TRENDS AND DRIVERS OF PRODUCTIVITY GROWTH IN LATVIA

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Abstract. Designing policies to rise in productivity and understanding global challenges affecting the growth is an important current issue. Trends and drivers of productivity growth continue to be a key theme for researchers and policy makers. Productivity growth has generally slowed over past decade. OECD, IMF, World Bank, the European Commission deal with different aspects of productivity.

The research aims are to analyse foundations of productivity measurement and causes of actual trends, policies fostering productivity growth and promoting sustained economic growth.

The research consists of two parts. In the first part, review of research papers on productivity has been done. The OECD methodology of productivity measurement and relations between structural reforms and productivity growth is the focus of this part. Second part of the research deals with trends and causes of the current situation. The problem of productivity growth in Latvia and in the EU is analysed based on empirical data and calculations. This part of the research is also dedicated to economic policy fostering productivity growth.

Results of the paper find different factors with negative impact on productivity, and factors with positive impact on productivity. Effects on productivity depend on the purpose of productivity measurement as well as on impact on productivity in the short-run or in the long-run.

Key words: *productivity growth, labour productivity, productivity measures*

.**JEL code:** D24, E24**.**

Introduction

The global productivity slowdown and understanding global challenges affecting the productivity growth are an important current issue. An industry perspective on productivity slowdown can provide causes.

In the recent years, research literature has linked structural reforms with productivity growth. Economic structural transformation process is largely dependent on the quality of the institutional framework. The most of reforms have long-term gains.

The research aim is based on theoretical foundations of productivity analysis of and causes of actual trends find out factors with negative impact on productivity, and factors with positive impact on productivity and promoting sustained economic growth in Latvia and the EU.

Tasks of the research:

- Study methodology of productivity measurement and scientific literature;
- Analyse employment and labour productivity;
- Analyse productivity growth in Latvia and in the EU;
- Analyse impact of structural reforms on productivity;
- Find out factors with negative impact on productivity, and factors with positive impact on productivity.

The research methods applied in the paper are based on the OECD and the Eurostat methodology, analysis of scientific literature and economic policy planning documents, statistical data collection and calculation of average and relative values and data analysis.

This paper is organized as follows. The first part describes research papers on productivity, relations between structural reforms and productivity growth. Measures of productivity growth determine main indicators for analysis of economic growth. There are also differences between measures of productivity growth and productivity level. The second part examines trends of productivity in Latvia to compare with other the EU countries. The research mainly deals with labour productivity. The last part discusses the results and concludes.

The research questions needs to be answered: What are trends and dynamics of productivity? What are links between structural reforms and productivity developments? How reforms could be translated in higher productivity growth?

General theoretical background of productivity analysis

The topics of recent articles on productivity concern employment and productivity, the role of digitalization in solving the productivity puzzle, the global productivity slowdown, the impact of structural reforms on productivity,

Innovation and the accumulation of human capital affect productivity both directly and indirectly. Many studies show that R&D investment has a positive and large effect on productivity, on top of leading to improved production processes and higher output quality. Higher educational attainment and quality of education, by increasing skills, also foster productivity growth, and in this respect reducing skills mismatch is often stressed in policy discussions. Investment in network infrastructure, especially in transport, energy and digital infrastructures, can have positive multiplier effects provided there is no overprovision. (European Commission, 2014.)

"Technology pessimists" mention a weaker impact on productivity of the recent IT-driven innovation cycles and skill mismatches in the labour force (OECD, 2015.). Andrews, D., Criscuolo, C. and P. Gal in the article "The global productivity slowdown, technology divergence, and public policy: A firm level perspective" find out that problems in the diffusion of technological advances might be contributing to the productivity growth slowdown (Andrews, D., Criscuolo, C. and P. Gal, 2016). In the article "The Productivity Paradox of the New Digital Economy" by Van Ark, B. (Van Ark, B., 2016), seems to be a productivity paradox of the New Digital Economy: if we compare the period 1999-2006 with 2007-2014, the most intensive Information and Communication Technologies (ICT)-using sectors have seen a bigger slowdown in labour productivity growth than the least intensive ICT-using sectors. Jeff Mollins and Pierre St-Amant investigate a number of models with different channels by which ICT affects productivity (Mollins Jeff and St-Amant Pierre, 2018). They find that 0.1- 0.2 percentage points (20-40 percent) of the labour productivity slowdown in Canada since early 2000s can be explained by a weaker ICT contribution, but point out that the timing of the two developments do not coincide..

In recent years, literature has linked structural reforms with productivity growth. Ana Fonotura Guveia, Silvia Santos and Ines Goncalves analysed how these reforms translated into higher productivity growth in Portugal. They find out that despite some short-run costs most reform areas considered bring long-term productivity gains.

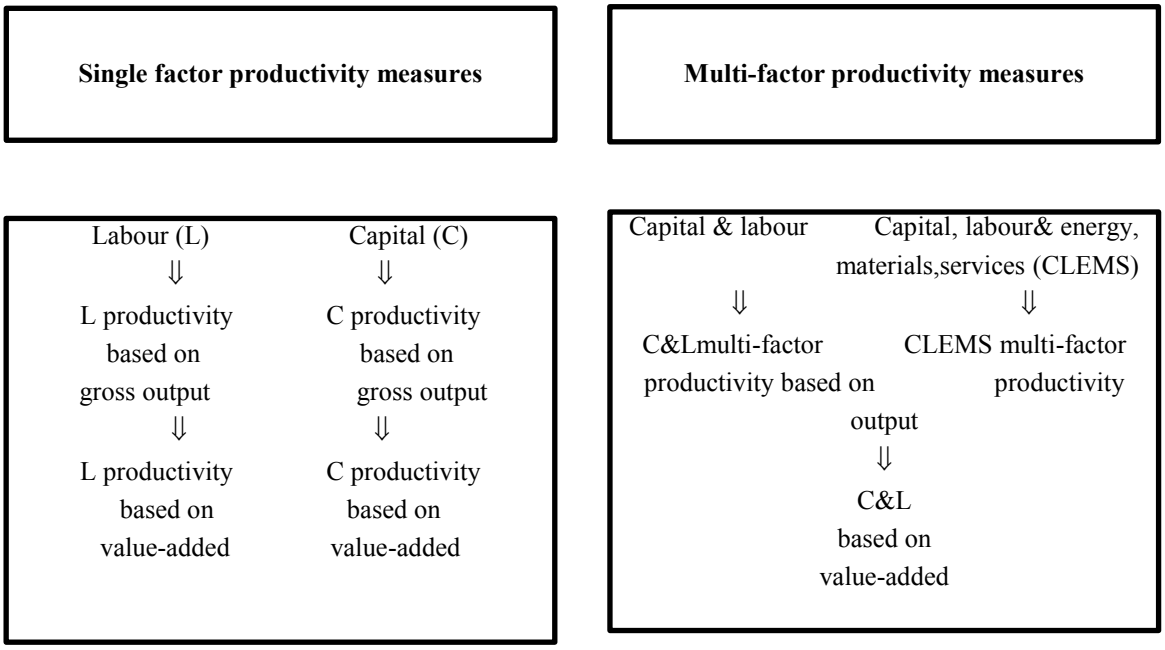
According Ana Fonotura Guveia, Silvia Santos and Ines Goncalves, reforms of institutions, goods markets, financial markets and the tax framework bring lager gains for the less productive firms, reforms affecting the insolvencies' framework, health, education, training and innovation are more beneficial for those with higher productivity. For the case of reforms directly potentiating entry, long-term benefits only accrue the younger firms. Concerning the labour

market, the effects on productivity are, for most firms, negative (Fontoura Gouveia, A., Santos, S. and Goncalves, I., 2017, p.6).

Wulong GU and Michael Willox in the article "Productivity Growth in Canada and the United States: Recent Industry Trends and Potential Explanations" conclude that labour productivity growth in Canada was weaker than that in the United States from mid-1980s to 2010, leading to a decline in Canada's relative productivity level due the lower multifactor productivity growth experienced in most Canadian industries in that period. Higher labour productivity growth in Canada for the 2010 - 2014 period was due to a larger capital deepening effect and relatively higher multifactor productivity growth. Main sources of the relatively faster productivity growth in Canada after 2010 with that in the United States and found to be stronger demand and stronger productivity growth of information and communication technologies intensive using industries in Canada.

Slower productivity growth in advanced economies in a period of rapid technological change has interested many researchers. The impact of digitalization is uncertain, but Jaana Remes, Jan Mischke and Mekala Krishnan argue that it has the potential boost labour productivity growth by at least 2 per cent per year over the next decade. They conclude that a dual focus on demand and digitalization could unleash a powerful new trend of rising productivity growth that drives prosperity across advanced economies for years to come. (Jaana Remes, Jan Mischake and MekalaKristinan, 2018, p.49)

There are different methodologies to obtain data of output which shape also outcome of productivity measurement. Theoretical foundations to productivity measurement based on OECD approaches to measuring productivity. are presented in Figure 1.



Source: author's construction based on OECD

Fig.1. **Productivity measures**

There is presented (see Figure 1) choice between gross output and value-added based productivity measures. Labour productivity is useful measure due to the fact that it relates to the single most important factor of production. Labour productivity is a key determinant of living standards. Labour productivity measured as GDP per hour worked, is one of the most widely used measures of productivity at country level. Productivity based on hours worked better captures the use of labour input than productivity based on numbers of persons employed.

There are different channels for productivity growth at country level. First, aggregate productivity growth is the result of within-firm productivity growth. This, in turn, is strictly related to firms' ability to innovate, invest (both in tangible and intangible assets) and improve their endowments of human capital as well as their organisation and management. Second, aggregate productivity growth as the result of reallocation of production factors from less productive to more productive firms. In this respect, there is also a sectoral dimension, because some sectors are characterized by lower productivity growth, other things equal. Third, productivity growth is the result of the entry of new, innovative firms and the exit of inefficient and non-competitive ones. The sum of these three factors ultimately determines a country's productivity performance.

In the policy discussion, it is important to acknowledge the potential interrelationships between productivity developments and the social dimension. First of all, increasing dispersion in productivity across firms implies dispersion in wages as well, contributing to overall income inequality (OECD, 2017). The rapid diffusion in ICT is expected to facilitate social and regional inclusion and lead to more effective use of human capital and financial resources while saving costs and reducing pollution from transportation, office-space construction.

The global economy is undergoing significant changes in the rate and composition of productivity growth, business dynamism and employment gains since the financial crisis in the context of digitalization, globalization, demographic and climate change according to the OECD (OECD, 2018). There is a potential for large economic gain. The reallocation of activity between firms, sectors and countries can help to ensure that these gains are shared in a way that supports long-term economic growth that is beneficial to all. The OECD Productivity Inclusiveness Nexus (OECD, 2017) suggests that there might be a “sorting” effect which increasingly separates frontier firms, able to compete on the same ground. The Next Production Revolution and the transition to the digital economy are exacerbating these trends. Globalization and technological change have contributed to job creation, but also to a considerable restructuring of labour market. Digital technologies have facilitated non-standard forms of work. These trends provide opportunities for greater flexibility and can help overcome barriers to labour market participation.

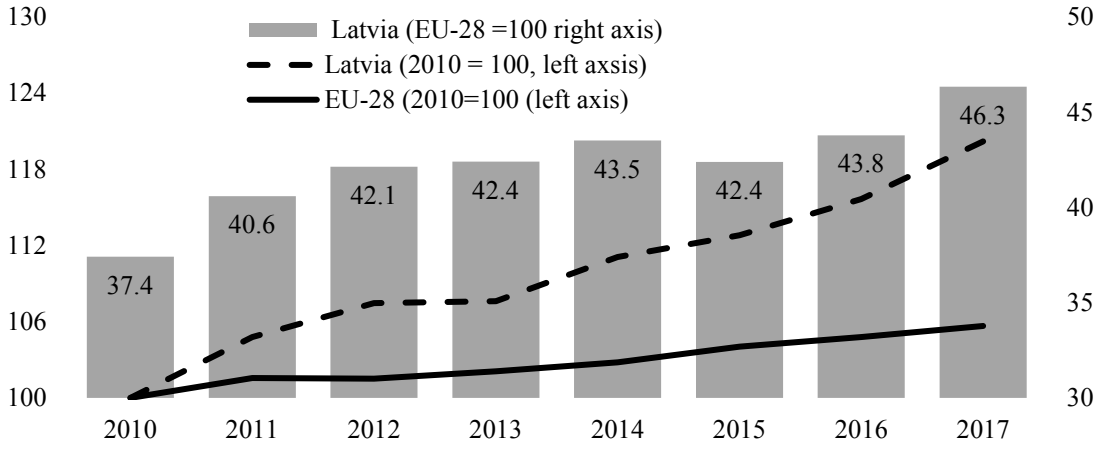
According to McKinsey Global Institute analysis (KcKinsey Global Institute Report, 2018) there are three waves. Wave 1 – waning of mid 1990s productivity boom includes waning impact from a PC, software, and database system ICT revolution and the restructuring of domestic operation and global supply chains. The first wave mattered more in Sweden and the United States, where the productivity boom had been more pronounced. Wave 2 – financial crisis aftereffects, including weak demand and uncertainty, excess capacity, contraction and expansion of hours, and boom/boost in finance, real estate, and construction. Financial crisis aftereffects were felt more broadly across countries than Wave 1. Wave 3 – digitalization. Digitalization offers the promise of opportunities that could boost productivity growth. The McKinsey Global Institute has calculated that Europe overall operates at 12 percent of digital potential, and the United States at 18 percent. While the economic cost associated with networks has been well established, digital platforms may exhibit unique characteristics that make the implications different from past network industries. Companies will need to develop a productivity strategy that includes the digital transformation of the business model as well as their entire sector and value chain.

We can conclude that the search for the determinants of productivity growth should focus on the factors contributing to demand growth. There are different channels by which ICT affects productivity. The global economy is undergoing significant changes in the rate and composition of productivity growth.

The next part examines trends of productivity in Latvia to compare with other the EU countries.

Productivity growth in Latvia and in the EU

Since 2010 the productivity of Latvia's economy has been at the level of 40-45% of the EU average (see Figure2). Although in recent years productivity growth rate was faster than the EU average, but labour costs grew almost twice the rate. High economic growth has translated into improvement employment outcomes. However, income inequality and poverty remain relatively high.



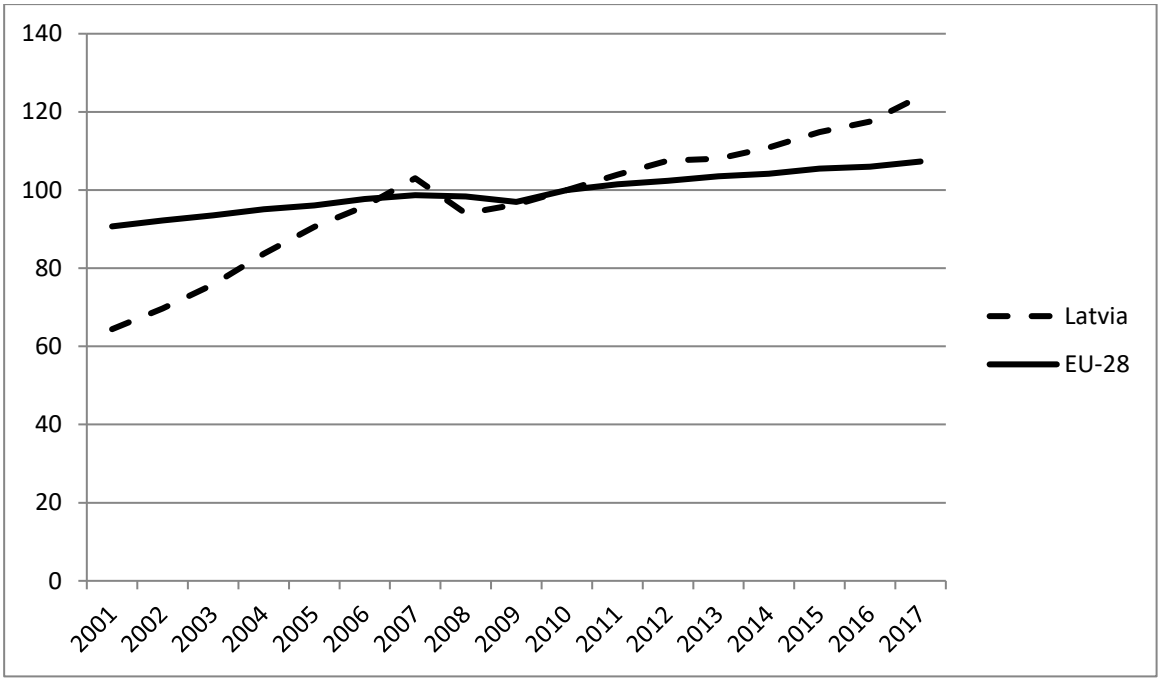
Source: Ministry of Economics, 2018

Fig.2. **Dynamics of productivity in Latvia and EU from 2010 – 2017**

The recent labour market trends are partly the result of cyclical movements, but they are also due to structural and institutional labour market challenges affecting economic activity and the performance of labour markets. For example, consistently implemented economic policy in the previous years has fostered improvement of macroeconomic situation and as result it contributes positively to the growth and employment in Latvia. (Baranova D., 2013).

Labour productivity is a key driver of economic growth and living standards.

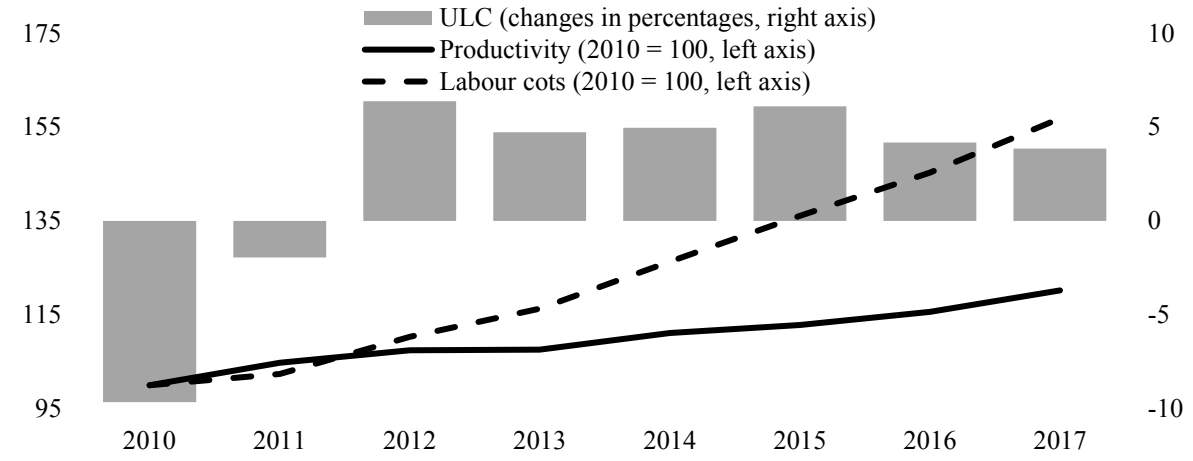
GDP per hour worked (Figure 3) is a measure of labour productivity. It measures how efficiently labour input is combined with other factors of production and used in the production process.



Source: author's construction based on OECD productivity statistics, 2018

Fig.3. **GDP per hour worked (total, 2010 = 100) in Latvia and EU-28, 2001 – 2017**

Dynamics of labour costs in Latvia from 2011 till 2017 are presented in Figure 4. The dynamics of labour costs and productivity were largely determined by factors of structural nature. With economic growth resuming, wage growth is become more rapid, substantially due to the growing competition in the EU labour market and the low competitiveness of Latvia. By contrast, growth of productivity has been more moderate. It means that wages have been growing faster than productivity in Latvia, and could cause risks of losses in competitiveness.

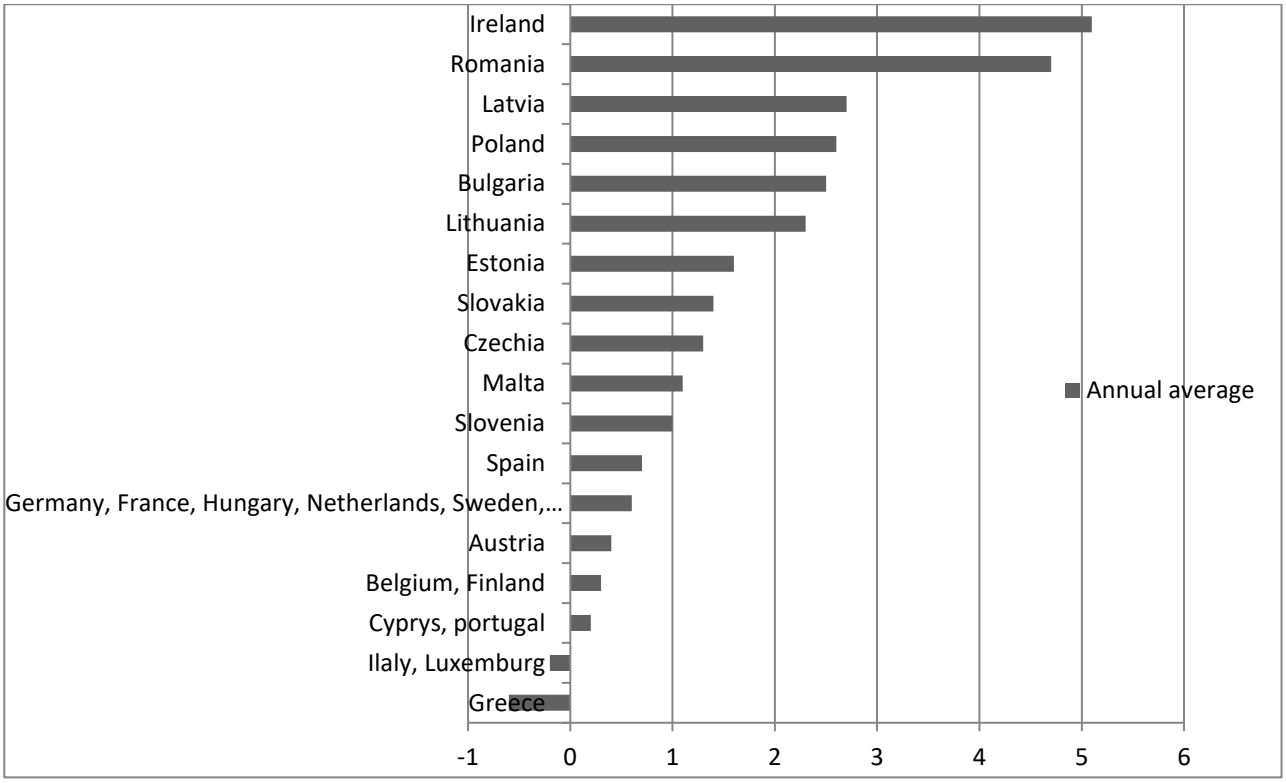


Source: Ministry of Economics, 2018

Fig.4. **Labour costs in Latvia and EU**

Before economic crisis in 1996 – 2007 productivity increased by 6.2% on average. In 2008 – 2009 productivity reduced by almost 3%. Since 2010 annual productivity growth in Latvia has been 2.5% on average. It is one of the highest in the EU. The EU average productivity in 2010 – 2015 was 0.7%. Annual productivity growth in 2010 – 2018 was 2.7% in Latvia (Figure 6). Latvia's productivity growth is high, but its innovation performance is average.

The falling labour supply appears to be the main driver of wage growth. Real wage growth has exceeded productivity growth in Latvia. On the one hand, it raises potectial concern about Latvia's cometitivenss. On the other hand, it may stimulate firms to invest in labour-savinig tecnologies.

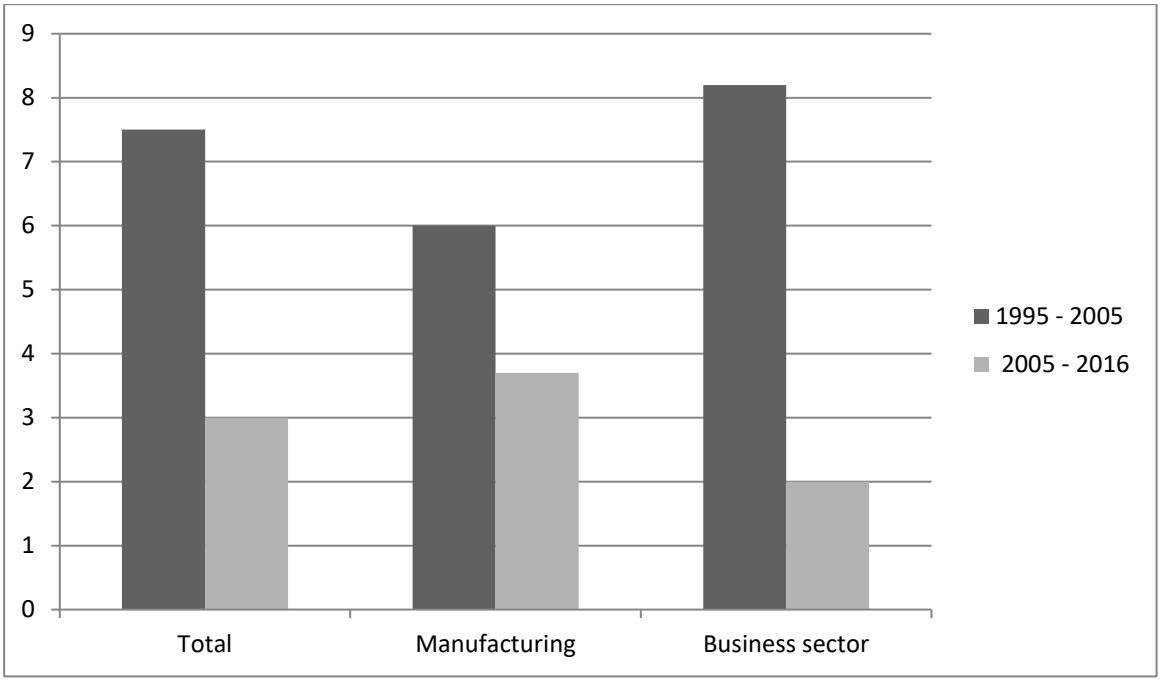


Source: author's calculations based on .Eurostat, 2019.

Fig.5. P**roductivity in Latvia and in the EU 2010 - 2018, % change**

Despite this Latvia's productivity level still stands among the lowest in the EU. Productivity in Latvia is lower than in other Baltic countries. Due to the fact, that in the EU productivity in manufacturing has main contributor to the aggregate productivity growth.

Average annual growth of labour productivity in Latvia in 1995 – 2005 and 2005 – 2016 in different sectors is presented by Figure 6. Productivity growth in manufacturing has lagged behind and this may explain Latvia's overall productivity. In manufacturing the productivity level is lower than the national economy on average.



Source: author's construction based on OECD, 2017.

Fig.6. **Average annual growth of labour productivity in Latvia, %**

If we use for productivity levels calculation as GDP per capita divided by average numbers of hours worked, Luxembourg has the highest productivity level. Latvia's rank is 30, Estonia's – 26 and Lithuania's – 29 in 2017.

The gaps in GDP per capita can be broken down into contribution from labour productivity and labour utilization. Labour productivity is measured as GDP per hour worked and labour utilization is measured as a total number of worked per capita. Best performing country is Luxembourg. The gaps of Belgium, France, Germany and the Netherlands can be mostly accounted by lower labour utilization.

Challenges for productivity growth and the policy priorities may differ across countries.

Designing effective policies to raise productivity is a complicated business. An increase of productivity growth requires some combinations of increased growth in the capital stock, in labour inputs, or in technological progress. Government may use fiscal policies to encourage saving, investment, and expenditures on research and development.

Productivity hinders: population aging, slowdown in global trade and unresolved legacy of global financial crisis. The slower productivity growth in a period of rapid technological change has interested many researchers. Globalization and technological change have contributed to job creation, but also to a considerable restructuring of labour market.

Changes in the structure of the global network reflected position of Global Value Chains, identifying central and peripheral countries and sectors. The productivity effects of Global Value Chains depended on position within them. Latvia must move up the Global Value Chain to knowledge-intensive activities. Flexible labour market policy is important to transform the changing structure of Global Value Chains into faster productivity growth. Productivity growth by trade openness and participation in Global Value Chains is one of instruments. Better integration in Global Value Chains, especially in sectors characterised with rapid changes is key for Latvia.

Innovation policies, cooperation between universities and firms, as well as R&D tax incentives are other instrument to increase productivity.

Improvements of matching in labour market by reducing skill mismatch can also increase productivity. Therefore, lifelong learning and labour market reforms are necessary. Rising labour market participation and sustainable increase in productivity is a key to supporting future growth.

OECD in *The Future of Productivity* demonstrates that there is much scope to boost productivity and reduce inequality simply by more effectively allocating human talent to jobs. A better use of talent could translate into significant labour productivity gains in many OECD economies. (OECD, 2015)

According to the World Bank, productivity accounts for half of the differences in GDP per capita across countries. Identifying policies to stimulate it is thus critical to alleviating poverty and fulfilling the rising aspirations of global citizens. Yet, productivity growth has slowed globally over recent decades, and the lagging productivity performance in developing countries constitutes a major barrier to convergence with advanced-country level income. The World Bank Productivity Project seeks to bring frontier thinking on the measurement and determinants of productivity to global policy makers. (The World Bank Productivity Project, 2018).

There is no one right productivity policy, there are productivity friendly principles.

Research should also focus on better measurement of emerging technologies, IT- related mismeasurement, the future contribution of robots and artificial intelligence, their effect on productivity growth and economic growth.

Conclusions

The main findings of the research are:

1. Many studies show that R&D investment has a positive and large effect on productivity. Innovation and the accumulation of human capital affect productivity both directly and indirectly. Digitalization offers the promise of opportunities that could boost productivity growth.

2. Structural reforms despite some short-run costs most reform areas considered bring long-term productivity gains.

3. Since 2010 the productivity of Latvia's economy has been at the level of 40-45% of the EU average. Although in recent years productivity growth rate was faster than the EU average, but labour costs grew almost twice the rate. A further increase in labour costs is inevitable in the open market conditions. In the long-term, the productivity dynamics become more moderate.

4. There are big differences in productivity between the EU countries. The euro area and the EU in terms of labour productivity are behind the US.

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