration, certain measures need to be taken that will involve the provision of direct financial support to elderly households that base their existence on agriculture, the improvement of quality of infrastructure (roads, water supply, electricity) as well as the quality of life in villages (construction of sports and cultural facilities, health centers, and the like).
The state must continue to support agricultural production in the coming period, following the example of the most developed countries in the world, because otherwise, if a smaller amount of subsidies is approved than in competing countries, agricultural producers will be at disadvantage compared to the main competitors. Although support from the agricultural budget has been increasing, the allocated amounts are insufficient. Funds are used to fuel too many programs. As Dethier and Effenberger (2016) showed, increasing the size of farms is the key to increasing agricultural income, as it enables the use of mechanization, facilitates access to credit lines, and enables economies of scale and higher profitability per hectare. Budget support should concentrate on those programs in which Montenegro could achieve comparative advantages.

When it comes to industry, the financial analysis showed an unsatisfactory level of its liquidity and solvency as well as a high level of indebtedness. The industry was profitable only in the last six years of the observed period, and this was primarily under the influence of energy sector. It is obvious that Montenegro, as a small country, cannot develop all branches of industry, but must concentrate on those branches in which it can achieve comparative advantages and these are energy, food processing industry, and some types of mining.

Going forward, the priority actions must address the issue of financial situation, both with the aim to improve liquidity and to expand the scope of activities. Most industrial companies require debt restructuring and/or favourable loans. This will not be an easy task at all, bearing in mind that the banking system is not interested in over-indebted companies burdened with mortgages. The solution can be sought in international loans. However, these loans carry a potential risk given that they would require government guarantees, which could further burden the growing public debt. Therefore, the main course of action should be the search for strategic partners with new capital.

The help of the state in achieving international quality standards is also important, which would enable higher output and improve profitability. It would be very useful to form clusters, both horizontal and vertical, and the latter in particular as they would connect primary food producers and their processors. Similar potential exists in the wood industry and in some other industries, while a significant potential exists in the construction of new capacities in the field of renewable energy sources.

Conclusions

The sector that generates the largest share of GDP in Montenegro is the service sector, primarily tourism and related services, followed by agriculture and industry. Montenegro had a specific model of development after World War II. In accordance with the socialist concept of development, industry development was encouraged, while agriculture was discouraged and left without any investments only to be treated as a base for providing cheap food for the working class. The 1990s brought wars, economic sanctions, and dissolution of the former Yugoslavia. Against such backdrop, both agriculture and industry deteriorated, with industry deterioration being particularly
rapid as it lost the market and did not have funds to invest in modernisation and/or production maintenance. Development of these two sectors did not pick up pace with the transition. On the contrary, this led to a lack of investment in these two sectors and a large number of industrial companies that went bankrupt, leading to agriculture and industry accounting for 6.4 percent and 8 percent of Montenegro’s GDP in 2019, respectively. The neglect of these two sectors is probably one of the main culprits for the slower development of the country’s economy.

The paper presented the financial analysis of these two sectors based on the database of final accounts. The financial indicators of all industrial and agricultural enterprises, as well as the entire Montenegrin economy were aggregated for the period 2005-2019 (the period for which final accounts are available). The obtained financial indicators can be a useful indicator for economic policy makers regarding future directions for improvement of these two sectors.

The financial analysis showed that both observed sectors were characterized by the growth of assets in the observed period, yet the growth of agricultural assets was faster than that of the country’s economy, while industry reduced its share. The analysis further showed that agriculture was profitable throughout the observed period, albeit with a low net profit rate, while industry did not become profitable before 2013. Over the last examined six years, the rate of net profit of both these sectors was higher than the average of the Montenegro’s economy. The level of liquidity was unsatisfactory in both observed sectors, but the liquidity of industry has been better than the average of the country’s economy in recent years. The asset turnover ratio was not satisfactory for either agriculture or industry and it has been less favourable in both observed sectors than the average for the economy in recent years. Net working capital of Montenegro’s agriculture was positive over the entire observed period, while that of industry turned to positive value in 2013, recording higher levels than agriculture ever since. The level of indebtedness of agriculture is lower than that of industry, but its rapid growth is a matter of concern. Since 2012, both agriculture and industry had more favourable indebtedness indicators compared to the average for the country’s economy. The level of solvency in agriculture is at an acceptable level, while that in industry is at a worrying level and it indicates that a part of the fixed assets is not covered by capital but by funds of lower quality (shorter maturity).

Further research in this area should involve the inclusion of additional sectors in the comparative analysis, such as tourism, as well as the expanding of the time horizon of analysis once new indicators have become available.

**Conflict of interests**

The authors declare no conflict of interest.
References


