

## EFFECT OF THE TRADABLE SECTOR ON AVERAGE NOMINAL INCOME: THE CASE OF LATVIA

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**Abstract.** In a small open economy, the income level and, as a result, the standard of living are determined by the development level of the tradable sector – labour productivity in this sector –, which, in its turn, determines the wage and salary level both in the tradable and in the non-tradable sector. Economic growth and income increase in a small economy are mainly a result of export growth. The research aim is to examine the relationship between the tradable sector's performance and the average nominal wage and salary in Latvia. The research performed an analysis of correlation between the average wage and salary and the amount of exports; the correlation coefficient reached almost 1.0. Labour productivity in the tradable sector in Latvia was, on average, four times lower than in developed countries, regardless of the technological level. In order for Latvia to theoretically reach the current nominal income level of developed countries, the country's exports have to rise approximately fourfold to about EUR 57 billion.

**Key words:** tradable sector, average nominal wage and salary, labour productivity, Latvia.

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### Introduction

The income level in Latvia considerably lags behind that in developed countries, and forecasts had been made, which predicted how many decades it would take for Latvia to reach the income level of developed countries without giving a detailed explanation by means of which industries or sectors it could be achieved. The present paper focuses on the role of the tradable sector in Latvia as a small economy and the dependence of the average nominal wage and salary level on the amount of exports, as well as the necessary theoretical amount of exports to reach the income level of developed countries.

The research aim is to examine the relationship between the tradable sector's performance and the average nominal wage and salary income level in Latvia. The specific research tasks are as follows: 1) to specify the role of the tradable sector in an economy; 2) to examine the dependence of the average nominal wage and salary income on the amount of exports in Latvia and the difference in labour productivity between Latvia and selected developed countries for selected tradable sector industries; 3) to estimate the necessary theoretical amount of exports for Latvia to reach the current nominal wage and salary level of developed countries.

The present research examined a correlation between the average nominal wage and salary

and the amount of exports in Latvia, which allowed estimating the necessary theoretical amount of exports for Latvia to reach the current standard of living of developed countries, as well as the difference in labour productivity between Latvia and selected developed EU Member States for selected tradable sector industries.

The research used national statistical data on the average wage and salary in Latvia, Eurostat data and other official data sources. It employed correlation analysis, analysis and synthesis as well as the logical construction method.

### Research results and discussion

#### 1. Role of the tradable sector in an economy

Any open economy theoretically consists of two economic sectors: tradable and non-tradable (Salvatore D., 2007). The tradable sector encompasses all the industries whose goods or services can be sold in foreign markets. The tradable sector mainly represents goods, and only a small proportion of goods cannot be sold in foreign markets, at least in distant ones because of the short expiry period, too large weight or volume or some other reasons. Some proportion of services is exportable to other countries, e.g. tourism, transport, financial, IT and other services. However, it is impossible to sell a considerable proportion of services in foreign markets, usually because of technical reasons, e.g. house-related services – utilities (heating and water, electricity and gas supply)

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and rent of premises –, rent of land, most of educational and medical services as well as the services provided by government institutions and paid for by the government – beginning with public administration through to the army, customs and border guards. Infrastructures – both social and technical – are also provided by the central government and local authorities. The technical infrastructure (roads, railways etc.) is partially used for international business – transit operations. This means that both sectors – tradable and non-tradable – are strongly interconnected. Besides, it has to be mentioned that sometimes it is difficult to distinguish tradable goods or services (tradables) from non-tradable ones (non-tradables).

In the 1960s, a Hungarian economist, Bela Balassa, and an American economist, Paul Samuelson, developed a theory (the Balassa-Samuelson theory) that explains two important phenomena: 1) price levels across countries are positively related to gross domestic product per capita; 2) labour productivity in the tradable sector determines the wage and salary level both in the tradable and in the non-tradable sector (Krugman P.R., Obstfield M., 1994).

As regards price level disparities, there is the so-called law of one price that says the prices of identical goods have to be the same across open economies (Krugman P.R., Obstfield M., 1994). However, in reality, the prices are not and cannot be the same, as there are non-tradables that distort price levels, and the non-tradables will exist regardless of technological progress and economic globalisation.

However, a much more important problem is labour productivity in the tradable sector, which determines the wage and salary level not only in the tradable but also in the non-tradable sector, i.e. in the whole national economy. Wages and salaries are the key income source in the society. The wage and salary level determines other kinds of income – social and other benefits, pensions etc. – and hence the overall standard of living. In

a small economy, the tradable sector is of particular importance, as nowadays any open society consumes all the goods and services our modern civilisation has created, beginning with food through to airplanes and other complicated manufacturing goods and various services. However, a small economy is not able to produce all the goods and services the modern society consumes. The specifics of a small economy are that a lot of goods and services have to be imported; yet, to ensure it, first of all, a lot have to be exported. Unlike a large economy, which is relatively self-sufficient in terms of foreign trade because it can develop a greater number of industries and produce a greater range of goods and services, a small economy is not self-sufficient in this respect and extremely depends on its foreign trade. This, in its turn, determines not only the availability of the goods and services it cannot efficiently produce but also the income (wage and salary) level and the standard of living.

The role of exports has been also stressed in policy documents developed by the government of Latvia, e.g. Guidelines on Promoting Exports of Latvian Goods and Services and Attracting Foreign Investments for 2013-2019 and the National Development Plan of Latvia 2014-2020 that declares that "the economic basis of Latvia is the efficient, prudent and concentrated use of resources to promote entrepreneurship in the country. The most important enterprises are those (large, medium and small) producing goods and services for export. The foundation and development of creative and high value-added enterprises are of great importance".

## **2. Dependence of the average nominal wage and salary income on the amount of exports and the difference in labour productivity between Latvia and selected developed countries**

The present research did a correlation analysis to identify the strength of the correlation between increases in the average wage and salary and increases in exports of goods for the

period 1993-2015, i.e. as long period as data are available since Latvia has transitioned to a market economy after regaining its independence. Performing such an analysis was facilitated by the fact that a tight monetary policy had been implemented since the middle of 1992 when Latvia introduced its national currency; the currency's nominal value against the currencies of developed countries was stable and actually fixed from the beginning of 1994 when the

Latvian lat was unofficially pegged to the SDR; in 2005 it was repegged to the euro and in 2014 the lat was replaced with the euro.

Table 1 shows data for the mentioned period; only the most characteristic and necessary years were presented in the table owing to the large data amount. The statistical data on exports of goods are available for a period from 1993, while those on exports of services are available for a period from 1995.

Table 1

**Correlation between average monthly nominal wage and salary income, EUR, and exports, mIn EUR, in Latvia for selected years in 1993-2015**

Indicator/ year	1993	1998	1999	2003	2004	2008	2009	2011	2012	2015
Income	67	190	201	274	300	682	655	660	685	818
Exports:										
goods	961	1521	1435	2349	3059	6302	5126	8535	9871	10372
goods and services*	-	2512	2465	3789	4560	9630	7979	11684	13519	14334
Correlation coefficient:										
goods	0,96									
	0.87		1.0		0.98		0.22		0.99	
goods and services*	0.97									
	0.97		0.85		0.99		0.26		1.0	

\* - data for goods and services are available since 1995

Source: author's calculations based on the CSB of Latvia, Eurostat and World Bank data

In general, the correlation between the average wage and salary in Latvia and the country's exports for the entire period of analysis was very high: the correlation coefficient for goods  $r=0.96$ , while for goods and services it was slightly higher – at 0.97 (author's calculations). However, it is important to analyse the correlation for individual periods that were different in the period of analysis. The entire period of analysis (from 1993 to 2015) has to be split into sub-periods.

The first sub-period extends to 1998 when a financial crisis began in Russia in August of that year, which significantly affected Latvia's exports to this country and also the total amount of its exports, as Latvia was quite dependent on Russia as an export market (reaching 30 % of the total exports in 1993, which decreased to 21 % in 1997 and 12 % in 1998) (CSB data). The exports of goods in 1994 compared with the previous year decreased; the reason was the appreciation

of the lat against the dollar by approximately 30 % in 1993. In 1995, Latvia faced a huge banking crisis; yet, it significantly did not affect the country's exports. For the mentioned period, the correlation coefficients was 0.87 for goods, while that for goods and services was very high – at 0.97. The difference in the correlation coefficient may be explained by the fact that the exports of services, mostly Russian freight transit through Latvia, played a large role in that decade.

In the next sub-period – from 1999 to 2003 (the year of pre-accession to the European Union) – an increase in the exports of services was smaller (on average, 10 % per year, compared with 33 % for the period 1995-1998) and a decrease in the exports of services was observed in 2002 and 2003, whereas an increase in the exports of goods was quite steady (author's calculations). The mentioned decrease in the exports of services and, at the same time,

a considerable increase in the government's debt, compared with the previous period after the 1998 financial crisis in Russia decreased the correlation coefficient for goods and services, while an increase in the exports of goods perfectly correlated (1.0) with an increase in the average wage and salary in that period.

The next sub-period starts with 2004, which was the year of Latvia's accession to the EU, and extends to 2008 – the global financial and economic crisis. The increases in the exports of both goods and goods and services perfectly correlated with an increase in the average wage and salary.

The penultimate period of analysis is a period from 2009 when the global crisis reached its peak to 2011 when the crisis was overcome in Latvia. The correlation coefficients were very low, which meant that a decrease in the average wage and salary was relatively small in comparison with a much more significant decrease in exports. This was possible due to the fact that the government increased its expenditures and debt, and some part of the expenditures was paid as salaries and other incomes. Otherwise, the decrease in the average wage and salary would be greater and it would more correlate with the change in exports. The low correlation coefficients were also affected by an increase in the grey economy, which was specific to any crisis period.

The last sub-period extends from 2012 to 2015, which was characterised by very high correlation coefficients.

It has to be noted that the correlation coefficients reached 0.98 for goods and 0.99 for goods and services if excluding the data for 2009 and 2010, which were the years of a very serious crisis, from the time series.

As a whole, one can find that the developments in the tradable sector, i.e. changes in the exports (of goods and services) very considerably affected changes in wages and salaries (which other kinds of income depend on); therefore, this allows estimating the necessary amount of exports for Latvia to theoretically reach the income level of developed countries.

The wage and salary level and an increase in this level are determined by labour productivity and its change in the tradable sector. For this reason, the present research analysed differences in labour productivity in certain tradable sector industries between Latvia and selected developed EU Member States as well as differences in the average wage and salary between the countries. For the analysis, the author selected such developed countries as Germany, which is the largest economy in the EU and which is often considered as the economic growth driver, and Latvia's neighbouring countries – Sweden and Finland – as well as Ireland, which is a relatively small country that could grow fast after joining the EU and where a lot of Latvia's residents have worked and still work there.

The data and calculation results are presented in Table 2.

Table 2 shows that the average wage and salary in Latvia was approximately four times lower than in the selected countries, and the average labour productivity or gross value added per person employed in the most important tradable sector industries of Latvia was considerably, on average, 3-5 times (with a few exceptions) lower than in the selected EU Member States.

Table 2

**Differences in average monthly nominal wage and salary income, EUR, and apparent labour productivity, EUR per person employed, for selected tradable sector industries between Latvia and selected developed countries in 2015**

Indicator/country	Latvia	Germany	Ireland	Sweden	Finland	Avg in developed countries	Avg/Latvia
<b>Income</b>	818	3612	3035	3440	3338	3356	4.1
<b>Labour productivity*:</b>							
<b>manufacturing, incl.:</b>	16	69	208***	91	68	109	6.8
- food products	12	38	173***	65	61	84	7.0
- wood and products of wood, except furniture	18	48	33	58	48	47	2.6
- furniture	9	53	42	61	45	50	5.6
- textiles	13	48	60	64	54	57	4.3
- basic pharmaceutical products	29**	131	924	362	202	405	14.0
- fabricated metal products	16	56	50	72	58	59	3.7
- machinery and equipment	18	74	87	97	79	84	4.7
- electrical equipment	21	73	58	81	79	73	3.5
- high-technology	40	91	443***	158***	81***	73	3.5
- medium high-technology	18	82	n.d.	81***	81	193	4.8
- medium low-technology	20	61	n.d.	69***	65	81	4.5
- low-technology	14	48	n.d.	73	72	65	3.3
<b>accommodation</b>	12	26	25	46	39	34	2.8
<b>ICT services</b>	33	117	219	110	93	135	4.1

*n.d.* – no data; \* - data for 2012; \*\* - data for 2008; \*\*\* - data for the latest available year

**Source: author's calculations based on the CSB of Latvia, Statistics Finland, Statistics Sweden, Destatis, Central Statistics Office of Ireland and Eurostat data**

Manufacturing is the core industry of the tradable sector. The labour productivity in this industry in Latvia was almost 7 times lower than in the selected four developed countries. If excluding the very high productivity indicator for Ireland, the mentioned difference reached almost 5 times, which was close to the difference in the average wage and salary. The differences in labour productivity between Latvia and the selected developed countries for all the sub-industries of manufacturing were quite similar; the smallest differences were about three times, while that for pharmacy was 14 times, which was considerably raised by Ireland's industry; if

Ireland was excluded, the difference would be 8 times.

The difference in labour productivity for the manufacture of food products – an industry with old traditions in Latvia – was 7 times, which was considerably raised by the indicator for Ireland; if Ireland was excluded, the difference would be less than 5 times.

An analysis of the sub-industries of manufacturing classified by technology (high, medium high, medium low and low) shows that, on average, the labour productivity in Latvia was about 4 times lower than in the selected developed countries. Latvia lagged behind the least in low technology manufacturing – about

3.3 times, while in medium low technology it was 4.5 times. As regards medium high and high technology, Latvia lagged behind the developed countries 4.8 and 3.5 times, respectively, which showed that no explicit difference in labour productivity was observed with regard the technological level.

Table 2 also presents data for such a tradable sector industry as accommodation. This industry is not associated with the development and use of complicated technologies, and labour productivity in the accommodation industry in Latvia could be as high as that in the developed countries. However, the difference is almost three times. This may be explained by relatively cheap labour in Latvia, which did not force entrepreneurs to reduce the number of their employees and raise labour productivity.

In contrast, ICT services are associated with complicated technologies to a much greater extent and high-qualification labour, and Latvia lagged behind in this industry approximately four times.

One can conclude that Latvia considerably lagged behind the developed countries in terms of labour productivity – about four times regardless of a tradable sector industry, a level of technology and other factors. The author makes an assumption that has to be proved that an increase in labour productivity in low technology industries in Latvia depends on an increase in labour productivity in high technology industries (creating high value-added and, as a result, high incomes). An increase in labour productivity in high technology industries leads to higher wages and salaries in these industries, which, in its turn, makes the labour force more expensive in the entire national economy, and businesspersons and entrepreneurs engaged in low technology industries are forced to raise pay for their employees. This, in its turn, makes them reduce the number of employees and raise labour productivity at their enterprises and in the whole industry. Otherwise, if there is no increase in

labour productivity in high technology industries, no considerable increase may be expected in low technology industries too, e.g. in such industries as agriculture, forestry, wood processing, food processing etc. The mentioned industries do not produce technologically complicated, high value-added goods and services or technologies for the production of goods and services but mainly use complicated technologies that Latvia buys from other countries, thereby creating no high value-added and no high incomes for those employed in Latvia's national economy.

### **3. Necessary amount of exports for Latvia to reach the income level of developed countries**

Over the past two decades, a number of forecasts have been made regarding how long it would take for Latvia to reach the income level of developed countries, which were mainly done by the Ministry of Economics of the Republic of Latvia. According to the most optimistic forecast, it would take 20-30 years. It is difficult to forecast economic growth and development for the future, particularly for a very distant future. It is also difficult to predict whether Latvia ever is going to reach such a level within a human lifetime. However, it is possible to quite precisely estimate the theoretical amount of exports necessary for reaching the current income (wage and salary) level of developed countries, as there is a very high correlation between the average wage and salary and the amount of exports (goods and services). The correlation coefficient for the entire period of analysis was 0.97 and even reached a value of 0.99 if excluding the years of global crisis that weakened this causal relationship. In order for Latvia to increase incomes (wages and salaries), labour productivity has to be raised primarily in tradable sector industries, i.e. output (and value-added) per employee has to be raised in this sector and the goods and services produced have to be exported.

In 2015, Latvia exported goods worth EUR 10.4 billion and services worth EUR 3.9 –

totally EUR 14.3 billion. To theoretically reach the (current) wage and salary level of developed countries and also their standard of living, Latvia's exports have to climb approximately four times to about EUR 57 billion (author's estimate).

### Conclusions

- 1) In a small and open economy, the tradable sector plays the crucial role in the level of wage and salary income, which was proved by a very high coefficient of correlation (0.96-0.97) between the average wage and salary and the amount of exports in Latvia. If excluding the years of global crisis, the coefficient of correlation between the average wage and salary and the amount of exports reached a value of 0.99, i.e. almost a perfect correlation. This indicates that the national economy of Latvia is extremely dependent on its foreign trade and all the economic developments in the global market.
- 2) The average nominal wage and salary in Latvia was, on average, four times lower than in the developed EU Member States selected for analysis, which was determined by labour productivity in tradable sector industries, primarily in manufacturing.
- 3) Labour productivity in Latvia's tradable sector industries was, on average, four times lower than in the developed countries. This requires

raising labour productivity particularly in the tradable sector's industries, as an increase in the labour productivity in the non-tradable sector does not considerably contribute to the income level.

- 4) Latvia's exports of goods and services (mostly goods, as their export value is greater and they play a greater role in the case of Latvia) have to be increased about four times to approximately EUR 57 billion to theoretically reach the current nominal income level of developed countries and their standard of level.
- 5) In Latvia, labour productivity in all the sub-industries of manufacturing broken down by technology level, i.e. in low technology manufacturing industries too was, on average, four times lower than in the developed countries. This may be explained by the reluctance of businesspersons and entrepreneurs to raise the labour productivity at their enterprises, replacing their employees with technologies etc., as the labour force was still relatively inexpensive in Latvia.

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