

“What?”, “Why?” and “How?”
Revealed Comparative Advantages of Latvian Economy

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EU-Intensive Course: “Making Business in Baltic Region Countries”

Motivation

This paper is the final work of the EU Intensive Course Work in Tallin, Estonia. To carry the soul of the collaborative work of the meeting the basic idea of the paper and the application of the country was chosen by two students who were representing the University of Copenhagen and Riga Technical University¹.

As you will see in the following pages Latvia's economy has moved from being an industrial economy to being a service based economy after having its freedom. The main motivation of the paper is to see how did this change affect the comparative advantages of Latvia's industrial sector and if there is an effect than which production groups -*according to the SITC I digit products*- had affected.

¹ Unfortunately the final version of the paper which you are reading now is created by the author since the student from Tallin had to leave the project before starting the analyses of the data for the Balassa and Volrath Indexes.

Abstract

This paper analyses the comparative advantages of Latvian economy across EU-15 countries in SITC 1 digit products. Two prominent indexes (Volrath Index and Balassa ndex) are used for the empirical side of the work. The result of the analyses showed that Latvia has advantages in only 2 product groups: raw materials and other manufactured products among 8 groups in total.

Introduction

Berlin Wall was not only the border between the communist world and Europe, it was also the meaning of different economic and social lives. *“At the end of the eighties the overall collapse of the centrally planned economies in Central and Eastern Europe offered the chance to open the so far solely West European integration process for the emerging market economies”*².

After 1991 like many old Soviet Union Countries, Latvia had its freedom.

Geographically it had no doubt that “three’s”³ were expected to be members of European Union and this had happened in 2004 which came with many regularities and rules further than the new economic and social life.

The purpose of this study is to identify the comparative advantages of Latvian economy⁴, mainly industrial sectors, and discuss how these all changed on the way of European Union (EU) membership and a year later.

1. Comparative Advantage and Revealed Comparative Advantage

As well known international trade literature there can be found two prominent theories of trade, based on comparative advantage which are the Ricardian Model and the Heckscher-Ohlin Theory.

The Ricardian Model explains that comparative advantage arises from differences in technology across countries while Heckscher-Ohlin Theory suggests that technologies are the same across countries. Moreover, the Heckscher-Ohlin Theory attributes comparative advantage to cost differences in factor prices across countries.⁵

Trade theories are based on the principle of comparative advantage which derives from relative price determination i.e. differences in pre-trade relative prices across countries, underlined by supply and demand factors.⁶

According to the Heckscher-Ohlin Theory, a country’s comparative advantage is determined by its relative factor.

² Claus-Friedrich Laaser and Klaus Schrader, “European Integration and Changing Trade Patterns: The Case of the Baltic States”, Kiel Working Papers No:1088, Kiel Institute, 2002

³ Latvia, Lithuania and Estonia are called the “three’s”

⁴ For a general comment on firm based policies see: D. Autretsch, “Industrial and Trade Policies for the Emerging Market Countries”, Industrial Policy and Competitive Trade, Volume 3, Cheltenham 1998.

⁵ Paul R. Krugman and Maurice Obstfeld, “**International Economics, Theory and Policy**”, Addison-Wesley, 6.th edition, 2003, pages 10-33

⁶ Utku Utkulu and Dilek Seymen, “Revealed Comparative Advantage and Competitiveness: Evidence for Turkey vis-à-vis the EU/15”, Dokuz Eylul University – Economics Department, Izmir, September 2004, page 8.

“To measure this advantages first Bella Balassa derives an index (called the Balassa Index⁷) that measures a country’s comparative advantage. The Balassa index tries to identify whether a country has a “revealed” comparative advantage (RCA) rather than to determine the underlying sources of comparative advantage.”⁸ “

The basic logic behind RCA is to evaluate comparative advantage on the basis of a country’s specialization in (net) exports relative to some reference group.⁹ “

Although there are some weaknesses¹⁰ in these indexes they are still commonly used in comparative advantages’ analyses¹¹.

2. Characteristics of Latvian Economy

“The aim of the government’s economic policy is to ensure sustainable and balanced economic and social development, to implement the transition from a labour-intensive economy to a knowledge-based one attaining in this way the EU average GDP per capita level within the next 20-30 years.”¹²

Latvia has one of the highest growth rate in EU:

Table 1: Latvian GDP growth rate compared to EU-15 ¹³

	1999	2000	2001	2002	2003	2004	2005
Latvia	3.9	6.1	8.2	6.4	7.1	8.6	9.5
EU-15	3.8	1.9	1.9	1	1.1	1.2	1.5

As shown above, Latvian economy has an increasing growth rate trend over 7 years.

According to Alf Vanags¹⁴ this is highly acceptable in the following dimensions :

⁷ For the original article see: Balassa, B., “Trade Liberalisation and ‘Revealed’ Comparative Advantage”, *The Manchester School*, 33, 1965, 99-123.

⁸ Utku Utkulu and Dilek Seymen, loc cit.

⁹ Mika Widgren, “Revealed Comparative Advantage in the Internal Market”, Turku School of Economics, The Research Institute of the Finnish Economy (ETLA), CEPR and CESifo, 2005, page 3.

¹⁰ Luca De Benedicts and Massimo Tamberi, “A Note on the Balassa Index of Revealed Comparative Advantage”, Working Paper, 2001

¹¹ “*However, a problem of implementing these or similar RCA indices is that real (observed) trade patterns may be distorted by government interventions, thus causing misrepresentation of underlying comparative advantage. It is thus a concern that import restrictions, export subsidies and other protectionist policies of governments, to an extent, may distort RCA indices.*” (Utkulu & Seymen, 2004)

¹² Ministry of Economics of the Republic of Latvia and Central Statistical Bureau of Latvia, “The National Economy: A Macroeconomic Review”, issue 4, 2005, page 3.

¹³ This table created from values of GDP of Latvia and EU-15 and recalculated in order to show the growth rates changes as percentage of previous year’s GDP’s at market prices.

- Investment has been growing very strongly in Latvia,
- Currently Latvia is experiencing a credit boom. Over the last two years bank credit to the private sector has increased by more than 70%.

After the Soviet Union, Latvia has chosen its strategy to be based on service sector rather than industrial and agricultural sectors. So that looking more closely to the environment of GDP will show the bases of Latvian Economy.

2.1. Industrial Sector

After Soviet Union Latvia has changed its GDP composition from an agriculture and industry based economy to a service based economy.

Table 2: Latvian GDP share on industrial sector

	1990	1995	2000	2001	2002	2003	2004	2005
Industrial Sector	46.2	33.2	30.2	25.3	24.2	24.0	17.2	16.7

Latvian Industrial sector mainly based on chemical industry, construction materials, food industry and wood processing. Looking more closely, one can see that industrial sector has included following sub-sectors¹⁵:

- Buses,
- Vans,
- Street and railroad cars,
- Agricultural machinery,
- Synthetic fibers, fertilizers,
- Washing machines, radios, electronics,
- Pharmaceuticals,
- Processed foods,
- Textiles,

¹⁴ Alf Vanags, "Latvian Growth Rate: Miracle or Mirage", Baltic International Centre for Economic Policy Studies, (<http://www.policy.lv/index.php?id=102481&lang=en>),

¹⁵ Export America, December 2002, page 23.

- Wood processing,

Especially wood processing sector is the one fifth of the industrial sector.¹⁶

2.2. Agricultural Sector

Due to the lack of climate and natural resources, agricultural sector has a very small share in the total GDP in Latvia.

Table 3: Latvian GDP share on agricultural sector

	1990	1995	2000	2001	2002	2003	2004	2005
Agricultural Sector	21.9	10.8	4.5	6.4	5.3	5.0	4.3	4.1

During the last 15 years, the GDP share of the agricultural sector decreased from 21.9 to 4.1 which has also effect the employment in this sector during this period.

Main productions¹⁷ are:

- Pork
- Milk
- Beef and veal
- Egg
- Cereals
- Poultry
- Sugar beet
- Potatoes
- Furiet and berries
- Fudder cult
- Vegetables
- Other fruit and vegetable products

¹⁶ Ministry of Economics of the Republic of Latvia and Central Statistical Bureau of Latvia, “The National Economy: A Macroeconomic Review”, issue 4, 2004, page 7.

¹⁷ Ministry of Agriculture – Republic of Latvia, “Agriculture and Rural Area of Latvia”, 2006, page 10.

Mainly more than half of the agricultural production based on pork, cereals, milk and potatoes.

2.3. Service Sector

*“The GDP growth of the late 90s is mostly a result of the service-sector performance and especially transit traffic. Latvia has developed conditions for transit traffic including free sea ports, good road network and cheap and relatively qualified labour force to mention just a few.”*¹⁸

Latvian IT sector has the highest growth rate among others. Government also put more emphasis on IT sector last years following more than %30 increase.

Table 4: Latvian GDP share on service sector

	1990	1995	2000	2001	2002	2003	2004	2005
Service Sector	31.9	56.0	65.4	68.3	70.5	71.0	78.5	79.2

Now, more then 2/3 of the economy based on service sectors. After 1991 decreasing share of agricultural and industrial part of the GDP leaves their place to service sectors with a highly increasing growth rate.

Another reason for that after Soviet Union Latvian industrial sector was old technology like other new republics. After 1991 Latvian Industrial sector decreased gradually high and also tried to catch up during 90’s which could not be possible and take the economy to today’s structure.

3. Measuring The Revealed Comparative Advantage of Latvian Economy¹⁹

3.1. Method

In this paper there has been used two indexes which are Balassa Index and Vollrath Index. Balassa Index measures the revealed comparative export advantages (RXA) as follows:

¹⁸ Bruno Lill, “The Economic Development of Latvian Industries”, Center for Markets in Transition, HSE, October 2001.

¹⁹ For this study comparative advantage is measured by revealed export and revealed import and revealed trade advantages respect to EU-15 countries which are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom according to OECD classification.

$$RXA = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) = (X_{ij} / X_{nj}) / (X_{it} / X_{nt})$$

where X represents exports, i is a country, j is a commodity (or industry), t is a set of commodities (or industries) and n is a set of countries. If $RXA > 1$ it shows that the country i has a comparative advantage in commodity j . If $RXA < 1$ it shows the disadvantages.

Vollrath Index²⁰ also uses the same system to explain the relative import advantage (RMA) and the relative trade advantage (RTA) as follows:

$$RMA = (M_{ij} / M_{it}) / (M_{nj} / M_{nt}) = (M_{ij} / M_{nj}) / (M_{it} / M_{nt})$$

$$RTA = RMA - RXA$$

where M represents import and the rest is the same as Ballasa Index. If RTA is positive it shows the relative trade advantage and vice-versa.

3.2. Application

This analysis is based on Latvia's SITC 1 digit products sectors' comparative advantages / disadvantages with respect to EU-15 countries. Products by SITC 1 codes are;

- SITC_0_1 : Food, drinks and tobacco
- SITC_2_4 : Raw Materials
- SITC_3 : Mineral fuels, lubricants and related materials
- SITC_5 : Chemicals and related products, n.e.s.²¹
- SITC_6_8 : Other manufactured products
- SITC_7 : Machinery and transport equipment

²⁰ In the original paper Vollrath is discussing 2 more indexes which are not used here. For details see: Vollrath, T.L., "A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage", *Weltwirtschaftliches Archiv*, 130, 1991, 265-79.

²¹ "n.e.s." is also known as SITC_9: Goods n.e.s. (=Total - SITC_0-8)

The reason for this data to cover only 7 years from 1999 to 2005 based on the lack of data set of Latvia. So that the analysis are only covered the 1 year ahead of EU membership of Latvia and 6 years back from this year.

3.1. Results

Based on *RXA* and *RTA* there seem to be only 2 product groups which are *raw materials* and *other manufactured products* have a revealed comparative advantages in Latvia.

Table 5: For Sitc_2_4 indexed productions *RXA*, *RMA* and *RTA* values

	1999	2000	2001	2002	2003	2004	2005
<i>RXA</i>	16.19	16.88	15.08	13.37	13.99	11.48	9.86
<i>RMA</i>	0.76	0.82	0.75	0.86	1.01	1.01	0.99
<i>RTA</i>	15.43	15.06	14.33	12.36	12.98	10.47	8.87

Raw materials among all other product groups²² seems the highest revealed export advantage. For the last two years index values *RXA* has decreased from 16.19 to 9.86 while *RMA* index values are around 1.

Table 6: For Sitc_6_8 indexed productions *RXA*, *RMA* and *RTA* values

	1999	2000	2001	2002	2003	2004	2005
<i>RXA</i>	1.66	1.65	1.77	1.76	1.74	1.64	1.52
<i>RMA</i>	1.06	1.16	1.13	1.11	1.14	1.10	1.11
<i>RTA</i>	0.60	0.49	0.64	0.65	0.60	0.54	0.41

Other products are also manufactured products.

²² Only 2 product groups which have a continuously positive values are shown in the main text. Results for the rest of the product groups see Appendix.

Conclusion

Latvia has one of the highest growth rate over 7 years among all EU countries. After being a member of EU in 2004, Latvia has applied many regulations and lowered the “black economy”²³ side.

After Latvia had its freedom in 1991 its economic structure had started to change in the following 15 years. During these years GDP share of the industrial, agricultural and service sectors had changed dramatically while industrial sector became the second biggest sector after service sector. That is a completely reverse picture of the sector shares compare to the year of 1991 where industrial sector had the forty-six percentages of the whole economy and the service sector had only the thirty-one percentages.

This study showed that during these 15 years of change Latvian industrial sector is no longer has a comparative advantages except in 2 groups of products: i) Raw materials ii) Other manufactured products. It is also shown that since Latvia has a comparative advantage in these 2 sectors their competitiveness had decreased over the years.

For the firms and countries these results are revealing that investing on the other production sectors will not be as profitable as these 2 sectors. It is also considered that these two sectors are highly compatible among all others.

For the further studies one can be taken necessary to think that data set which is used for this study has only 1 year data ahead from Latvia’s membership to EU. After all regulations and within the 10 years there should be expected some certain changes in Latvian economy which also makes clear its specialization mission in EU.

²³ Black economy consists of all commerce on which applicable taxes are being evaded.

APPENDIX

Table 6: For Site_3 indexed productions RXA, RMA and RTA values

	1999	2000	2001	2002	2003	2004	2005
RXA	1.41	0.77	0.5	0.6	0.55	1.62	2.34
RMA	1.07	0.85	0.75	0.65	0.64	0.76	0.73
RCA	0.34	-0.08	-0.25	-0.05	-0.09	0.86	1.61

Table 7: For Site_5 indexed productions RXA, RMA and RTA values

	1999	2000	2001	2002	2003	2004	2005
RXA	0.43	0.46	0.43	0.37	0.39	0.39	0.40
RMA	1.64	1.79	1.66	1.53	1.51	1.40	1.35
RCA	-1.21	-1.33	-1.23	-1.16	-1.12	-1.01	-0.95

Table 7: For Site_7 indexed productions RXA, RMA and RTA values

	1999	2000	2001	2002	2003	2004	2005
RXA	0.14	0.14	0.18	0.18	0.19	0.21	0.28
RMA	0.76	0.73	0.81	0.84	0.85	0.80	0.88
RCA	-0.62	-0.59	-0.63	-0.66	-0.66	-0.59	-0.60

Table 8: For Site_0_1 indexed productions RXA, RMA and RTA values

	1999	2000	2001	2002	2003	2004	2005
RXA	1.07	1.02	1.62	1.88	1.65	1.78	2.28
RMA	1.79	2.17	2.07	2.04	1.85	1.85	1.97
RCA	-0.72	-1.15	-0.45	-0.16	-0.20	-0.07	0.31

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