

DUALISTIC IMPACT OF MACROECONOMIC DETERMINANTS ON SUSTAINABLE ECONOMIC DEVELOPMENT



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Abstract. The paper deals with the dualism of macroeconomic factors and how they can affect the economy depending on the relevant circumstances. The authors of the research structured and grouped macroeconomic factors into four groups: *income, assets, opportunities and expectations*. The group of expectations is unique in that it not only combines groups of *income, assets and opportunities*, but also enables to predict further individual decisions that influence on the mentioned groups of macroeconomic factors. The authors point out this as the scientific novelty of their research. The research conducted by the authors of the paper shows that macroeconomic factors - international trade, the fourth industrial revolution and energy resources - affect the national economy in a dualistic way.

Keywords: *dualism in economy, macroeconomic factors, sustainable economic development.*

Introduction

Economic growth is one of the most important goals and objectives in each country seeking to improve the standard of living of the population, as well as to ensure economic prosperity throughout the country. The leaders of many countries seek to ensure the fastest possible economic growth and eliminate the problems that hinder economic progress. Sustainable economic development is important because it contributes to the general prosperity of the society, allows people to earn more, consumer more goods and services and live a better life. Various factors, such

as economic development, public culture or even the individual's family status, education and health condition affect the well-being of the society to ensure the best possible conditions for human life [1]. The most pronounced and major macroeconomic problems affecting not only people but the whole economy are unemployment and inflation. People quickly feel a rise in prices, a decline in wages or even jobs. These macroeconomic factors may cause other problems such as emigration, poverty, etc. Macroeconomic factors can have a dual impact depending on certain circumstances. Therefore, it is important to explore how the dualism of macroeconomic factors affects the sustainable economic development, which can help the economy not only to avoid its recession, but also to turn the potential shortfall into an advantage

Theoretical Background. Macroeconomic Factors and Development.

Various factors, influencing on the sustainable economic development, can be presented as systematized single sectors and analyzed from a macroeconomic perspective. Every country seeks to estimate its economic situation, its positive sides and prevailing global problems. The economic factors that have arisen are felt in every person's life. Factors are necessary to analyze because the results help:

1. Analyze various laws and correlations between the processes and phenomena taking place in the economy, allowing to discover the influence of the regularity on the economy and its development;
2. Understand the relationship that allows assessing the current situation in the economy, as well as understanding the macroeconomic dependence;
3. Make various forecasts that can help predict future prospects or avoid certain economic difficulties [2].

Macroeconomic factors are fundamental determinants of long-term productivity and growth promotion [3]. All macroeconomic factors affecting the economy can be systematized and grouped into several groups (see Figure 1). Thus, sustainable economic development is driven by income, assets, opportunities, expectations.

The state is economically stronger, when has more *assets* besides the best economic indicators [4]. When assessing the assets and how they reflect the economic state of country, it is important to point out, how the assets are distributed among the households, considering savings, available assets or inheritance [5]. All assets are measured in monetary terms, so the size of income is important as well, because the higher income is earned, the more assets people can acquire, which results better economic improvement in the state.

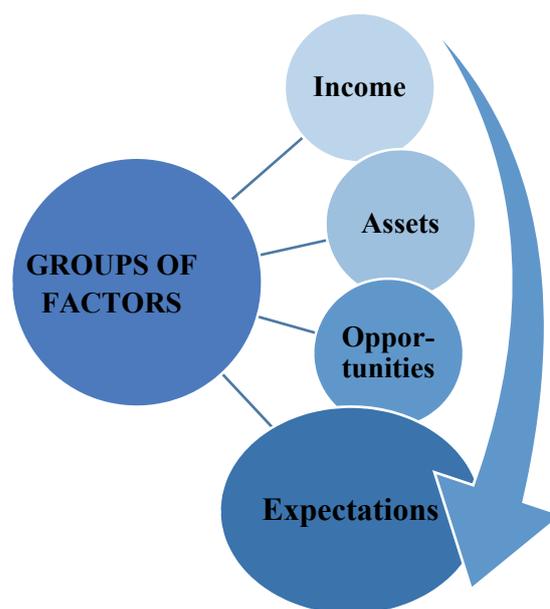


Figure 1. Groups of Macroeconomic Factors Affecting the Sustainable Economic Development

Opportunities are a macroeconomic factor that the individual does not control. If a person can deliberately choose what income to earn by choosing the appropriate job, or how much and what kind of property to acquire, this is contrary with opportunities. An individual cannot control his birth, place, nationality, gender, family, and so on. These factors may determine his future and quality of life, which will accordingly contribute to the economic situation in the country [6]. People's different intellect shows different possibilities. Not everyone can be a scientist, astronaut, IT professional or other professional with high intelligence needs. This inequality of opportunities contributes to the

various macroeconomic indicators that shape the economic situation in a country.

Research conducted by the authors shows that *expectations* unite all the mentioned macroeconomic groups and influence on them. The magnitude and weight of expectations are the causes of the following human actions, which in some way affect the macroeconomic indicators and influence on the sustainable economic development. As the world develops faster and faster, expectations are increasingly leading to the sustainable economic development. Expectations are based on many people decisions that more or less influence on the economy (see Figure 2).

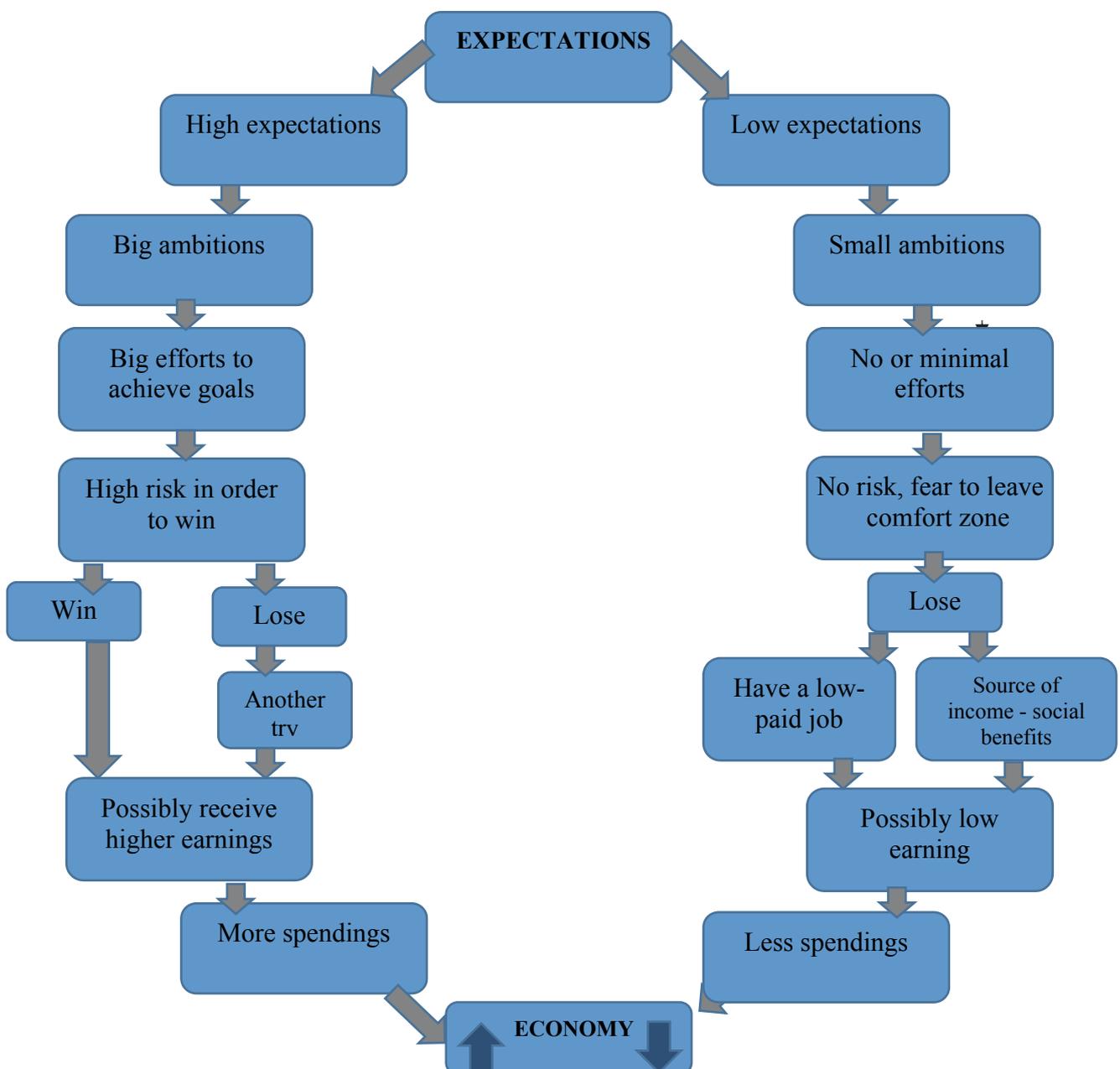


Figure 2. Impact of Human, Expectations on Economy

Based on their desires, beliefs or flair, people take certain actions that always affect their personal finances. Part of the population are struggling to acquire good education, with the expectation that it will allow to get well-paid job, to generate higher income, which promotes sustainable economic development in the country. However, there is another part of people whose expectations are not high and one of the main goals of this group is simply to survive. Often such people do not contribute to the welfare of the economy, but also inhibit it from their poor education, unemployment, possible crimes or the requirement to receive various social support from the state budget. The groups of macroeconomic factors - income, assets, opportunities and expectations - can be divided into such macroeconomic factors as unemployment, inflation poverty, the shadow labor market, emigration, financial development of the country, which directly influence on the economy.

Research on macroeconomic factors helps to foresee potential threats and find appropriate solutions to accelerate sustainable economic development in the country. The analyzed factors have a significant impact on sustainable economic development. The most important factor group is *expectations*. This group is important for the national economy as it not only combines other macroeconomic groups of income, assets, opportunities, but also enables to forecast further individual decisions that affect these groups of macroeconomic factors.

Research and Discussion. Dualism in Economy.

Analyzing the impact of macroeconomic factors on the economy and sustainable economic development, it is important to note that their expression can be dualistic. The phenomenon of dualism in economy is usually encountered in the analysis of international trade, the fourth industrial revolution and the use of energy resources.

International trade.

The international relations make an important part in the national economic structure. For this reason, international trade – export and import, also contributes to the sustainable economic development in the country. The countries are trading because they are benefiting from the comparative advantage [7]. Nowadays, any single country can produce all the goods needed to meet the various needs of the population, so international trade is a way for every country to have everything, both first necessity and second necessity. In this way, each country produces and exports or imports the goods or services that benefit to the national economy.

A country, seeking for the economic growth, tries to increase exports. The regional development and growth export base method (EBM) is based on the basic idea that the economy should primarily boost the flow of money to the region by increasing exports of goods and services. The growth in export volumes has a positive effect on GDP growth, payments and trade balance, and also has an impact on the value of the national currency, allowing for higher income. Other economic factors that generate the corresponding economic result depend on the increase/decrease of exports (see Figure 3).

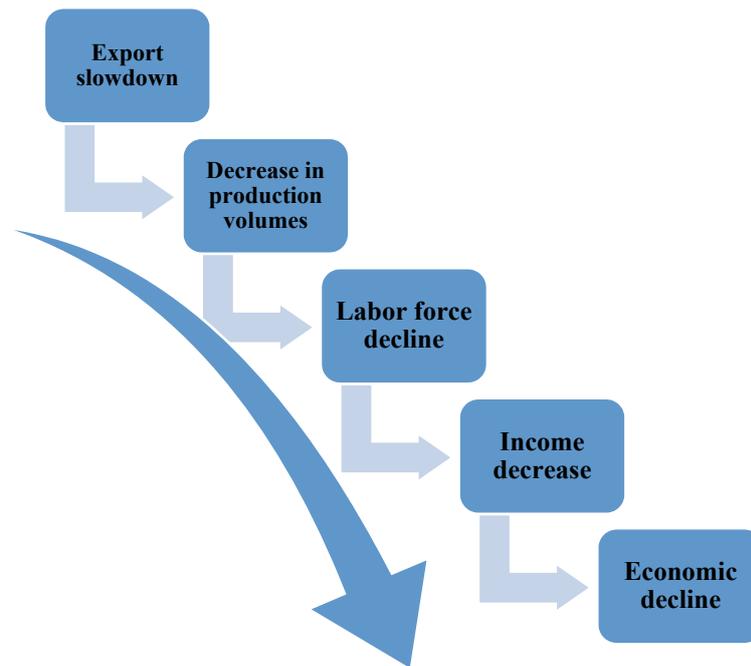


Figure 3. Impact of Export Decrease on Economy

On the other hand, an increase in exports can have a negative impact on the economy. At the end of the XIX century, when refrigerators spread around the world, Argentina became a supplier of frozen meat to the world market. In this way Argentina outperformed the US, which stopped supplying meat in the international market. It can be said that Argentina has won: its exports have increased, and at the same time, the country's revenue has increased, but the benefits of trade have not spread evenly. The rise in the price of exported beef in Argentina caused damage to the local population. Finally, the international price has fallen due to the fall in prices of cattle in Europe and the USA. This example demonstrates that a sharp increase in exports can turn into a global economic problem and slow down its growth.

The Fourth Industrial Revolution.

One of the most topical issues in today's world is the Fourth Industrial Revolution (*Industry 4.0*), its impact on the world, people and economy. We, the people who are watching and excited about the technologies, inventions, and scientific advances surrounding us, are wondering what the price is of it.

The Fourth Industrial Revolution has made invaluable advancement in science, which helps in medicine, business, manufacturing, industry or daily life. In major companies around the world robots play a huge role:

they work faster, and sometimes more productive than people. Created artificial intelligences are able to make appropriate decisions and tasks. The Fourth Industrial Revolution has a major impact on productivity, which is one of the factors contributing to long-term growth and living standards. Developed innovative products and services are more functional and qualitative, and companies use competitive markets through digital platforms, resulting in extremely low costs, leading to lower prices and lower inflation. Another factor contributing to sustainable economic development is *Industry 4.0*. It enhances the ability of the public to respond to negative externalities, thereby stimulating sustainable economic development. Rapid technological advances in renewable energy, fuel efficiency not only increase returns on investment, but also contribute to GDP growth, as well as help reduce climate change. And this is one of the most important challenges in the world today.

Robots in the production need to be perceived not only as a technical device, but as an artificial intelligence, intelligent work organization systems, that produce the products as well as calculate the costs, and design the plants. The following *contradictory* effects of the application of technology on employment can be distinguished as follows: it is a demolition effect as well as a capitalization effect [8] (see Figure 4).

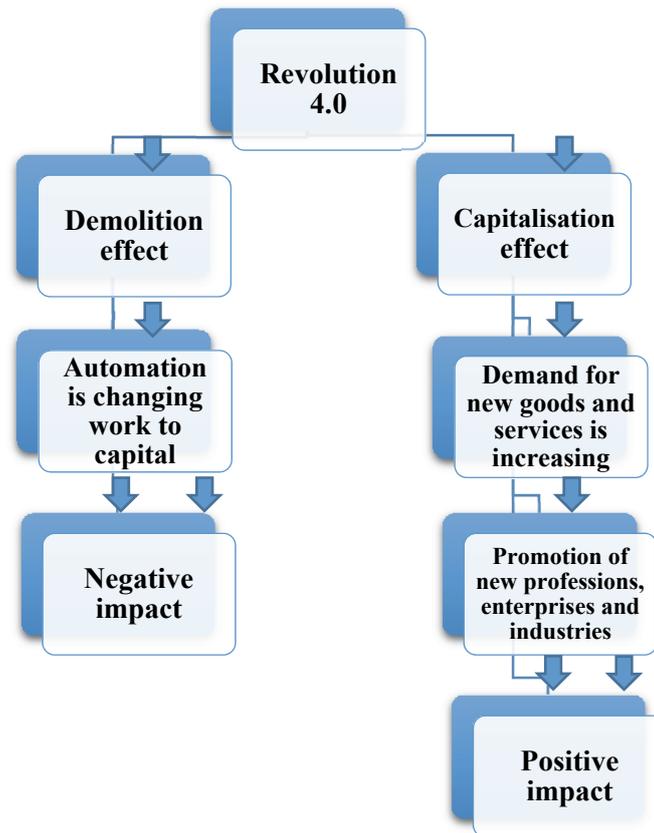


Figure 4. Positive and negative effects of the Fourth Industrial Revolution on Economy

As can be seen in Figure 4, work is at greatest risk. Some scientists say that robots will replace working people. Already now

There is no common opinion about the impact of the Fourth Industrial Revolution on sustainable economic development. The revolution is only gaining momentum, so its potential impact can only be predicted. The supporters of digital technology hope that this industrial revolution will have a more positive impact than negative and will boost sustainable economic development worldwide. The European Parliament Research Service predicts that as many as 390,000 new jobs will be created in Germany alone [9]. There are four key areas for which all technological advances will have the greatest impact: productivity, revenue growth, employment and investment.

Energy resources.

Modern production is not conceivable without energy use. Without it, the development of the whole world would stop and technology would become worthless, so energy resources are very important all over the world. As energy resources are limited enough, the impact of their changing price on the economy is widely considered in literature

many works are done not by people, but by artificial intelligence. Industry is becoming digital, connected to the whole

and society. Economists distinguish two major branches for which the rise in oil prices is having a negative impact: production and economy.

The classic supply effect, which states that rising energy prices are associated with a declining ability to source the raw material needed for production, reduces potential GDP. As energy is the main raw material for production, the rise in energy prices also increases production costs, which leads to a reduction in production in the company. This factor reduces productivity and real wages and increases unemployment, leading to a decline in GDP (see Figure 5).

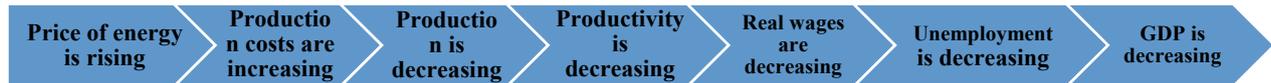


Figure 5. Impact of Price of Energy Increase on GDP

Consumer income is falling because consumers are forced to pay more for imported oil, while passing on a larger portion of their income to a foreign country, thus retaining a smaller share in their country[10]. The rise in oil prices reduces the purchasing power of oil-importing countries, which reduces prosperity and consumption.

Declining consumption has a direct impact on aggregate demand, and at the same time slows down GDP growth, which most accurately reflects the economic situation in the country. Therefore, it is important to study macroeconomic factors because some of them have dualistic effects on sustainable economic development.

Conclusion

The authors of the article analyzed the dualism of macroeconomic factors and how they can influence on the economy depending on the circumstances. The authors of the study structured and grouped macroeconomic factors into four groups: income, assets, opportunities and expectations. The group of expectations is unique in that it not only combines groups of income, assets and opportunities, but also enables to predict further individual decisions that influence on these groups of macroeconomic factors.

Most often, the phenomenon of dualism is encountered in the economy by examining international trade, the Fourth Industrial Revolution and the use of energy resources.

The analysis of international trade has shown that the growth of export volumes is one of the most effective ways positively affecting GDP growth, payments and trade balance. The growth of the exported goods and services in the country has a positive impact on the national value of the currency, allowing for higher income for the population. The decline in exports has a direct impact on the decline in production volumes, shrinking labor force, which has a negative impact on the size of incomes and sustainable economic development.

The Fourth Industrial Revolution significantly increases productivity and encourages national economy to grow. Innovative technologies are more functional, quality and allow businesses to cut costs. But robotics and automation are transforming capital, the workforce is replaced by robots, which poses a real threat to employment, people's income and livelihood.

Energy resources have a strong impact on the economic performance of each country due to their limited availability. The rise in raw material prices has a direct impact on production and its volume. As production decreases, productivity, wages, and the number of workers are falling, and the result of it is a decreasing GDP indicator.

References

1. Lisauskaitė, V. (2010). Lietuvos gyventojų pajamų ir vartojimo diferenciacija. *Verslas: teorija ir praktika*, 11(3). [žiūrėta 2019-04-29] Prieiga per internetą: https://www.researchgate.net/publication/270981106_Lietuvos_gyventoju_pajamu_ir_vartojimo_diferenciacija
2. Mokhova, N., Zinecker, M. (2014). Macroeconomic factors and corporate capital structure. *Procedia-Social and Behavioral Sciences*, 110(2014), 530-540. [žiūrėta 2019-04-02]. <https://doi.org/10.1016/j.sbspro.2013.12.897>
3. Danilevičienė, I. (2018). Ekonominės plėtros vertinimas Lietuvos pavyzdžiu. *Socialinis ugdymas*, 50(3), 56-66. [žiūrėta 2019-04-29]. <http://dx.doi.org/10.15823/su.2018.19>
4. Inequality.org (2018). Global inequality. [žiūrėta 2019-04-03]. Prieiga per internetą: <https://inequality.org/facts/global-inequality/>

5. International Monetary Fund (2014). Fiscal Policy and Income Inequality. Washington, D.C.: IMF policy paper. [žiūrėta 2019-04-03]. Prieiga per internetą: <http://www.imf.org/external/np/pp/eng/2014/012314.pdf>
6. Rakauskienė, O. G., Puškorius, S., Diržytė, A., Servetkienė, V., Krinickienė, E., Bartuševičienė, I., Volodzkienė, L., & Juršėnienė, V. (2017). *Socialinė ekonominė nelygybė Lietuvoje: mokslo studija*. Vilnius: Mykolo Romerio universitetas. [žiūrėta 2019-04-03]. Prieiga per internetą: https://wdn.ipublishcentral.com/association_lithuania_serials/viewinsidehtml/187557118388059
7. Snieška, V., Ambrasienė I., Bernatonytė D., Dapkus M., Juozapavičienė A., Markauskienė A., Navickas, V., Pukelienė, V., Slavinskienė, A., Startienė G., Urbonas J. (2010). *Mikroekonomika*. Kaunas: KTU leidykla „Technologija“
8. Brettel, M., Friederichsen, N., Keller, M. and Rosenberg M. (2017). How Virtualization, Decentralization and Network Building Change the Manufacturing Landscape: An Industry 4.0 Perspective. *International Journal of Information and Communication Engineering*, 8(1), 37–44. [žiūrėta 2019-04-02] Prieiga per internetą [How-Virtualization-Decentralization-and-NetworkBuilding-Change-the-Manufacturing-Landscape--An-Industry-40-Perspective.pdf](#)
9. Davies, R. (2015). Industry 4.0 Digitalisation for productivity and growth: Briefing. *European Parliamentary Research Service*. [žiūrėta 2019-04-02] Prieiga per internetą [EPRS_BRI\(2015\)568337_EN.pdf](#)
10. Hamilton, J.D. (2011), Oil Prices, Exhaustible Resources, and Economic Growth. *Handbook on Energy and Climate Change*. 2013, 29-63. doi: 10.3386/w17759