

PRODUCTIVITY DYNAMICS AND THE PRODUCTIVITY TRAP: PROBLEMS AND SOLUTIONS IN LATVIA

Sandra Jekabsons, University of Latvia

Irina Skribane, University of Latvia

Abstract. By analysing changes in productivity and labour costs in Latvia from 2013 till 2017, we can see that growth of labour costs exceeds the growth of productivity by more than 2 times in both, tradable sector and total economy. Slow growth in productivity compared with the labour and other production expenses lead to an increase in the price of final goods and services, which negatively corresponds with producers' competitiveness in both internal and external market. Furthermore, this leads to a drop-in consumption of domestic production and inefficient production facility usage, resulting in declining economic growth rates. The rapid growth in labour costs is mainly associated with the tight situation in the labour market. Even though the unemployment rate is still quite high, especially in the region of Latgale, the absence of working hands is perceptible more and more around Latvia, which also maintains the pressure on the salaries. The upward trend for salaries is also influenced by the convergence process, which is inescapable in EU opened labour markets. Comparatively, high labour emigration reflects Latvia's weak competitiveness in those markets, especially due to the low wage, which in turn is related to the low productivity of internal producers. Therefore, increasing the productivity level and slowing down the gap of productivity with highly developed countries is the most important precondition for Latvia's competitiveness to strengthen and economy to grow. The **goal** of the research is to appreciate the dynamics of labour productivity and the level of productivity between Latvia and EU average, as well as, to find the main factors which influence the productivity convergence rates to drop, making productivity trap. The research tasks, to determine possible solutions for labour productivity increases, are to detect the factors which have influenced the labour productivity in last 10 years in Latvia, to compare the productivity in Latvia with EU, as well as, to detect the factors which influenced the productivity convergence rates to decrease.

In the analysis, there are used different high quality and quantity research methods, for example, analysis of scientific literature, calculation of average and relative sizes, grouping, comparison, decomposition etc.

The results of research conclude, that in the last years productivity growth rates in Latvia before the crisis (2000-2007) were one of the sharpest in EU, which contributed with convergence process, decreasing gap with EU average by 2 pp. annually. However, in after crisis period (from 2011) growth rates of productivity have significantly dropped and the convergence process became more moderate - only 0.8 percent points at average a year, which shows that Latvia is close to or already is into productivity trap. To avoid the trap, it is important to detect separate industry problems (the study of barriers at individual company and sector level) and to promote the structural changes in the national economy (moving towards high technology industries).

Key words: *productivity trap, labour cost, economic growth, structural changes*

JEL code: E61, O11, O47

1. Introduction

Latvia's economic growth in 2017 and 2018, compared to the previous two years, has accelerated. In 2017, GDP grew by 4.6%, while in 2018 it increased by 4.7% (CSB database, 2019). Productivity growth rates in Latvia are also among the highest in the EU. Since 2011, they have grown by 14.7% (by 4% in EU-28). Dynamics more rapid than in the EU on average have contributed to the reduction of lagging behind of the productivity level of Latvia. However, in comparison with several developed countries of the EU, the productivity gap is comparatively large. In 2017, the productivity level in Latvia was only 46.8% (68% according to PPS) of the EU average, and this is one of the lowest indicators in the EU.

In the long-term view, the productivity dynamics become more moderate. Before the crisis (1996-2007), productivity of Latvia increased by 6.2% per year on average and was an important economic growth driver. The integration of the country in the EU Single Market had a positive impact on the productivity dynamics strengthening economic growth and accelerating the convergence process. However, since 2008 productivity has been growing slower – by 2% per year on average under the influence of cyclical and structural factors.

Although Latvia is in one of the leading positions by productivity growth rates among the EU Member States, yet wages have been growing faster than productivity, reducing the competitiveness of domestic enterprises and increasing the risk of them falling into a low-productivity trap.

The research question is to identify what are the main factors that affect the productivity dynamics in Latvia, as well as to assess how productivity trap can be avoided to strengthen Latvia's convergence with the EU developed countries.

The goal of the research is to appreciate the dynamics of labour productivity and the level of productivity between Latvia and EU average, as well as, to find the main factors which influence the productivity convergence rates to drop, making productivity trap. The research tasks, to determine possible solutions for labour productivity increases, are to detect the factors which have influenced the labour productivity in last 10 years in Latvia, to compare the productivity in Latvia with EU, as well as, to detect the factors which influenced the productivity convergence rates to decrease.

In the research to be used different research methods: literature review on the economic growth and productivity, empirical analysis of data, calculation of average and relative sizes, grouping, comparison, decomposition, shift share analysis etc.

The novelty of the article is to identify the importance of structural factors and their impact on the dynamics of productivity in Latvia.

The main research sources include the information available in the databases of the CSB and Eurostat, as well as the studies and publications on the productivity by World Bank, IMF, OECD, European Commission, the Ministries of Economics Republic of Latvia and Bank of Latvia.

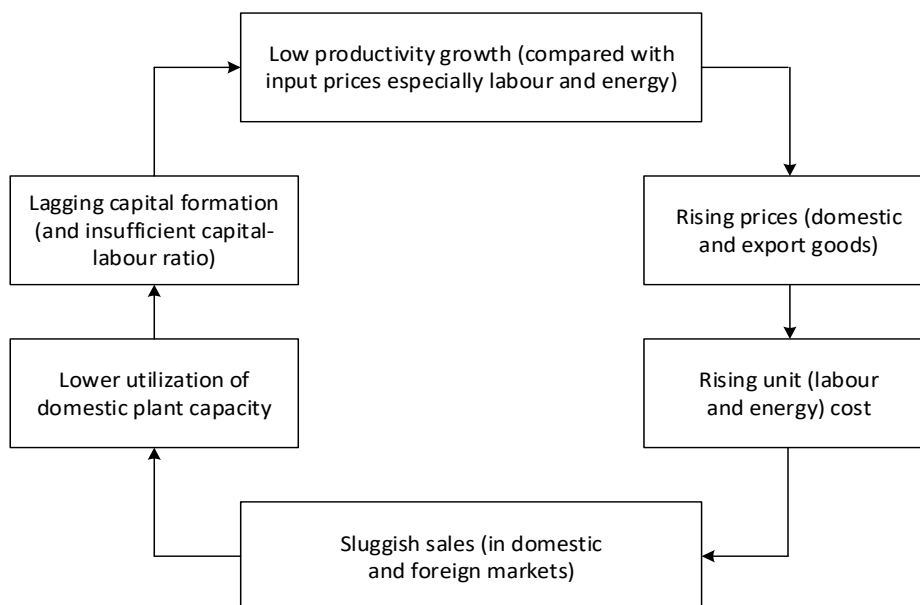
Resulting from the research problematic questions are: 1) how to detect of productivity growth barriers at individual company and sector level and 2) how the government to provide to ensure the reallocation of the its resources to the most productive firms and sectors, i.e. to promote structural reforms for “technological upgrading”.

2. Economic trap concept and types

The theory of economics is widely discussed about various traps, the reasons for their formation, and the possible way out of them. The World Bank, IMF, and other researchers' publications analyze and investigate the poverty trap (for example, Sachs, 2006, Barrett and Carter, 2019), the middle-income trap (for example, Eichengreen et al., 2011 and 2013, Doner and Schneider, 2016), the development trap (for example, Berthelemy, 2006, Ranganathan et al., 2015), the institutional trap (for example, Gradstein, 2008) and other traps.

What do economists understand with a trap? It should be noted that the term “trap”, which is so widely used, has no one-to-one definition. Each "trap" is given its own explanation in a relatively narrow sense. For example, in Investopedia mentions that the poverty trap is a mechanism, which makes it very difficult for people to escape poverty and it’s created when an economic system requires a significant amount of various forms of capital in order to earn enough to escape poverty (Investopedia, 2018). In turn in Handbook of Economic Growth is define, that a poverty trap is a self-reinforcing mechanism which causes poverty to persist (Azariadis and Stachurski, 2005). Summarizing the definitions and explanations of the different types of traps, it can be concluded that the status of an economic system is considered to be a “trap” when no progress has been made in a particular economy for a long time. Therefore, the economic system has formed self-reinforcing mechanism, which maintains the current state. Sometimes such a situation in the economy tends to be called a bad equilibrium. This means that traditional market forces, as well as existing state intervention tools, are weak and ineffective in bringing about a radical change in the current situation.

The concept of low productivity trap is related to the regularity of the relative dynamics of prices of productivity and production factors and their impact on the competitiveness of the company (industry). According to the low productivity trap model (Scott, 1985) a faster increase in resource prices compared to productivity has a negative impact on the overall competitiveness of businesses, industry and the country's economy in the internal and external markets. If the rise in resource prices (such as the increase in labor costs) is offset by higher prices, the producer may lose demand and market share. Low demand will be reflected in lower capacity utilization rates as well as lower investment volumes. Conversely, if higher costs are not compensated for by price increases, then profits will be reduced by limiting the company's investment potential (see Fig. 1).



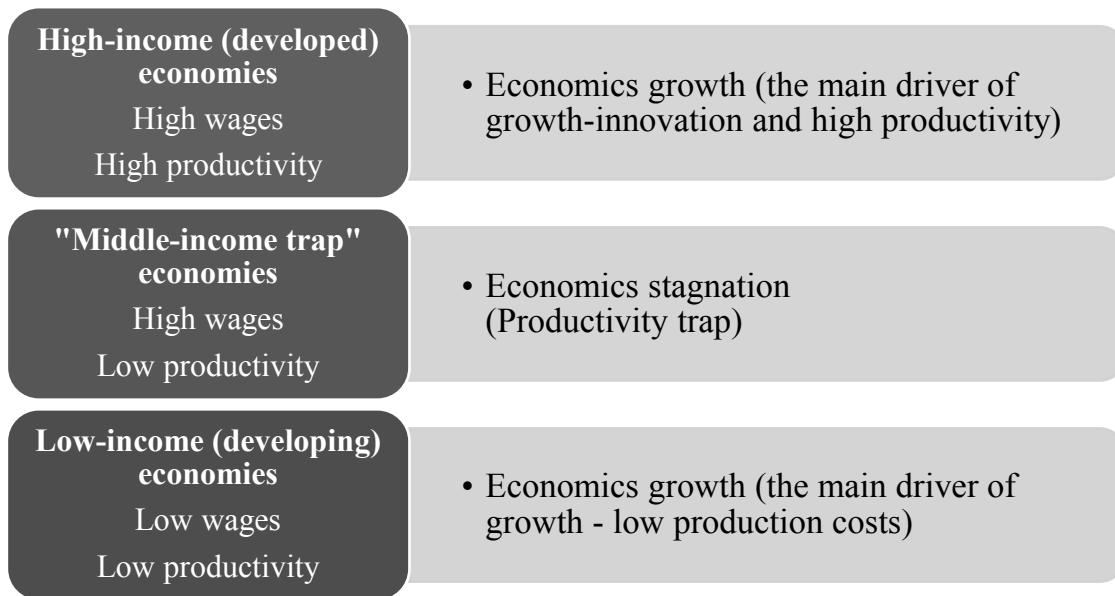
Source: Scott, 1985

Fig. 1. Model for a low productivity trap

So, the direct consequences of higher production costs are the reduction of production volumes or the maintenance of the stability of production costs by reducing real wages. Of course, the downward pressure on cost competitiveness can also be offset by the devaluation of the national currency, however, for the single currency area countries (including Latvia) there are no such options. Therefore, the only way to overcome this trap is to increase productivity.

The authors believe that when analyzing various economic traps, one has to look at them complex, because there is a close relationship between them. The low productivity trap has a significant impact on the formation of the middle-income trap.

According to the generally accepted concepts (Im, 2013), the main reason for the middle-income trap is the loss of existing competitive advantages and the weak ability to create new benefits that allow for the transition to a higher, higher income level. (see Fig. 2).

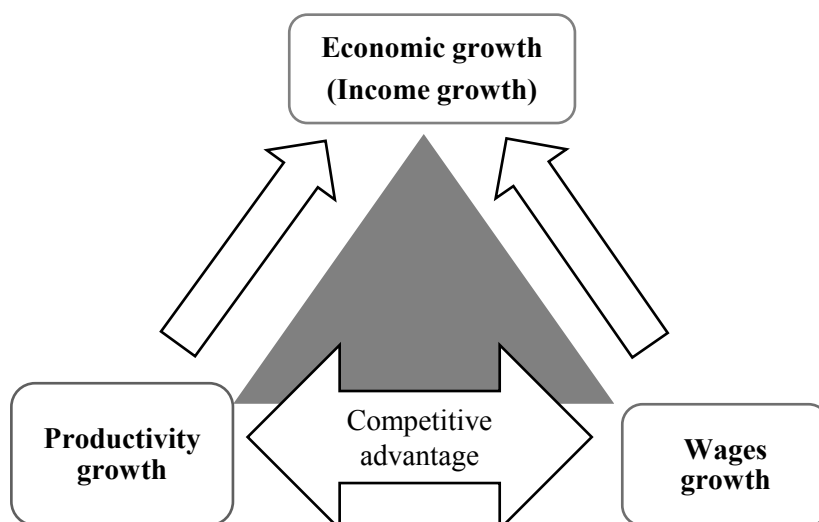


Source: author's construction

Fig 2. Middle-income and Productivity traps

"Middle-income trap" arise when countries lose the low-cost (cheap labor) benefits inherent in low-income economies, but their innovative potential is weak to generate high value-added goods and provide productivity-based growth that is characteristic of high-income economies. Due to wage increases, countries are entering a 'middle income trap' and are unable to compete with developed countries (high productivity and innovation economies) or low-income countries (low-wage economies and cheap industrial goods).

Thus, it can be concluded that there is a close relationship between productivity and wage dynamics, competitiveness, economic growth and the well-being of citizens (see Fig. 3).



Source: author's construction.

Fig. 3. Interaction of Wages, Productivity and Income (Growth Triangle)

Cost competitiveness is important in the short term - wage growth must be balanced with productivity growth, otherwise competitiveness in the tradable sectors is lost, which ultimately does not lead to a steady increase in total income (wealth).

In the medium and long term, the key to competitiveness is productivity. Only by increasing productivity can wages and income be maintained while maintaining competitiveness in internal and external markets (Jekabsone et al., 2017).

Opportunities to increase productivity are affected by overcoming technological lag, modernization of production and investment, investment in human capital, research and innovation, etc. supply side factors. Promoting the structural transformation of the economy also plays an important role. It is impossible to attain high rates of growth of per capita or per worker product without substantial shifts in the shares of various sectors (Kutznets, 1979). By allocating resources to the production of higher value-added products at the enterprise level and by reorienting the economic structure towards high added-value sectors, there will be higher-level productivity, increase of welfare level and economy will overcome the productivity traps.

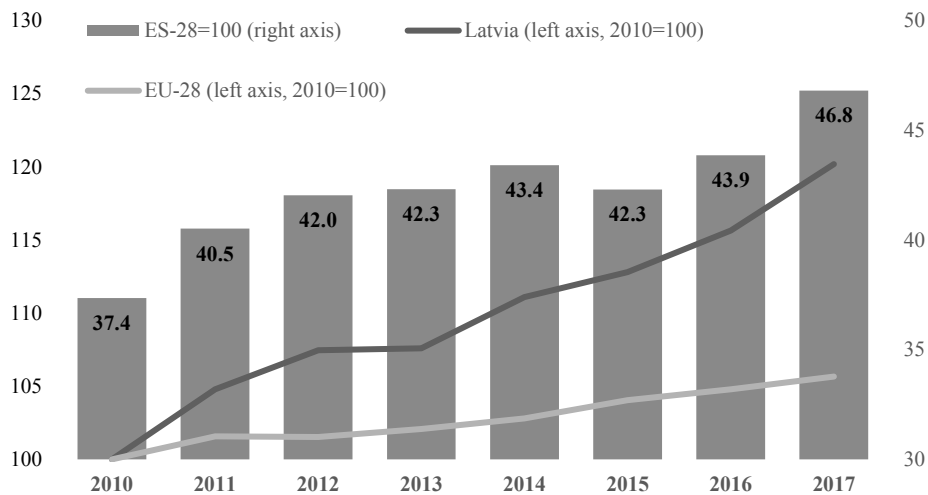
Recently, there have been many studies focusing on the slowdown in economic growth and the trap of productivity (for example, Bahar, 2018, Syverson, 2016). It can be defined as situation, when enterprise or state reaches certain productivity level and after that its growth slows down essentially, staying in a relatively low level for long time (Jekabsone and Skribane, 2018). Analyzing the reasons for the slowdown in productivity the McKinsey Global Institute researchers as the result of microanalysis identified six reasons that affected the slowdown in productivity dynamics (Manyika et al., 2017):

- The weak dynamics of value added after the global financial crisis;
- changes in the structure of the workforce (for low productivity sectors);
- lack of productivity-accelerating sectors (insufficient number of industries and sectors that could serve as productivity accelerators);
- poor dynamics of capital-intensity;
- uneven digitization of sectors (sectors). In addition, sectors with a lower degree of digitization have a greater share in GDP (value added);
- the gap between enterprise productivity levels is increasing.

According to the authors, Latvia is characterized by the weak dynamics of value added after the global financial crisis, the lack of productivity-driven sectors and the weak dynamics of capital-intensity, which is largely related to the existing economic structure. There is also a significant difference in the productivity levels of individual companies (large companies are significantly more productive than small ones, and companies with foreign capital are more productive than local businesses).

3. The analyses of productivity issues in Latvia

Productivity growth rates in Latvia are also among the highest in the EU. Since 2011, they have grown by 14.7% (by 4% in EU-28), as a result productivity gap has decreased. In 2017 productivity in overall Latvian economy, described as GDP per person employed reached 46,8% of average EU level (See Fig. 4).

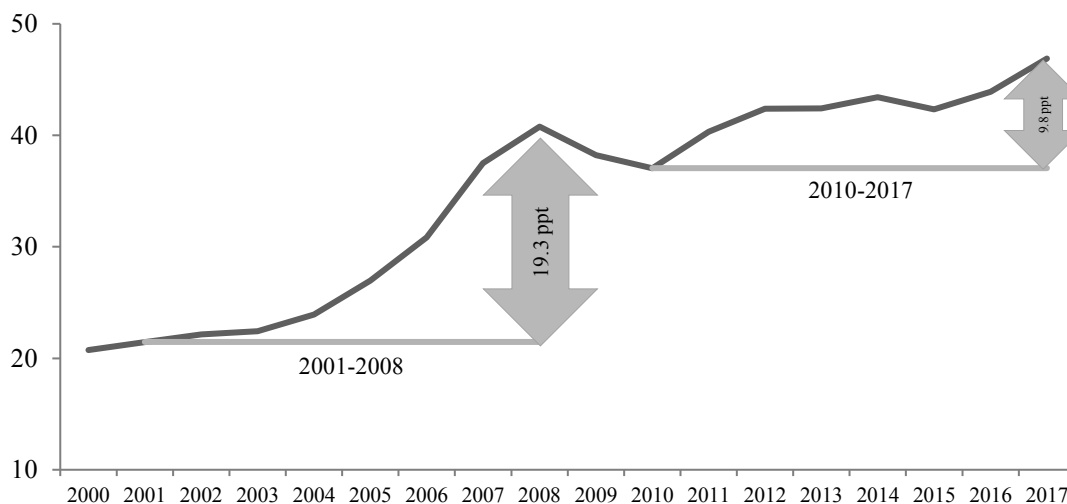


Source: author's construction based on Eurostat databases.

Fig. 4. Productivity Changes in Latvia and EU

Still it is necessary to mark that in the long-term view, the productivity dynamics become more moderate. Before the crisis (1996-2007) productivity increased by 6.2% per year on average, accelerating rapid convergence process. The integration of the country in the EU Single Market had a positive impact on the productivity dynamics strengthening economic growth and accelerating the convergence process. In 2001-2008, the productivity gap among the EU countries narrowed by almost 19 percentage points.

Since 2008, productivity has been growing only by 2% per year on average, which is almost three times slower than before the crisis. The process of convergence of productivity and income also became slower. Over the last seven years (2010-2017) the productivity gap among the EU countries narrowed only by almost 10 percentage points (see Fig. 5)

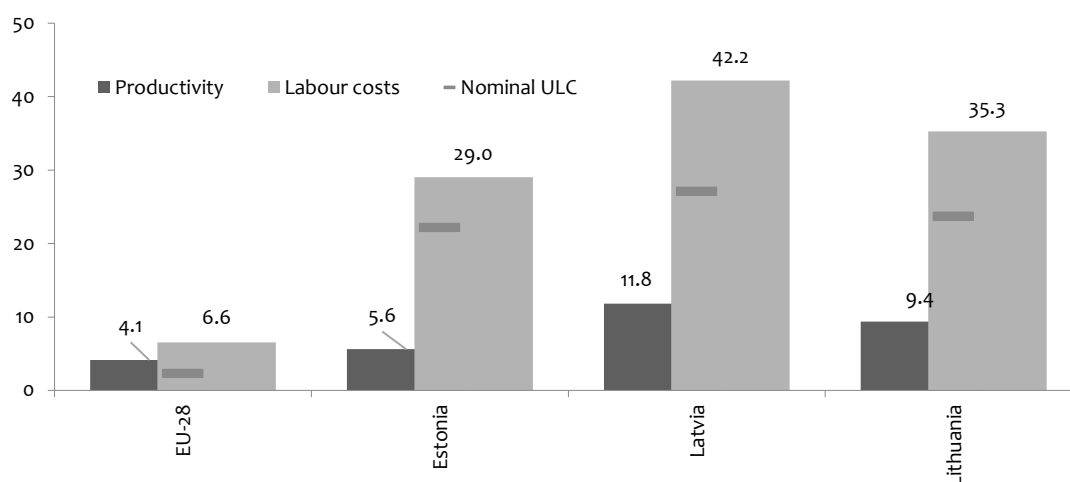


Source: author's construction based on Eurostat databases.

Fig. 5. Latvian productivity gap (EU28 =100)

Figure 5 shows that productivity convergence speed is slowing down, which could indicate on fact that Latvia is close or already in the productivity trap.

Although Latvia is in one of the leading positions by productivity growth rates among the EU Member States, yet wages have been growing faster than productivity, reducing the competitiveness of Latvian entrepreneurs in terms of costs. The increase in product unit labour costs (ULC)¹ also evidences of the risks of losses in cost competitiveness.



Source: author's construction based on Eurostat databases.

Fig. 6. ULC, Productivity and Labour Costs in the Baltic Countries and in the EU, 2012 = 100

From 2013 to 2017, productivity rose almost 3 times faster than wages, and nominal ULC increased by almost 5% per year on average (see Fig. 6). A strong increase in labour costs is affected both by wage convergence processes in the integrated EU labour market and tension situation in the domestic labour market. A falling unemployment rate and a growing number of vacant jobs evidences that a mismatch between labour demand and supply in the Latvian labour market increases.

Wage is a significant cost competitiveness factor; therefore, its rise should be balanced with a rise in productivity. Otherwise, the competitiveness in tradable sectors is lost, which does not result in a stable growth of income and welfare. Slow productivity growth in comparison with the growth of labour and other production costs leads to price increase of final consumer goods and services, which negatively affect producers' competitiveness and it leads to the decline in market share.

In Latvia, as well as in its neighbouring countries Lithuania and Estonia, the dynamics of price competitiveness (GDP deflator based REER) are growing slower than the cost competitiveness indicator (ULC-based REER) evidencing that the rise in labour costs affected the reduction in the cost-to-price ratio rather than are compensated completely in the rise in prices. This means that the increase in labour costs, which is not compensated by a corresponding rise in productivity, may have a negative effect on the share of company's profits, which entrepreneurs will be forced to adjust to keep price competitiveness in external markets. Trends in recent years show that as economic activities are growing, price and cost competitiveness indicators get worse, and wage convergence is one the most important factors here.

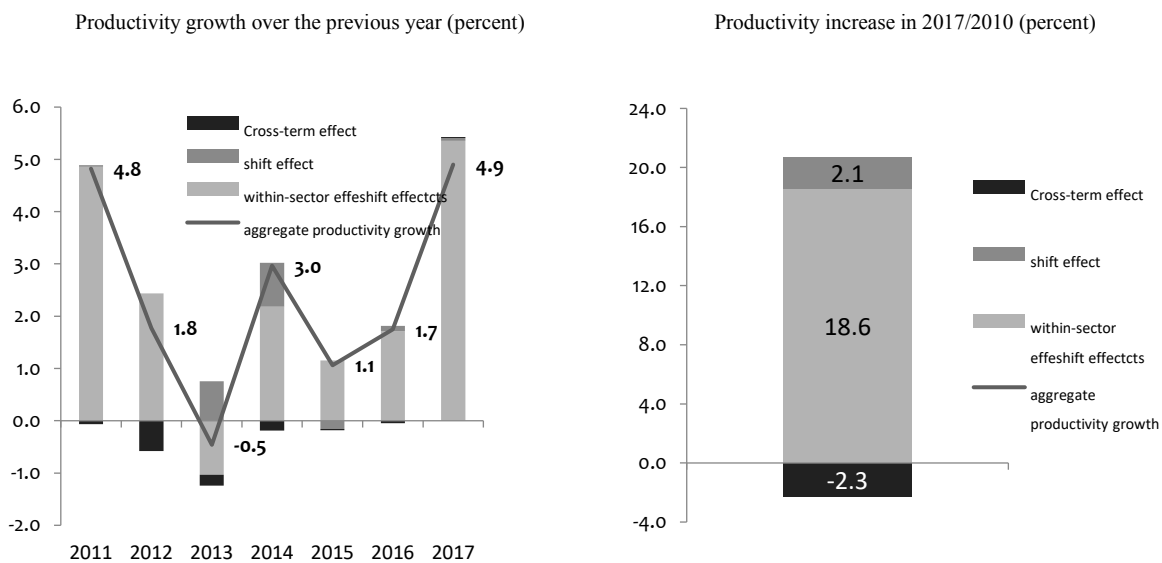
Re-invigorating productivity growth will be the key to keeping Latvian entrepreneurs competitive and getting more quickly to a higher standard of living. Technological factors such as the modernisation of production, the development of existing technologies and the deployment of new technologies are essential to increasing productivity levels. The transition from old to newer technologies contributes to productivity gains at company and industry levels. However, the

¹ ULC is a relationship between labour costs and productivity. If productivity is growing faster than the wages, then ULC is decreasing, which is an indication that competitiveness of state costs increases, and the other way around.

performance of such changes in increasing aggregate productivity levels depends on reallocation of resources from lower to higher productivity activities as well as on activities with higher productivity dynamics.

In order to determine the effect of the redistribution of labour resources on the overall productivity dynamics of Latvian economy, the shift-share analysis method (OECD, 2018 b) was applied. The method in question makes it possible to determine the extent to which overall productivity changes affected individual sectors, assuming that the number of employees remained stable and the extent to which overall productivity was affected by the movement of workers to sectors that have achieved higher productivity levels or productivity gains.

The results obtained (see Fig. 7) show that within-sector effects mainly influenced the overall productivity dynamics in Latvia. Between 2010 and 2017, its contribution to annual productivity growth was 2.4 percentage points (about 90 percent of total productivity growth). This means that productivity improvements mainly occur in every single sector affected by, for example, better management, technology improvement, innovation, employee qualification, favorable market forces and other industry-specific factors. The largest contribution to the *within-sector effects* was in the trade, transport and storage and manufacturing sectors while financial intermediation and information and communication services were negative. The second effect, i.e. the shift effect in Latvia is relatively weak - about 0.3 percentage points of annual productivity growth. This suggests that industries with higher productivity have attracted more labor than the lower productivity sectors in the analysis period. However, its contribution to total productivity growth was rather limited.



Source: author's construction based on Eurostat databases.

Fig. 6. Within-sector and shift effects contribution on productivity growth (percentage)

Third effect (Cross-term effect), i.e. the impact of labor migration on industries with faster (slower) productivity gains on total productivity dynamics was negative during the analyzed period (-0.3 percentage points on average per year). It means that industries with faster productivity dynamics attracted less labor than industry with slower productivity growth. Empirical studies show that in many cases, this effect reduces overall productivity in the country. There are several interpretations of this phenomenon. For example, productivity gains often associated with optimization of production costs, redundancies and labor migration to slower productivity dynamics. Despite the negative nature of cross-term effects in Latvia, its impact on aggregate productivity dynamics is low, which is to be welcomed as it shows that employees are not ready to move to lower economic growth activities.

Overall, the dynamics of attracting labor force by sector shows that in the post-crisis period the Latvian economy is experiencing structural changes in favor of sectors with higher productivity, which also positively affects the aggregate productivity level in the country. However, the pace of structural change is insufficient and the redistribution of labor resources from lower and higher productivity sectors is relatively weak. Therefore, Latvia needs to continue to transform the structure of its economy towards activities that are more productive and products that are more sophisticated and services.

Conclusion

1. Productivity is often used to evaluate countries economic development, it has been one of the most important determinant of economic growth, which is crucial factor to increase population's welfare. The integration of the country in the EU Single Market had a positive impact on the productivity dynamics strengthening economic growth and accelerating the convergence process, however, in comparison with several developed countries of the EU, the productivity gap is comparatively large (in 2017, the productivity level in Latvia was only 46.8% (68% according to PPS) of the EU average).
2. Although productivity growth rates in Latvia are among the highest in the EU and since 2011 productivity have grown by 14.7% (by 4% in EU-28), in last five years productivity growth rates have significantly dropped and they are almost three times slower than in the pre-crisis period. The process of convergence of productivity and income also became slower, over the last seven years (2010-2017) the productivity gap among the EU countries narrowed only by 9.8 percentage points.
3. The productivity trap can be defined as situation, when enterprise or state reaches certain productivity level and after that it's growth slows down essentially, staying in a relatively low level for long time.
4. Slow productivity growth in comparison with the growth of labour and other production costs leads to price increase of final consumer goods and services, which negatively affect producers' competitiveness both in domestic and foreign markets and it leads to the decline in sales and inappropriate usage of producers' capacity, thus economic growth rate is decreasing.
5. Latvia currently has a poorly developed base of production (a low level of manufacturing in GDP) and a low level of technological development, which significantly restricts economic readiness for the new competitive challenges.
6. Now Latvia is lagging behind both in high and low technology sectors, but the greatest lag behind is observed exactly in medium-high and medium-low sector groups.
7. In the post-crisis period the Latvian economy is experiencing structural changes in favor of sectors with higher productivity, which also positively affects the aggregate productivity level in the country. However, the pace of structural change is insufficient and the redistribution of labor resources from lower and higher productivity sectors is relatively weak.
8. The shift-share analysis show that within-sector effects mainly influenced the overall productivity dynamics in Latvia (between 2010 and 2017, its contribution to annual productivity growth was 2.4 percentage points), but the shift effect in Latvia is relatively weak (about 0.3 percentage points of annual productivity growth).
9. Opportunities to increase productivity are affected by overcoming technological lag, modernization of production and investment, investment in human capital, research and innovation, etc. supply-side factors, as well as the promotion of structural economic transformation, also play an important role.

10. To increase the total productivity level in Latvia it is important to both identify problems of certain sectors (study of obstacles on a level of certain enterprises and sectors) and promote structural transformation in economics (progress towards high technology sectors).
11. One of the more significant productivity challenge in Latvia is the need to strengthen the production capacity and capacity of the industrial sector, in order to be able to adapt to the challenges of the new industrial age by encouraging investment in new technologies. Therefore, it is important to understand whether we are prepared for the new challenges of competitiveness, i.e. whether we are able to benefit from future production opportunities, reduce risks, and can be flexible in responding to future shocks.

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