HOW STRUCTURAL DEFICIENCIES HAMPER ESTONIA'S CATCHING-UP PROCESS

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Abstract

Estonia is widely regarded as a paramount example for a successful transformation of a socialist economic system to a functioning market economy. Against the backdrop of this positive image which contrasts strongly with the crisis scenarios in Southern Europe the remaining problems of Estonia are often ignored. Estonia has hardly succeeded in catching-up economically with the richer countries of the EU. In this paper the authors raise the question why the catching-up process of Estonia is not as successful as it could have been expected from the policy performance during the last decades. It turns out that Estonia faces a serious productivity problem, particularly in the manufacturing sector producing tradable goods which is normally the driving engine behind economic and technological catching-up. The Estonian economy has failed to undergo the necessary structural change towards technologically more advanced employment structures and export patterns. Accordingly, Estonian economic policy needs to create a suitable business environment to support this kind of structural change.

Keywords: Estonia, catching-up, growth and structural change

JEL: F14, O12, O52

1. Motivation

Estonia is widely regarded as a paramount example for a successful transformation of a socialist economic system to a functioning market economy. This process, which started in the course of independence from the Soviet Union in 1991, can be considered as a model case not only for other transformation countries, but even for crisis-shaken EU members in Southern Europe. Although the country was already qualified for EU full membership in the turn of the millennium, Estonia had to wait

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for other Eastern European reform countries because the EU planned an Eastern Enlargement which finally took place in 2004 (Laaser, Schrader 2003: 22-23). Moreover, Estonia gained reputation for a consequently performed stabilization policy which was rewarded by the attainment of membership in the Euro Area in January 2011.

Against the backdrop of this positive path of institutional development, it could be perfectly clear that Estonia should serve as a benchmark country for the crisis ridden EU countries in Southern Europe which still have difficulties to restore macro-economic stability and in the case of Greece to complete the required reform process. But learning from Estonia appears to be difficult with a view to its remaining key problem: Estonia has hardly succeeded in catching-up economically with the richer countries of the EU since its independence (Figure 1). Although since 1995 the Estonian per capita income relative to that of the EU-15 increased by about 35 percentage points the relative per capita income was only 47 p.c. in 2015. This picture becomes somewhat brighter if the per capita incomes are calculated in purchasing power standards — the value goes up to 68 p.c. in 2015. However, even in this case the Estonian catching-up process is far from being completed and it did not gather momentum in recent years.

The aim of this paper is, therefore, to explain why the catching-up process of Estonia is not as successful as it could have been expected from the policy performance during the last decades. The question is raised which obstacles to economic development still exist in Estonia, and which options Estonian economic policy has in order to overcome development deficiencies. In chapter 2, structural weaknesses of Estonia are identified with a focus on Estonian productivity developments which are analyzed at the sectoral level of the Estonian economy. Subsequently it is discussed whether a Balassa-Samuelson effect can be observed in Estonia. Based on this discussion the question is answered to what extent an insufficient structural change, a lack of competitiveness and constraints in Estonia's development potential undermine the country's catching-up process. In chapter 3 the strengths and weaknesses of Estonia's production potential are analyzed by applying the complexity theory of Hausmann and Hidalgo. Finally, in chapter 4 it is concluded what Estonia's major catching-up deficiencies are and what kind of policy reaction is required.

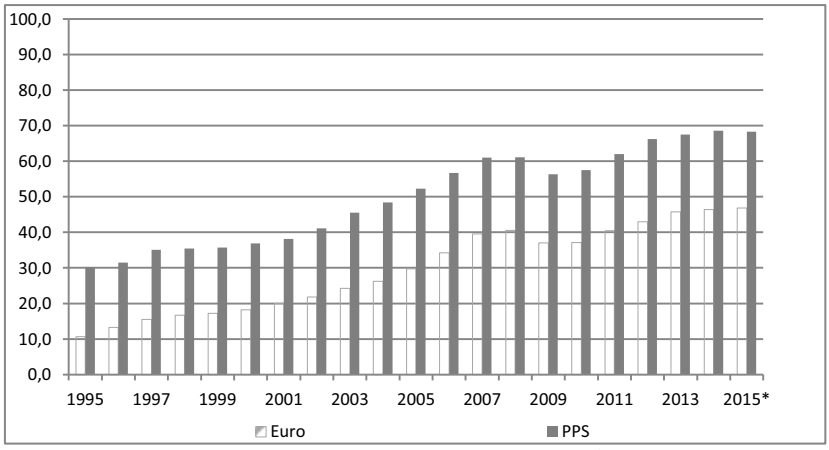


Figure 1. Estonia's catching-up with the EU-15, 1995–2015[a,b]

[a]Estonian GDP per capita in Euro in percentage auf EU-15 GDP per capita in Euro. — [b]Estonian GDP per capita in Purchasing Power Standards (PPS) in percentage auf EU-15 GDP per capita in PPS .
Source: Eurostat (2016a); own compilation and calculations

2. Structural Weaknesses

2.1 The Development of Estonian Unit Labor Cost

Unit labor cost is often perceived as one of the general indicators to assess the competitiveness of a country. Actually, OECD and EU Commission utilize the development of unit labor costs as a measure of international price competitiveness of firms within a country. In this context, unit labor costs are defined as the ratio of labor costs to labor productivity. For purposes of comparison we follow the concept of nominal unit labor cost which is applied by Eurostat and Statistics Estonia.[4]

The development of Estonian nominal unit labor cost in the 2000s displays a growing divergence towards the EU-28 on average (Figure 2). While from 2000 to 2015 the Estonian unit labor cost grew by more than 110 p.c., in the same period EU unit labor cost grew by about 22 percent only — and the gap continued to rise during the last years after some decline in a short post-crisis period. It means that since the beginning of the 2000s Estonia became less competitive compared to the EU average although just the opposite would have been expected due to the catching-up process the country is still undergoing. In absolute terms it becomes

[4] For details see Mertsina and Jänes (2012) and OECD (2015a). We are aware of the discussion on the various concepts of unit labor cost and problems with this measure as summarized in e.g. Groll and van Roye (2011). But as our further analysis focuses on the components of unit labor cost, this discussion is less relevant.

obvious that the above average increase of Estonian nominal unit labor cost led to a convergence with the EU-28. This convergence process would have been already completed before the economic crisis if it had not been interrupted temporarily in the course of the recovery of the Estonian economy. Since 2013 the Estonian unit labor cost is converging again.

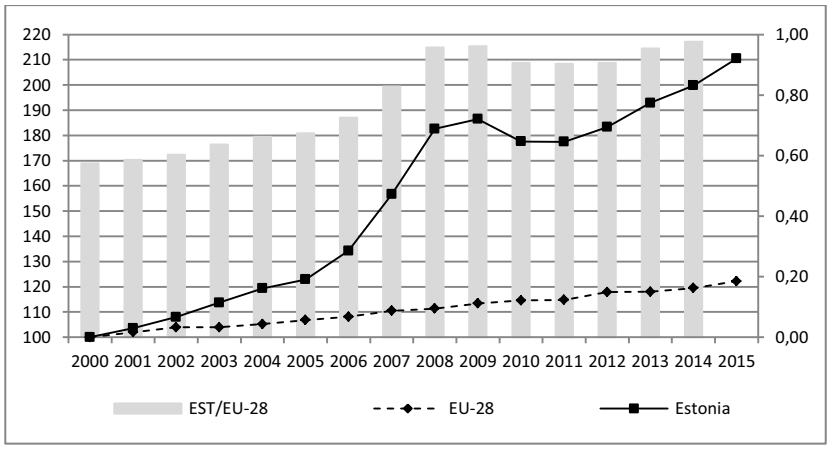


Figure 2. Development of nominal unit labor cost in Estonia compared to the EU, 2000–2015[a]

[a]Left axis: Index values 2000 = 100; nominal unit labor cost = (total compensation of employees / total employees in persons) / (GDP in market prices, chain-linked volumes / total employment in persons). — Right axis: Ratio nominal unit labor cost Estonia/EU-28.

Source: Eurostat (2016b); own compilation and calculations

To explain Estonia's unfavorable development of unit labor cost it is necessary to analyse the two components of this indicator: Labor costs and productivity. With respect to labor costs, as an appropriate measure total labor costs in industry, construction and services in Euro per hours worked are chosen to identify and compare the complete cost burden for employers. It turns out that the Estonian labor costs still range in the lower third of the respective EU ranking (Figure 3). The Estonian level is about 15 percentage points below the EU average, meaning that Estonia might appear as a country of cheap labor at least by EU standards. However compared with the other Eastern European accession countries Estonia has no competitive advantage. And it is remarkable that Estonian labor costs more than doubled in the 2000s until the economic crisis of 2008 (Figure 4). Afterwards the labor costs stopped rising for a while but in 2015 the labor cost level was more than 14 p.c. above the value in the peak year 2008.

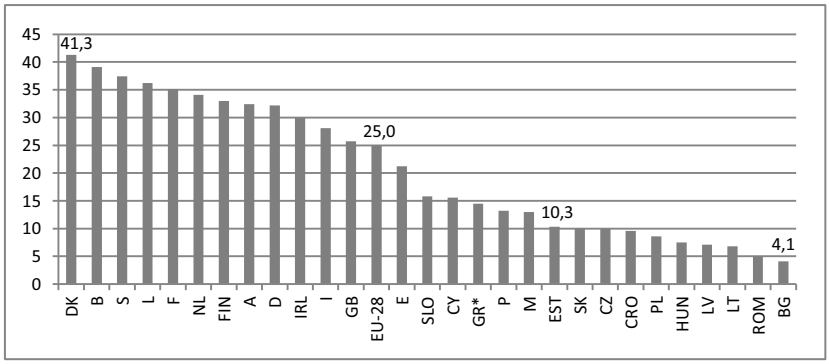
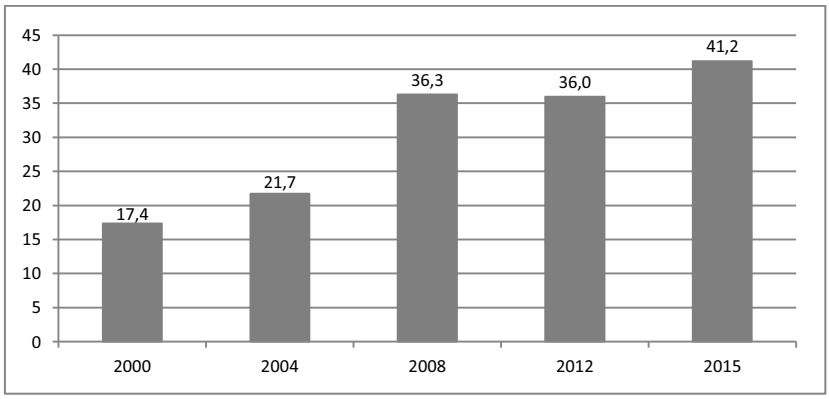


Figure 3. Ranking of total labor costs in the EU countries, 2015[a]

[a]Euro per hour; total labor costs in industry, construction and services (except public administration, defense, compulsory social security); ranking follows declining labor costs by country; country codes: DK = Denmark, B = Belgium, S = Sweden, L = Luxembourg, F = France, NL = Netherlands, FIN = Finland, A = Austria, D = Germany, IRL = Ireland, I = Italy, E = Spain, GB = Great Britain, SLO = Slovenia, CY = Cyprus, GR = Greece, P = Portugal, M = Malta, EST = Estonia, SK = Slovakia, CZ = Czech Republic, CRO = Croatia, PL = Poland, HUN = Hungary, LV = Latvia, LT = Lithuania, ROM = Romania, BG = Bulgaria. — * For Greece value of 2014.

Source: Eurostat (2016c); own compilation and calculations



[a]Estonian total labor costs in percentage of EU-28 labor costs.

Figure 4. Comparison of Estonian and EU-28 total labor costs, 2000–2015[a]

Source: Eurostat (2016c); own compilation and calculations

While labor costs were rising, Estonian labor productivity remained one of the lowest in the EU: In 2015 it amounted to only 36 p.c. of the EU average although

this ratio increased by more than 10 percentage points since 2000 (Figure 5); i.e. that Estonian labor productivity increased by 64 p.c. from 2000 to 2015. Since labor costs rose by 137 p.c. in this period this rise in productivity was by far too weak to outbalance the boost in labor costs. At the same time these contradictory trends explain the sharp rise in Estonian unit labor cost compared to the EU-28. It also means that Estonian labor productivity only gave little scope for wages to rise. Moreover, Estonia achieved not more than 30 p.c. of the EU-15 average in the observation period, following the calculation method by Eurostat (2016). It appears to be reasonable to take the EU-15 average as a benchmark for the catching-up of Estonian labor productivity because the prosperity of the EU-15 defines the desired level of economic convergence.

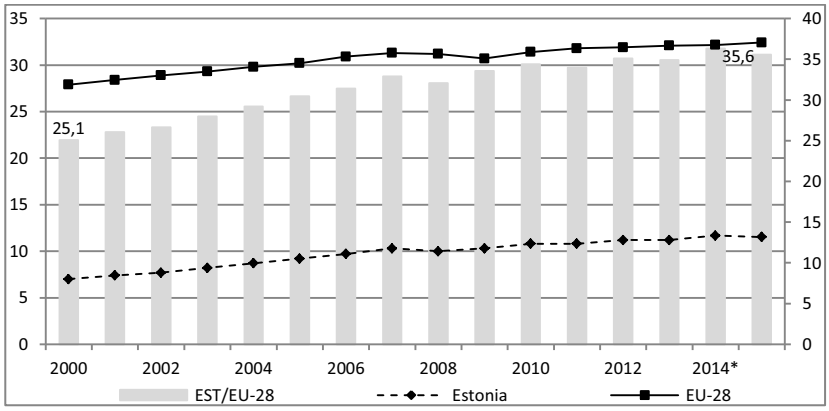


Figure 5. Estonia's real labor productivity compared to EU-28, 2000–2015[a]

(a) Left axis: Real labor productivity per hour worked is calculated by Eurostat as real output (deflated GDP measured in chain-linked volumes, reference year 2010) per unit of labor input (measured by the total number of hours worked). — Right axis: Estonian real labour productivity in percentage of EU-28 value.

*Estimates based on Eurostat.

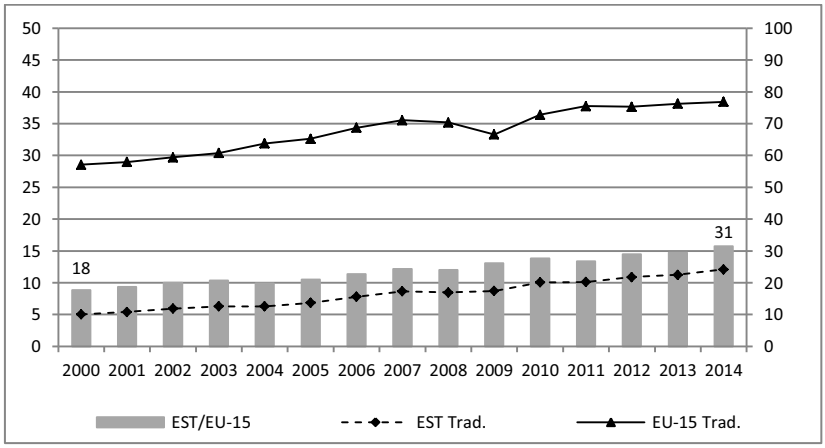
Source: Eurostat (2016d); own compilation and calculations

Against the backdrop of this weak Estonian labor productivity a more in-depth analysis is carried out which covers a sectoral distinction and is benchmarked to the EU-15. It is distinguished between tradable and non-tradable goods with a special focus on manufacturing as the major subgroup of the "tradables" (Figure 6). [5] From 2000 to 2014 in both sectors the Estonian labor productivity more than doubled starting from a very low level of about 17 p.c. of EU-15 labor productivity. However, even the more productive non-tradable sector achieved a level of 38 p.c.

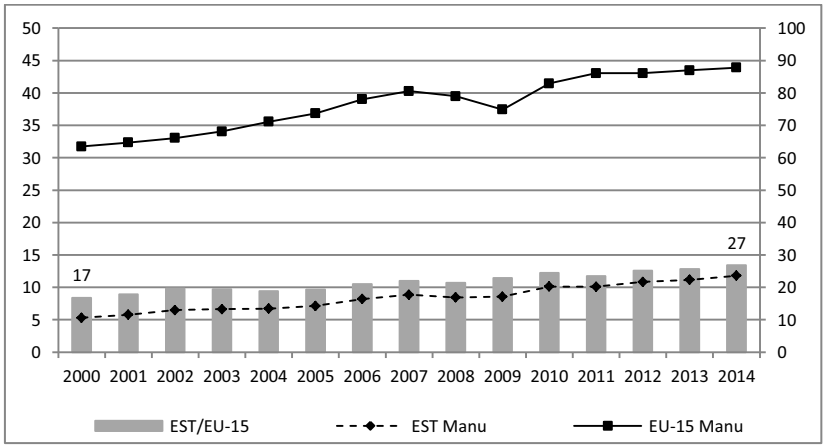
[5] With respect to the distinction of tradable and non-tradable goods no consensus has been reached in the literature. For this reason we follow a traditional approach as displayed in Figure 6. See, e.g., Egért et al. (2002: 8) and Mihaljek and Klau (2008: 6) for details.

only—with no further increase during the last observation years—, the tradable sector passed the 30 p.c. mark not before 2014. Within the tradable sector manufacturing proved to be an underperformer with a peak value of 27 p.c. of the EU-15 average.

a. Tradable goods[a]



b. Manufacturing



c. Non-tradable goods

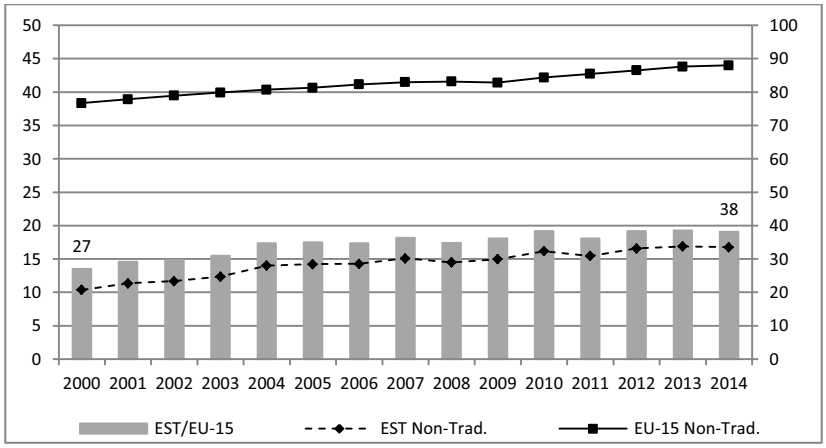


Figure 6. Real labor productivity in Estonia and the EU-15, 2000–2015

[a]Left axis: Real labor productivity is defined as gross value added (chain-linked volumes, reference year 2010) per hours worked in Euro. — Right axis: Estonian real labour productivity in percentage of EU-15 value. — Tradable goods: chapters A-C, Nace rev. 2, non-tradable goods: chapters D-M, Nace rev. 2.

Source: Eurostat (2016e); own compilation and calculations

2.2. Estonia as a Non-Balassa-Samuelson Case

The productivity gap between Estonia and the EU-15 was not sufficiently closed since the 2000s due to an only moderate productivity growth especially in Estonian manufacturing — at that atypical for a catching-up economy with unrestricted access to the EU Common Market. When joining the European Union in 2004, Estonia and the other accession countries still had a long way to go before catching-up in per-capita-income with the richer core members of the EU-15.[6] In the course of integration, however, it was expected that the accession countries would succeed in catching-up vis-à-vis the core of the integration area sooner or later. Their per-capita-incomes would have been expected to increase relatively to that of the richer countries, thereby reducing the wealth gap and running into inflation simultaneously (Halpern, Wyplosz, 2001: 4). The so-called Balassa-Samuelson effect gives an explanation for a catching-up process with this kind of characteristics.[7]

[6] Estonia's GDP per capita in purchasing power parity ranged at about 50 per cent of that of the EU-15 at that time (Schrader, Laaser 2010: 5).

[7] The Balassa-Samuelson effect is described in detail in Buiter and Grafe (2002: 131-136) in the context of their discussion which exchange-rate regime accession countries should choose. See also Halpern and Wyplosz (2001) and Mihaljek and Klau (2008) who try to assess the magnitude of the Balassa-Samuelson effect for a couple of accession countries.

The Balassa-Samuelson effect, which goes back to two seminal papers of Balassa (1964) and Samuelson (1964), describes the problems into which a successfully catching-up country might run: higher domestic inflation and real appreciation may be the result of catching-up. This will take place, if the country exhibits a positive productivity growth differential between traded and non-traded goods, what is normally driving the catching-up process. When a developing country actually increases its per-capita-income relatively to the more advanced countries, this is accomplished particularly via productivity growth in the sector producing tradable goods. This sector's productivity growth should be higher than the productivity gains in the sheltered domestic sector producing non-tradable goods. The productivity advantage of the tradable sector can be explained by the higher degree of competitive pressure on global markets. Because of its higher productivity the tradable sector can pay higher wages without the consequence of price increases.[8] However, the higher wages in the tradable sector attract workers from the sheltered sector. In return, the sheltered sector has to pay higher wages as well, but due to its lower productivity growth it has to lift the prices of its domestic goods in compensation. Subsequently, the domestic consumer price level — comprising both tradable and non-tradable goods — rises faster in the catching-up country relatively to the core of the integration zone which is the EU-15 in the case of Estonia. Finally, a permanent tendency of real appreciation emerges in the accession country.[9]

At first sight, a Balassa-Samuelson effect seems to be observable for Estonia during the observation period from 2000 to 2014 (Table 1): There was a moderate positive differential in productivity growth between manufacturing and services, i.e. the production of tradables and non-tradables.[10] But the productivity gap only closed by 0.23 points over 15 years although the extremely low productivity level in tradables had suggested a potential for higher growth rates. Hence, it would be misleading to characterize the tradables sector as the engine of dynamic productivity growth in Estonia which never took place.

[8] As the law of price holds on international markets, producers would even not be able to increase their prices.

[9] See Mihaljek and Klau (2008: 5). In the literature the Balassa-Samuelson effect is raised as an important topic for catching-up countries joining a monetary union such as the Euro zone: The Maastricht criteria might be too strict for countries which succeed in catching-up because the usual channel for approaching higher income levels – higher productivity increases in the tradable sector – might create a kind of "domestic catching-up inflation". This inflation differential is not "pathological", as Mihaljek and Klaus (2008: 2) put forward, but is instead an ingredient of the catching-up process itself. Therefore it may be required to loosen the criteria of exchange rate and inflation convergence for accession countries.

[10] See also Mihaljek and Klau (2008: 8) who find a Balassa-Samuelson effect from 1996/7 until their final observation year 2008 in most accession countries, including Estonia with 3.1 percentage points on average in this period.

Table 1. Productivity, wages and inflation in Estonia, 2000–2014[a]

	$prod_t/prod_{nt}$	w_t/w_{nt} [b]	$p_{est}–p_{ea}$
2000	0.49	0.75	1,8
2001	0.48	0.74	3,3
2002	0.51	0.74	1,4
2003	0.51	0.73	-0,7
2004	0.45	0.75	0,9
2005	0.48	0.74	1,9
2006	0.55	0.79	2,2
2007	0.57	0.82	4,6
2008	0.58	0.85	7,3
2009	0.58	0.83	-0,1
2010	0.62	0.90	1,1
2011	0.65	0.91	2,4
2012	0.66	0.91	1,7
2013	0.67	0.94	1,8
2014	0.72	0,94	0,1

[a]prod = real labor productivity, in tradable goods ($prod_t$) and in non-tradable goods ($prod_{nt}$); for definitions see Figures 5 and 6. — w = Average monthly gross wages (salaries) in EUR, in tradables (w_t) (average of goods producing sectors) and non-tradables (w_{nt}) (average of private service sectors). — $p_{est, ea}$ = Harmonised Index of Consumer Prices (all items), annual rate of change in p.c. in Estonia and in the Euro Area. — [b]2008: break in series.

Source: Eurostat (2016e, f); Statistics Estonia (2016); own compilation and calculations

The development of Estonian wages is also ambiguous: they increased somewhat faster in the tradable sector than in the non-tradable sector. However, the average wage level in the tradable sector accounted for only 75 p.c. of the average wages paid in the non-tradable sector at the beginning of the observation period in 2000. Until the crisis in 2007 this ratio only slightly increased to 82 p.c. The wage gap finally decreased to 94 p.c. but in the observation period the wages in the tradables sector never caught up completely. This means that during the whole period on average no incentives emerged for employees to move from the non-tradable to the tradable sector. In this case of inter-sectoral job migration employees would have suffered income losses due to the lower wage level in the tradables sector. Therefore, a pressure towards higher wages in the non-tradable sector could not originate in the tradables sector.

The employment trends in the sectors of tradable and non-tradable goods corroborate this observation (Figure 7). Since 2000, employment in the tradables sector decreased by more than 26 p.c. until 2014. Even in the boom years of the 2000s the employment only stagnated in the tradables sector while at least in the non-tradables sector employment grew by about 16 p.c. until 2007. And it is again the latter sector where some recovery took place in the aftermath of the crisis. Thus, the tradable sector was not the driving engine of economic development and job creation. Its only moderate productivity growth advantage vis-à-vis the non-tradable

sector was not sufficient, neither to raise its low productivity level significantly nor to bring about a real appreciation of Estonian wages and prices.

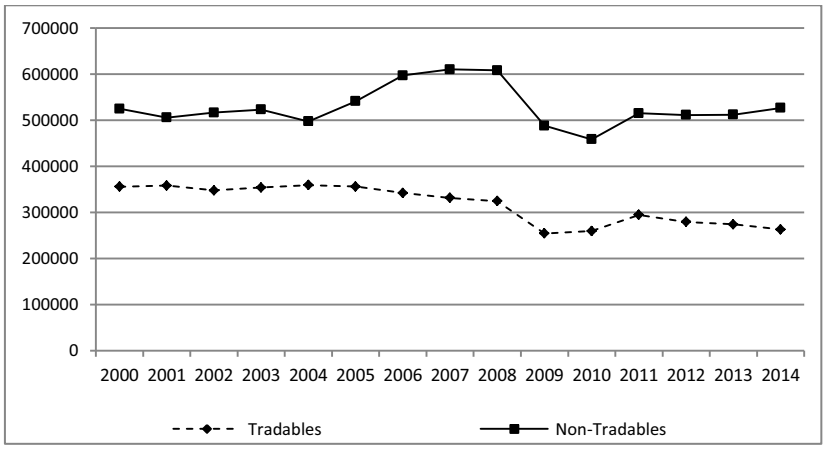


Figure 7. Employment trends in the sectors of tradable and non-tradable goods in Estonia, 2000–2014[a]

[a]Thousand hours worked. — Tradable goods: chapters A-C, Nace rev. 2, non-tradable goods: chapters D-M, Nace rev. 2.

Source: Eurostat (2016e, h); own compilation and calculations

Against this backdrop, it is doubtful that the mostly positive differential between the Estonian and the Euro Area domestic consumer price level could be attributed to Estonia's catching up towards the Euro Area as the core of its integration zone. The higher inflation in Estonia which was significantly more distinct before the crisis was determined by the rise of domestic demand especially for non-tradable services including housing, financial services, retail trade and other consumer-related services. This increase of Estonian purchasing power was not driven by rising incomes in the tradables sector but by cheap Euro loans at low interest rates in the wake of Estonia's EU access. In the early 2000s domestic demand regularly outpaced gross domestic product, indicating that the Estonians were consuming much more than they earned. Consumption per head nearly tripled in Estonia between 2000 and 2007 which crucially fueled prices in the non-tradable sector. [11]

These findings suggest that Estonia has features of a Non-Balassa-Samuelson case. It is the weak labor productivity of the manufacturing sector and the associated absence of a growth engine which hamper the Balassa-Samuelson effect. This leads to the question what is the reason for Estonia's weak productivity?

[11] See Schrader and Laaser (2010: 14-15) for a comprehensive analysis of the Baltic overheating phase shortly before the economic crisis.

2.3. Insufficient Structural Change

The productivity weakness can be attributed to an insufficient structural change of the Estonian economy as mirrored by the country's sectoral employment structure (Appendix Table A1): Estonia has a relatively high share of industries producing tradables (23.4 p.c.) but the share of agriculture, forestry and fishing (4.0 p.c.) is above average for an industrialized country and the manufacturing sector is dominated by labor-intensive industries at the low end of industrial development, with products displaying only low or middle income elasticities. These are food products, textiles and clothing as well as furniture and timber products. In contrast, the Estonian industry lacks an appropriate production of investment goods with a high value-added and a demand for highly qualified workers. Core investment goods industries—such as the automotive industry, machine-building or electrical engineering—only play a minor role or are even not in place.[12] A similar structure can be observed in the non-tradable sector where the perspectives for a growth stimulus are not substantially better than in the manufacturing sector. In the (private) service sector, low income jobs with low qualification requirements located in wholesale and retail trade, transportation and storage and also in accommodation and food service activities account for a major share of service employment.

Accordingly, the bulk of capital formation took place in the non-tradables sector with a share of more than 60 p.c. in contrast to manufacturing with a share in the region of 12 p.c. in the previous and current years. This proportion could be justified in the light of the dominance by the non-tradable sector. Nevertheless, these figures do not give any hint whether a turnaround or a stabilization of the observed sectoral pattern of gross capital formation occurred. For this reason the ratio of gross capital formation and gross value added by groups of industries is displayed in Figure 8. It becomes obvious that in the observation period from 2000 to 2014 in the tradable sector, and especially in manufacturing, the gross capital formation was disproportionally low. In the course of the 2000s the ratio even worsened for manufacturing, turning to permanently negative values in the aftermath of the crisis. Therefore it is unlikely that the manufacturing sector will become the driver of Estonian growth in the foreseeable future.

[12] Also see Raudjärv (2013: 150-151) for a similar assessment.

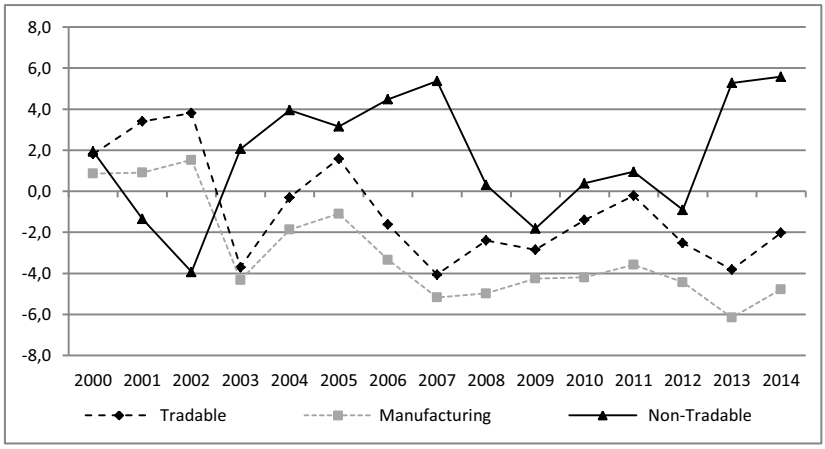


Figure 8. Differential of gross capital formation and gross value added by groups of industries in Estonia 2000–2014[a]

[a](Gross Capital Formation by groups of industries in p.c. of total) minus (Gross Value Added by groups of industries in p.c. of total) in percentage points. — Tradable goods: chapters A-C, Nace rev. 2, non-tradable goods: chapters D-M, Nace rev. 2.

Source: Eurostat 2016g; own compilation and calculations

These findings are also confirmed by the sectoral pattern of foreign direct investment (FDI) in Estonia (Table 2). It could have been expected that in the course of EU accession and trade integration the Estonian manufacturing sector would have benefited from investments in new locations of production with new products and processes. Especially FDI should have pushed up the technological level in Estonian manufacturing industries, thereby enhancing productivity and international competitiveness. But the flows and structure of FDI reveal that the focus was on industries producing non-tradable goods, dominated by financial and insurance activities, real estate activities and wholesale/retail trade. Since the early 2000s the FDI inward stock in tradables industries grew more than fourfold, in manufacturing industries a little less. But in non-tradables the FDI stock grew more than sixfold, in real estate activities even 22fold. Furthermore, FDI in manufacturing focuses on low technology industries like food products and wood (products) which together comprise about 30 p.c. of the total FDI stock in manufacturing—followed by industries like chemicals and non-metallic mineral products with a similar low technology content. I.e. the vastly growing FDI stock was not primarily used to improve and renew the capital stock in the tradable sector. Estonia failed to attract capital needed to build up competitive manufacturing structures.

Table 2. FDI inward stock in Estonia by sectors, 2000–2015[a]

	Industry	2000	2003	2006	2009	2012	2015
	Tradable	**21,9**	**17,5**	**18,6**	**16,1**	**18,4**	**15,8**
A	Agriculture, forestry and fishing	0,9	0,3	0,7	0,8	2,7	1,9
B	Mining and quarrying	0,5	0,4	0,5	0,5	0,5	0,4
C	Manufacturing	20,6	16,8	17,4	14,8	15,2	13,5
	Non-tradable	**76,5**	**80,2**	**79,0**	**80,9**	**76,3**	**78,3**
D	Electricity, gas, steam, air conditioning supply	2,4	1,7	1,5	3,4	2,6	1,1
E	Water supply, sewerage, waste manag., remediation	0,3	0,6	1,3	1,0	0,8	0,7
F	Construction	3,1	2,9	2,5	2,9	1,5	0,9
G	Wholesale, retail trade, repair of motor vehicles etc.	12,2	14,8	10,4	12,9	11,7	14,2
H	Transportation and storage	4,3	3,0	6,0	5,0	6,2	5,1
I	Accommodation and food service activities	2,2	1,6	0,4	0,6	0,6	0,6
J	Information and communication	1,9	14,1	1,3	2,2	2,9	3,6
K	Financial and insurance activities	43,1	27,5	39,1	27,9	25,4	26,3
L	Real estate activities	5,1	12,9	15,8	11,7	16,2	18,6
M	Professional, scientific and technical activities	1,9	1,1	0,8	13,2	8,5	7,1
Memorandum item:							
Total FDI inward stock in bn EUR		*2,84*	*5,55*	*9,64*	*10,99*	*14,35*	*17,37*

(a) Shares as p.c. of total FDI inward stock. — Classification according NACE Rev. 2.

Source: WIIW 2016; own compilation and calculations

2.4. Export Structures and Performance

These structural deficiencies can be observed in terms of Estonia's trade structures as well. The increase of exports during the 2000s years did not go along with a rise of technology intensity (Figure 9). The share of high tech and medium high tech exports together even decreased from 43.4 to 41.7 p.c., with a decrease of the high tech share from 28 to 16 p.c. Low tech exports are still dominant with a share of 27 p.c., at least the share of medium low tech increased to 22 percent. In comparison to a benchmark country like Hungary—which acceded the EU together with Estonia and was likewise no location of high tech industries in the Socialist era—Estonia's technological gap becomes even more evident. Based on OECD data the high tech/ medium high tech share of Hungarian exports was more than 70 p.c., with a medium high tech share of 50 p.c. in 2015 (OECD 2016). It means that in contrast to other catching-up countries the shift towards technologically advanced exports was rather limited in Estonia. This implicates the risk that in the near future Estonia has to

compete more intensively with emerging economies if a technological upgrade of its export patterns fails.

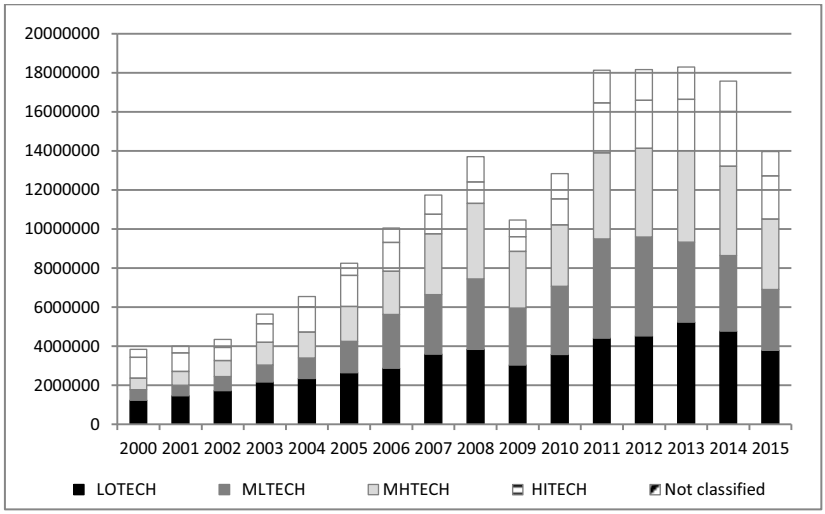


Figure 9. Technology intensity of Estonian exports 2000–2015[a]

[a]Trade by category in 1000 US-Dollar. — Defined by OECD: HITECH: High Technology Industries; MHTECH: Medium-High Technology Industries; MLTECH: Medium-Low Technology Industries; LOTECH: Low-Technology Industries.
Source: OECD (2016); own compilation and calculations

These empirical insights on Estonia's export performance can be complemented by a Constant Market Share (CMS) analysis of the Estonian goods exports. In doing so, we follow an analytical approach by González Pandiella (2015: 5–7) who analyses the Spanish goods exports. The idea is to calculate the difference between Estonia's export growth and world export growth (Total Effect=TE), and to identify the various structural components of this effect. These components are: (1) The Market Share Effect (MSE), as an indicator of price competitiveness, is the difference between the growth rate of Estonian and world exports without the part of the difference which can be attributed to changes in relative product/geographical specialization of Estonia; this is accomplished by using the product share structure of the previous period as a weight. (2) The Product Structure Effect (PSE) measures the contribution of Estonia's product composition to changes in market shares; it will be positive if Estonia's specializes in product markets which grow above the world average, and vice versa. (3) The Geographical Structure Effect (GSE) measures the contribution of Estonia's geographical export markets composition; it will be positive if Estonia's exports concentrate on regions which grow above the

world average, and vice versa. (4) The Mixed Structure Effect (MIX), a residual, which includes the structural effects which are not covered by PSE and GSE.[13]

The CMS analysis of Estonian goods exports during the observation period from 2000 to 2014 reveals that the total effect was positive in almost all years before and during the crisis of 2007/2008 — Estonian exports were growing stronger than the world exports on average (Figure 10). After the crisis the total effect turned negative with the exemption of the 2011.

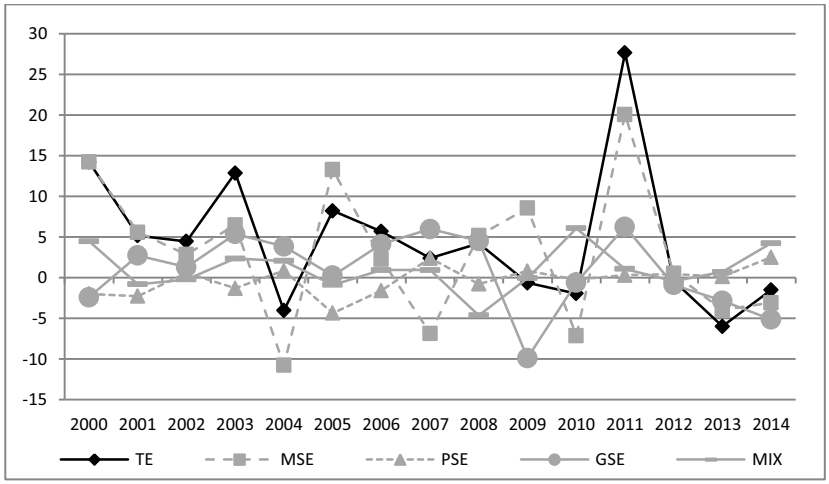


Figure 10. Results of the Constant Market Share Analysis for Estonian goods export 2000–2014[a]

[a]In percentage points; based on exports in nominal US Dollars; exports are disaggregated into 66 economic activities based on ISIC, Revision 3 which include primary and manufactured goods. — [b]For the calculation of TE, MSE, PSE and GSE see Appendix Box A1.

Source: OECD (2015b); own compilation and calculations

It becomes obvious that the Market Share Effect, i.e. Estonia's price competitiveness, was the most important determinant of the ups and downs of the total effect. It was positive in the majority of pre-crisis years and lost its strength in the aftermath of the crisis, especially at the current edge. The Product Structure Effect was mostly negative in the 2000s and did not contribute to Estonia's above average export growth which suggests that Estonian exporters were too little involved in the fastest growing product markets. Simultaneously, however, the Geographical Structure Effect contributed to the overall positive total effect, i.e. Estonia's exports partners were on average located in faster growing regions of the world. But in the post crisis period the GSE turned negative, indicating a decline on Estonia's most important product markets. While the Estonian price competiveness also worsened (negative

[13] For the details of the applied calculation method see Appendix Box A1.

MSE), the composition of Estonia's product markets as well as the Mixed Structure effect at least cushioned the fall of the total effect (positive PSE and MIX).

It can be concluded that in recent years Estonia's export development suffered from a dwindling price competitiveness and the focus on the "wrong" geographical areas. But this single country CMS analysis needs some benchmarking to assess Estonia's export performance. For this purpose the Baltic neighbor states Latvia and Lithuania, countries with similar economic path dependencies and a similar integration record, are included in the CMS analysis. The results reveal that over the observation period Estonia's total effect underperformed in comparison with Latvia and Lithuania (Appendix Figure A1). Especially the Market Share Effect, representing price competitiveness, shows a diverging development whereas the Geographical Structure Effect exhibits distinct similarities. In the case of the Product Structure Effect it becomes obvious that compared to Lithuania the Estonian exporters has a high potential to improve their presence on growing product markets.

3. Estonia's Strengths and Weaknesses in the Light of the Complexity Theory

The productivity potential of Estonia, i.e. the variety of productive options which this country has available which may contribute to its wealth, can be described by the so-called complexity theory put forward by Hausmann and Hidalgo.[14] According to their theory manufacturing still serves as the pivotal device for R&D, innovation and economic growth. Both authors emphasize that economic complexity—meaning the stock and great variety of knowledge, skills and capabilities available in a country—is directly embodied in manufacturing activities in the course of producing individual commodities.[15] The more productive capabilities of this kind a country is able to acquire, to preserve and to combine, the better are its prospects for prosperity and economic growth (Hausmann, Hidalgo 2012: 13). In this case the stock of knowledge is large enough to take innovative paths of production which may promise new sources of income.

Based on their theory Hausmann, Hidalgo et al 2011 build the complexity index of a country—the more diverse the picture of the various productive capabilities is, the higher is the country's index number—, rate this index for all countries, and afterwards present a ranking of the countries in the world with respect to this variety of the embodied productive knowledge. In some sense a country's complexity index

[14] See Hidalgo and Hausmann 2009; Hausmann and Hidalgo 2011, 2012; and Hausmann, Hidalgo et al 2011; for a detailed elaboration of their theory. A brief summary of their reasoning as well as an evaluation of the consequences for future manufacturing is to be found in Moavenzadeh et al 2012.

[15] In international comparison, manufacturing is usually a source of higher incomes for countries with a high share of manufacturing value added and employment. Although the share of manufacturing in value added and employment is shrinking globally, this sector has retained its position as generator of incomes and as an important driver of economic growth (Manyika et al 2012).

is a kind of a deeply disaggregated production possibility curve and, thus, a measure for its production potential, its future productivity gains and its growth prospects.[16]

Technically, this index for each country is based on two sub-measures: (i) diversity of a single country's (export) product pattern, i.e. the number of commodities exported by this country, and (ii) ubiquity of the product which measures the number of countries which are actually producing a particular commodity. The more diverse the export pattern of a country is the more human capital and skills are embedded in its product range. And if a commodity is produced only by a small number of countries, the tacit knowledge embedded in the product is apparently a scarce factor which only few economic agents possess. Both sub-measures are used to correct the other one in terms of averages of diversity and ubiquity in order to avoid distortions in single measurement scales.[17] In the last stage, to distinguish between export and country sizes, only products are counted, for which the Balassa RCA-value for that country shows a comparative advantage (ibid., 19-24, 56).

Applying the Hausmann-Hidalgo concept to Estonia on the one hand corroborates the notion of a distinctive productivity gap to the core members of the EU, but on the other hand renders some hopeful signs for Estonia at least at the current edge. The ranking of the Economic Complexity Index for 2008, the year which Hausmann, Hidalgo et al. (2011) used for their first printed version of their atlas of complexity, shows Estonia worldwide[18] on rank 32 with an index value of .669. In comparison the Baltic neighbors Lithuania and Latvia ranked on 33 with .634, resp. on 37 with .560 (see Table 3, left columns).[19] Interestingly, the Baltic States found themselves in the neighborhood of structurally problematic Southern European countries, such as Portugal which ranks on No. 32 with .647, and 15-20 ranks in front of crisis-shaken Greece (No. 48 with .127).

To be sure, the attained index value and rank of Estonia, in 2008 indicate a production potential that is above average in worldwide comparison, whereby a value of "0" would indicate the average. However, it appears to have been only moderately above the average, measured by the standard deviation of the sample.

[16] Hausmann and Hidalgo's focus on manufacturing is corroborated by Tassey (2014: 28–29) who concludes, that (i) high paying jobs are to be mainly found in manufacturing industries, particularly where R&D is performed, that manufacturing (ii) still dominates exports, (iii) generates substantial forward and backward linking demand for high-income services, and (iv) provides high incomes if linked to high-tech activities.

[17] For the calculation method see Box A2 in the Appendix.

[18] Cf. Box A2 in the Appendix for the geographical coverage of the ranking.

[19] Compared to the figures given in the printed version (Hausmann, Hidalgo et al. 2011: 64–66) the ECI-values for 2008 in the most recent database—a downloadable Excel-file to be found in Hausmann and Hidalgo (2016)—differ somewhat due to updating. Hence, the newer source has been used here.

Table 3. Economic complexity ranking for Estonia and selected countries, 2008 and 2014

Country	Rank 2008 in ECI[a]	ECI[a] Value 2008[b]	Country	Rank 2014 in ECI[a]	ECI[a] Value 2014
Japan	1	2.308846	Japan	1	2.209021
Germany	2	2.030854	Germany	2	1.922099
Switzerland	3	1.968094	Switzerland	3	1.873856
Sweden	4	1.831161	…	…	…
…	…	…	Sweden	5	1.710730
Finland	6	1.741214	…	…	…
…	…	…	Czech Republic	7	1.635692
Czech Republic	8	1.633017	Finland	8	1.598512
…	…	…	Hungary	9	1.499239
Slovenia	14	1.445725	…	…	…
Hungary	15	1.410303	Slovenia	11	1.466787
Slovak Republic	16	1.405953	…	…	…
…	…	…	Slovak Republic	13	1.397460
Denmark	18	1.301444	…	…	…
…	…	…	Denmark	20	1.086663
Poland	21	1.025303	…	…	…
…	…	…	**Estonia**	**25**	**0.949223**
Croatia	28	0.848220	…	…	…
Romania	29	0.760289	Poland	27	0.932147
Estonia	**30**	**0.669812**	…	…	…
…	…	…	Romania	29	0.862305
Portugal	32	0.646825	…	…	…
Lithuania	**33**	**0.634480**	Croatia	32	0.773784
…	…	…	Norway	33	0.706954
Latvia	**37**	**0.560319**	**Lithuania**	**34**	**0.638158**
…	…	…	**Latvia**	**35**	**0.599360**
Norway	39	0.523211	Portugal	36	0.572483
Bulgaria	40	0.419373	…	…	…
…	…	…	Bulgaria	38	0.504985
Russia	46	0.229319	…	…	…
…	…	…	Greece	46	0.219038
Greece	48	0.127012	…	…	…
			Russia	50	0.051867

[a]ECI = Economic Complexity Index. — [b]As the ECI-values for 2008 in the most recent source of Hausmann and Hidalgo (2016) differ somewhat from those given in the printed volume Hausmann, Hidalgo et al. (2011: 64-66) due to updating, the newer source has been used here.

Source: Hausmann and Hidalgo 2016; own compilation

In this context It should be noted that the Baltic Countries' rank in the complexity index scale was slightly better than that in the corresponding per-capita-income (PCI) ranking: Estonia is the 35th and Lithuania the 41st country on the PCI-ranking,

while Latvia as 38th reached a slightly worse position.[20] In the context of the complexity model this would indicate that the three Baltic States did not substantially deviate in their income from their production possibilities—just in contrast to Portugal and particularly Greece. Portugal's rank in the income scale (28th) which was 4 ranks better than in the complexity scale, and Greece's 25th rank in the income scale which was more than 20 ranks better, indicate that these South European countries owe their higher PCIs not to their production possibilities but to capital inflows.[21]

The most recent values of the Hausmann-Hidalgo index which have been calculated for the year 2014 (see Hausmann, Hidalgo 2016) reveal a certain progress for Estonia (but not for Latvia and Lithuania): In 2014 Estonia could climb up several places in the rank ladder, holds rank 25 now, and could attain a production potential index value of .949 (Table 3, right columns). For this year, Estonia's positive margin to the (lower) average is close to the standard deviation of the whole sample. As the productivity analysis in the previous sections has shown, however, one should not fall believe that the problem of structural deficiencies has been solved: Estonia's productivity gap to the core countries of the EU is far from having vanished. Moreover, as Table 4 shows, Estonia's rise is a mere phenomenon of 2014. Until 2013, Estonia ranked on a pretty regular basis either 30th, 31st, or even 32nd.

Table 4. Economic complexity ranking and values of Estonia from 2008 to 2014

Year	Estonia's ECI-Rank	Estonia's ECI Value
2008	30	0,6698
2009	31	0,6547
2010	31	0,7140
2011	31	0,8354
2012	32	0,7974
2013	31	0,8558
2014	25	0,9492

Source: Hausmann and Hidalgo (2016); own compilation

Merely the index value exhibits a certain increase in the course of time. Given the fact that Hausmann and Hidalgo regularly update and revise their rankings and calculations it is possible that rank 25 of 2014 is not yet robust. In sum, the complexity theory exhibits that structural deficiencies are still present in Estonia.

[20] Cf. Hausmann, Hidalgo et al (2011: 64-66) for the PCI-Ranking.

[21] To cite Hausmann, Hidalgo et al (2011: 63) directly regarding the two Southern European countries: „Interestingly the least complex countries in Western Europe are Portugal … and Greece …, two countries whose high income cannot be explained by either their complexity or their natural resource wealth. We do not think that this is unrelated to their present difficulties: their current income has been propped up by massive capital inflows and, as these decline to more sustainable levels, the internal weaknesses come to the fore. The ECI, however, illustrates clearly how these mismatches can be identified from the data".

4. Conclusions

Although Estonia became a functioning market economy and served as a benchmark with respect to fiscal stability in the course of the last two decades, Estonia did not manage to catch-up economically with the average of the high income EU-15 countries. Despite the visible progress in closing the income gap, Estonia still attains only less than the half of the EU-15 per capita income.

The Achilles' heel of the Estonian economy is of structural nature due to a technological gap towards the leading industrialized countries. Estonia currently has a focus on the production of raw material- and labor-intensive goods with a relatively low technology and human capital intensity, and it has to compete primarily with developing and emerging economies on world markets. Competition of this kind goes along with low prices for standardized products and a missing monopolistic pricing scope. Estonia as a member of a hard currency union hardly stands any chance of winning such price wars. Moreover, in this "race to the bottom" Estonia cannot improve its competitiveness through a nominal devaluation. Therefore, devaluation in real terms, i.e. falling or at least stagnating wages and prices for such products, would be short-term the only alternative to maintain competitiveness anyway. As a negative side effect, a real devaluation would strengthen the income gap in relation to the other members of the currency union. To avoid these negative adjustments and to leave the "race to the bottom", Estonia had to become a candidate for a real appreciation.

This means that Estonia should become a Balassa-Samuelson country with a relatively high domestic inflation rate and pressure towards real or internal appreciation. This would be the result of a catching-up process driven by an above average productivity growth in the tradable goods sector. This kind of productivity growth would improve Estonia's international competitiveness and increase its relative per-capita income. But instead the analysis suggests that Estonia exhibits features of a Non-Balassa-Samuelson case. It is the weak labor productivity of the manufacturing sector and the associated absence of a growth engine which hamper the Balassa-Samuelson-effect.

The low productivity of the Estonian manufacturing sector can be explained by the dominance of labor-intensive industries at the low end of industrial development, with products displaying only low or middle income elasticities while the production of investment goods with a high value-added and a demand for highly qualified workers is underrepresented. Core investment goods industries with high labor productivity are missing mostly. The reason is that during the last 15 years gross capital formation was disproportionally low in the tradable sector, and especially in manufacturing. These findings are substantiated by the sectoral pattern of foreign direct investment which reveals that Estonia failed to attract the capital needed to build up competitive manufacturing structures. Foreign direct investors focused on financial and insurance activities, real estate activities as well as wholesale/retail trade instead of improving and renewing the capital stock in the Estonian tradable sector.

These structural deficiencies are mirrored by the low technology intensity of Estonian exports. In contrast to other catching-up countries like Hungary the shift towards

technologically advanced exports was rather limited in Estonia. Moreover, a CMS analysis shows that the Estonian export performance did not improve during the last years. Estonia's export development rather suffered from a dwindling price competitiveness and from the missing focus on global growth regions. Even in comparison to the Baltic neighbors Latvia and Lithuania the Estonian export clearly underperformed. At least the CMS analysis displays a shimmer of hope as Estonian exporters have high potentials to improve their presence on growing product markets.

With regard to Estonia's production potential as measured by the complexity index of Hausmann and Hidalgo, the country's underperformance relative to the other EU-members is discernable as well. Until 2013, the country ranked behind most of the other new members of the EU with an index value which was only moderately above the average on a world scale. Even though the most recent ranking of 2014 shows an improvement of Estonia's position and may give rise to some hope, it may not yet be robust and still be subject to data revision.

The conclusion from this analysis is that the Estonian economy's product range will have to change towards higher value-added products with a higher input of technology and human capital as well as with scope for price gains. The resulting increase in productivity would allow for a real appreciation, thus lowering the income gap in relation to the highly developed member countries of the EU. Estonia should become a Balassa-Samuelson country. Hence, the challenge for Estonian economic policy is to create a suitable business environment to support this kind of structural change. The business environment in Estonia has to be conditioned in a way that the country improves its ability to attract foreign direct investment in the tradables sector, especially in manufacturing. As the recent past shows, it is not the financial or real estate industry which generates sustainable growth needed to close the income gap towards the core EU in the long run. And Estonia itself is too small to rely on home markets or homemade technologies—it needs the global integration of its economy.

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Appendix

Table A1. Sectoral employment structure in Estonia 2014[a]

		p.c. of total
Total	**Total – All NACE activities**	**100.0**
Tradables		**23.4**
A	Agriculture, forestry and fishing	4.0
B	Mining and quarrying	0.7
C	Manufacturing	18.7
C10-C12	Manufacture of food products; beverages and tobacco products	2.8
C13-C15	Manufacture of textiles, wearing apparel, leather and related products	2.1
C16-C18	Manufacture of wood, paper, printing and reproduction	3.5
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	2.6
C17	Manufacture of paper and paper products	0.4
C18	Printing and reproduction of recorded media	0.5
C19	Manufacture of coke and refined petroleum products	
C20	Manufacture of chemicals and chemical products	0.5
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	
C22_C23	Manufacture of rubber and plastic products and other non-metallic mineral products	1.1
C22	Manufacture of rubber and plastic products	0.4
C23	Manufacture of other non-metallic mineral products	0.7
C24_C25	Manufacture of basic metals and fabricated metal products, except machinery and equipment	2.7
C24	Manufacture of basic metals	
C25	Manufacture of fabricated metal products, except machinery and equipment	2.6
C26	Manufacture of computer, electronic and optical products	0.9
C27	Manufacture of electrical equipment	0.8
C28	Manufacture of machinery and equipment n.e.c.	0.4
C29_C30	Manufacture of motor vehicles, trailers, semi-trailers and of other transport equipment	0.8
C29	Manufacture of motor vehicles, trailers and semi-trailers	0.6
C30	Manufacture of other transport equipment	
C31-C33	Manufacture of furniture; jewellery, musical instruments, toys; repair and installation of machinery and equipment	2.7
C31_C32	Manufacture of furniture; other manufacturing	1.8
C33	Repair and installation of machinery and equipment	0.8
Non-Tradables		**46.8**
D	Electricity, gas, steam and air conditioning supply	1.4
E	Water supply; sewerage, waste management and remediation	0.5

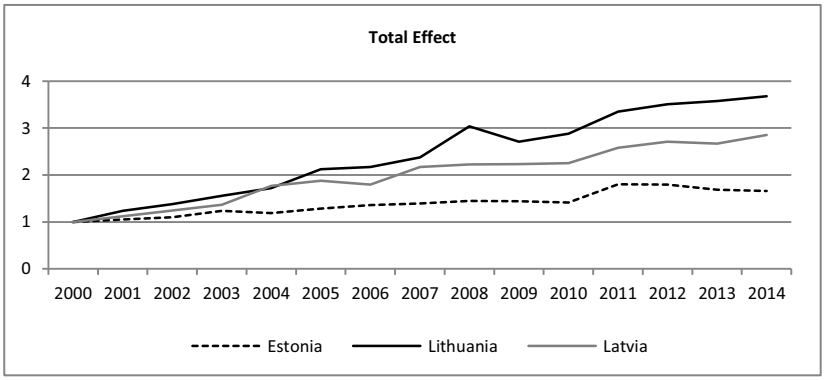
	activities	
F	Construction	8.2
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	13.5
H	Transportation and storage	8.2

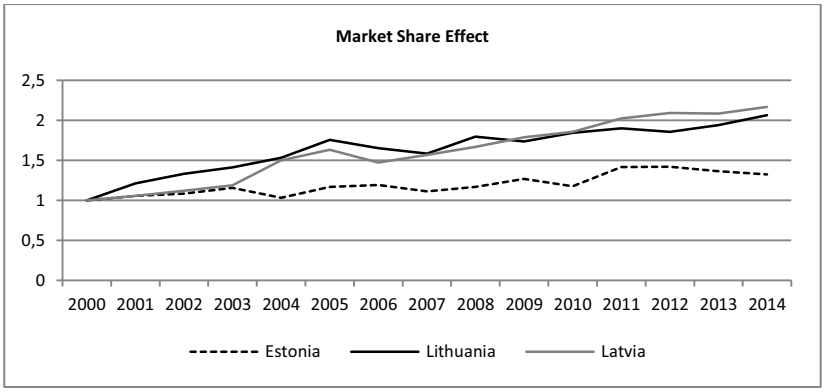
Table A1 continued

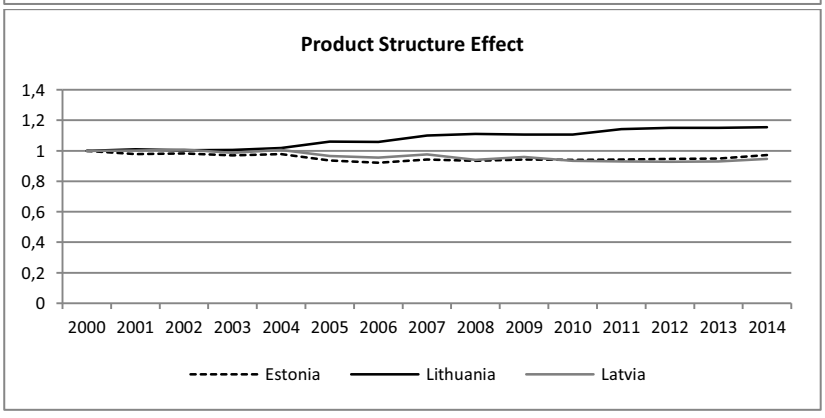
		p.c. of total
I	Accommodation and food service activities	4.3
J	Information and communication	3.7
K	Financial and insurance activities	1.3
L	Real estate activities	1.6
M	Professional, scientific and technical activities	4.1

[a]Based on thousand hours worked (domestic concept).

Source: Eurostat 2016h; own compilation and calculations


Total Effect
4
3
2
1
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Estonia
Lithuania
Latvia


Market Share Effect
2,5
2
1,5
1
0,5
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Estonia
Lithuania
Latvia


Product Structure Effect
1,4
1,2
1
0,8
0,6
0,4
0,2
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Estonia
Lithuania
Latvia

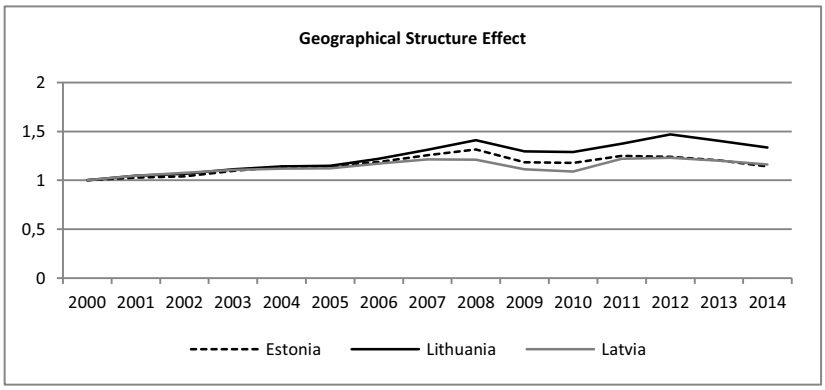


Figure A1. Results of the Constant Market Share Analysis for the goods export of Estonia, Latvia and Lithuania 2000–2014[a]

[a]Index values, 2000=1. — [b]For the calculation of TE, MSE, PSE and GSE see Appendix Box A1.

Source: OECD 2015b; own compilation and calculations

Box A1. Constant Market Share Analysis: The applied calculation method explained

$$TE = g - g^* = \sum_i \sum_j \theta_{ij} g_{ij} \sum_i \sum_j \theta^*_{ij}\, g^*_{ij}$$

The notion of individual market used here refers to each *ij* market measured as exports of product *i* to destination country *j*.

Where $g_{ij} = \frac{X_{ij,t} - X_{ij,t-1}}{X_{ij,t-1}}$ is the percentage change of Estonian exports of product *i* to country *j* in period *t*, and $\theta_{ij} = \frac{X_{ij,t-1}}{\sum_i \sum_j X_{ij,t-1}}$ is the share of product *i* to destination *j* in total Estonian exports in period *t*-1, and $g^*_{ij} = \frac{X^*_{ij,t} - X^*_{ij,t-1}}{X^*_{ij,t-1}}$ and $\theta^*_{ij} = \frac{X^*_{ij,t-1}}{\sum_i \sum_j X^*_{ij,t-1}}$ are the equivalent terms for world exports (excluding Estonia).

$$TE = MSE + PSE + GSE + MIX$$

$$MSE = \sum_i \sum_j \theta_{ij}\left(g_{ij} - g^*_{ij}\right)$$

$$PSE = \sum_i (\theta_i - \theta^*_i)(g^*_i - g^*)$$

$$GSE = \sum_j \left(\theta_j - \theta^*_j\right)\left(g^*_j - g^*\right)$$

$$MIX = \sum_i \sum_j \left[\left(\theta_{ij} - \theta^*_{ij}\right) - (\theta_i - \theta^*_i)\frac{\theta^*_{tj}}{\theta^*_i} - \left(\theta_j - \theta^*_j\right)\frac{\theta^*_{ij}}{\theta^*_j}\right] g^*_{ij}$$

where:

$\theta_i = \sum_i \theta_{ij}$ (share of product *i* in Estonian exports)

$\theta^*_i = \sum_i \theta^*_{ij}$ (share of product *i* in world exports)

$\theta_j = \sum_i \theta_{ij}$ (share of market *j* in Estonian exports)

$\theta^*_j = \sum_j \theta^*_{ij}$ (share of market *j* in world exports)

$g^*_i = \frac{\sum_j \theta^*_{ij} g^*_{ij}}{\theta^*_i}$ (growth rate of world exports of product *i*)

$g^*_j = \frac{\sum_i \theta^*_{ij} g^*_{ij}}{\theta^*_j}$ (growth rate of world exports to market *j*)

Source: González Pandiella 2015: 6-7

Box A2. Calculation method of the complexity index by Hausmann and Hidalgo

The complexity index is calculated according to the formula $ECI = \frac{\vec{K} - avg(\vec{K})}{stdev(\vec{K})}$, whereby $\vec{K} =$ Eigenvector of $\widetilde{M}_{cc\prime}$ (the latter being the country matrix) associated with the largest eigenvalue (cf. Hausmann, Hidalgo et al. 2011: 24, Technical box 2.1). This means that the complexity matrix of a country is measured both against the average value for the whole sample of countries and against the standard deviation of the sample.

A value of "1" indicates that the positive difference between the capability matrix of the reporting country and the average just matches the standard deviation. A value of "0" indicates that the complexity matrix of the country just matches the average of all countries in the sample. As countries may even lack average capabilities compared to the other countries in the world, index values can also be negative. In the most recent edition of the ECI values for 2014 (Hausmann and Hidalgo 2016) values range between +2.31 for Japan and –2.33 for Angola.

A decline of the index value compared to previous years does not necessarily mean that a country has "forgotten" former capabilities, but rather that the average capabilities have increased, i.e. some form of catching-up in knowledge has taken place.

Hausmann, Hidalgo et al. (2011: 58-59) include 128 of the approximately 200 countries in the world in their ranking of 2008 after having skipped those (i) for which they could not get GDP- and export data (reduces the sample to 185 countries), (ii) with a population of less than 1.2 Million (to 147), (iii) with trade of less than US-$1 bn (to 131), and (iv) Iraq, Chad and Macau due to unreliable data (to 128).

STRUKTURSCHWÄCHEN ALS HEMMNIS FÜR ESTLANDS AUFHOLPROZESS[1]

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1. Motivation

Estland gilt gemeinhin als ein Musterbeispiel für die erfolgreiche Transformation eines ehemaligen sozialistischen Systems in eine funktionierende Marktwirtschaft. Der Transformationsprozess begann mit der Unabhängigkeit von der ehemaligen Sowjetunion in Jahr 1991. Estland hatte sich relativ früh für eine Vollmitgliedschaft in der EU qualifiziert, musste dann aber auf andere osteuropäische Reformstaaten warten, weil die EU eine Osterweiterung in größerem Stil plante, die schließlich im Jahr 2004 stattfand. Darüber hinaus hatte Estland durch seine konsequent durchgeführte und durchgehaltene makroökonomische Stabilisierungspolitik an zusätzlicher Reputation gewonnen. Dies zahlte sich während der Wirtschafts- und Finanzkrise und im Januar 2011 aus, als Estland in die Eurozone aufgenommen wurde.

Vor dem Hintergrund dieses vorbildlichen Prozesses institutioneller Entwicklung sollte es eigentlich nahe liegen, dass Estland als eine Blaupause dafür dienen kann, wie die Krisenländer im Süden der EU ihre Probleme lösen könnten. Diese Länder haben immer noch Schwierigkeiten, ihre makroökonomische Stabilität wiederherzustellen, und insbesondere Griechenland ist es nach wie vor nicht gelungen, die dringend erforderlichen Reformen seiner institutionellen Rahmenbedingungen und seiner Realwirtschaft auf nachhaltige Weise voranzubringen. Indes würde eine Empfehlung „von Estland zu lernen“ leichter fallen, wenn da nicht ein Schwachpunkt in Estlands Entwicklung zu verzeichnen wäre: das nach wie vor mangelnde Aufholen im wirtschaftlichen Entwicklungsstand gegenüber den reicheren EU-Mitgliedstaaten. Obwohl sich das relative Prokopfeinkommen Estlands zu den EU-15 seit 1995 mehr als verdreifacht hat, erreichte Estland im Jahr 2015 erst einen Wert von weniger als der Hälfte des Referenzwerts der EU-15. Etwas positiver sieht die Aufholbilanz aus, wenn man Kaufkraftstandards heranzieht

[1] Den vollständigen Text des Artikels “How Structural Deficiencies Hamper Estonia’s Catching-up Process“ findet der Leser auf der beigefügten CD.

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und damit berücksichtigt, dass lokale Güter und Dienste in Estland preislich günstiger erhältlich sind. Dann erreicht Estland mehr als zwei Drittel des EU-15-Werts. Aber auch das alternative Maß kann nicht darüber hinwegtäuschen, dass der estnische Aufholprozess noch lange nicht beendet ist. Negativ zu Buche schlägt insbesondere der Umstand, dass der Prozess gerade in den letzten Jahren fast zum Erliegen gekommen ist.

Die vorliegende Analyse soll daher erklären, warum der estnische Aufholprozess nicht so erfolgreich verlaufen ist, wie es die vorbildliche Weiterentwicklung des institutionellen Systems eigentlich hätte erwarten lassen. Dabei wird der Frage nachgegangen, welche Hemmnisse für die wirtschaftliche Entwicklung in Estland bestehen und welche Handlungsoptionen die estnische Wirtschaftspolitik für eine Beschleunigung des Aufholprozesses hat. Dazu werden zunächst strukturelle Schwächen der estnischen Wirtschaft identifiziert, wobei der Fokus auf der Produktivitätsentwicklung im EU-Vergleich liegt. Daran anschließend wird diskutiert, ob für Estland ein sogenannter Balassa-Samuelson-Effekt zu beobachten ist, wie er für aufholende Länder typisch ist. Darauf aufbauend wird die Frage beantwortet, inwieweit ein unzureichender Strukturwandel, mangelnde Wettbewerbsfähigkeit und ein unzureichendes Entwicklungspotential den Aufholprozess behindern. Die Stärken und Schwächen des estnischen Produktionspotentials werden auf der Basis der Komplexitätstheorie von Hausmann und Hidalgo analysiert, die eine tief disaggregierte Darstellung der Produktionsmöglichkeiten eines Landes bietet.

2. Estlands Produktivitätsproblem

In der Tat harmonieren Estlands erfolgreicher Weg hin zu einem marktwirtschaftlichen System und seine Vorbildfunktion hinsichtlich der makroökonomischen Stabilisierung wenig mit dem bisher eher stockenden Aufholprozess gegenüber den EU-Partnern. Einer Erklärung dieser Diskrepanz kommt man aber näher, wenn man sich von der Makro-Ebene löst und die Wertschöpfungs- und Beschäftigungsstrukturen und damit die mikroökonomische Ebene näher analysiert.

In den 2000er Jahren haben sich die estnischen Lohnstückkosten im Vergleich zum EU-Durchschnitt relativ stark erhöht, so dass die Wettbewerbsfähigkeit Estlands gegenüber den anderen EU-Ländern tendenziell gesunken ist. Obwohl Estland als aufholendes Land Lohnstückkostenvorteile gegenüber hochentwickelten Wettbewerbern haben sollte, ist absehbar, dass sich die Lohnstückkosten Estlands und der EU insgesamt angleichen werden. Die Ursache dieser für Estland ungünstigen Entwicklung zeigt sich exemplarisch bei der Analyse der beiden Komponenten der Lohnstückkosten: Im Verlauf der 2000er Jahre sind die die estnischen Arbeitskosten im Vergleich zum EU-Durchschnitt um mehr als das Doppelte auf mehr als 40 Prozent des EU-Werts gestiegen. Dieser Anstieg wäre wettbewerbsneutral gewesen, wenn die Arbeitsproduktivität mindestens im gleichen Maß gestiegen wäre. Dies war aber gerade nicht der Fall, die Produktivitätsentwicklung stagnierte weitegehend und die reale Arbeitsproduktivität über alle Wirtschaftszweige hinweg erreichte gerade einmal 36 Prozent des EU-Durchschnitts — ein Wert, der im Vergleich mit den

hochentwickelten EU-15 Ländern noch einmal deutlich unterschritten wird. Die offensichtliche Produktivitätsschwäche Estlands ist vornehmlich im Bereich handelbarer Güter, insbesondere im Verarbeitenden Gewerbe, begründet, wie eine vertiefende sektorale Untersuchung zeigt. Hier erreichte die Arbeitsproduktivität im Jahr 2014 nur 27 Prozent des Wertes in der EU-15 (siehe Schaubild 1).

Die Produktivitätsschwäche Estlands hat dazu letztendlich dazu geführt, dass es keinen „typischen" Aufholprozess geben konnte, der die Wohlstandslücke zu den wohlhabenden Ländern des europäischen Integrationsraums hätte schließen können und zu einer realen Aufwertung in Estland geführt hätte. Nach Balassa und Samuelson würde ein aufholendes Land wie Estland eine vergleichsweise hohe heimische Inflationsrate aufweisen, die durch ein überdurchschnittliches Produktivitätswachstum in der Produktion handelbarer Güter ausgelöst wird. Während die hohe Produktivität bei handelbaren Gütern selbst Lohnerhöhungen ohne Preiserhöhungen ermöglichen würde, müssten die Preise nicht-handelbarer Güter anziehen, da die höheren Löhne bei handelbaren Gütern Arbeitskräfte aus der Produktion nicht-handelbarer Güter abzuziehen drohten.

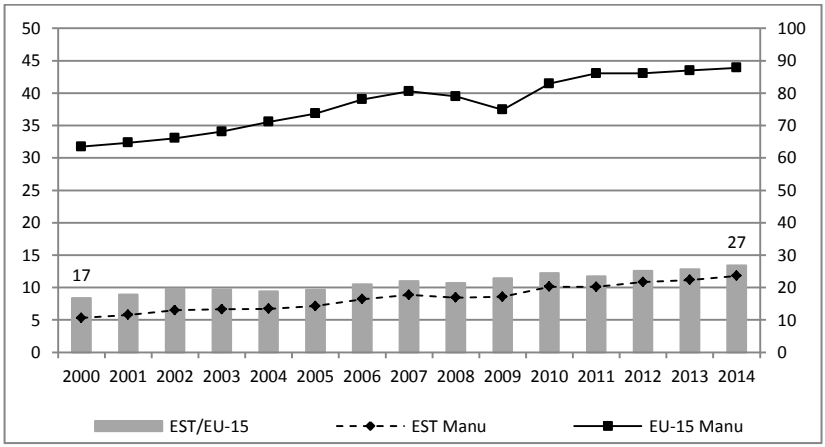

Schaubild 1. Reale Arbeitsproduktivität im Verarbeitenden Gewerbe in Estland und der EU-15, 2000–2014[a]

[a]Linke Achse: Die reale Arbeitsproduktivität ist definiert als Bruttowertschöpfung (verkettete Volumina, Referenzjahr 2010) je Arbeitsstunde in Euro. - Rechte Achse: reale Arbeitsproduktivität in Prozent des Wertes der EU-15. — Handelbare Güter: Kapitel A-C, NACE rev. 2, nicht-handelbare Güter: Kapitel D-M, NACE rev. 2.

Source: Eurostat 2016. Data: Annual National Accounts: Detailed breakdowns of main GDP aggregates: Gross capital formation by industry (up to NACE A*64) [nama_10_a64_p5]. Retrieved June 24, 2016, from http://ec.europa.eu/eurostat/data/database; eigene Zusammenstellung und Berechnungen.

Das Balassa-Samuelson-Szenario ist also durch ein Produktivitätsgefälle zwischen den Produktionen handelbarer und nicht-handelbarer Güter, Arbeitskräftewanderungen von den Sektoren nicht-handelbarer zu denen handelbarer Güter und Preissteigerungen bei nicht-handelbaren heimischen Gütern gekennzeichnet. Ein derartiges Produktivitätswachstum hätte einerseits Estlands internationale Wettbewerbsfähigkeit erhöhen und andererseits einen Anstieg seines Pro-Kopf-Einkommens ermöglicht.

Die Analyse für Estland zeigt indes, dass die estnische Wirtschaft die Bedingungen für einen Balassa-Samuelson-Effekt nicht erfüllt. Die ausgesprochen schwache Produktivitätsentwicklung und das damit einhergehende nur mäßige Lohnwachstum im Verarbeitenden Gewerbe haben dazu geführt, dass es dort sogar geringere Anreize zur Arbeitsaufnahme als im Bereich nicht-handelbarer Güter gab und die Beschäftigungsentwicklung im Verarbeitenden Gewerbe rückläufig war. Somit konnte sich der Bereich handelbarer Güter—anders als von Balsassa und Samuelson unterstellt—in Estland nicht zum Wachstumsmotor und Treiber für eine reale Aufwertung entwickeln.

3. Estnische Strukturschwächen

Was ist der Grund für die estnische Produktivitätsschwäche? Die niedrige Produktivität im estnischen Verarbeitenden Gewerbe geht auf die weiterhin bestehende Dominanz arbeitsintensiv produzierender Branchen zurück, die auf einer Skala industrieller Entwicklung am unteren Ende angesiedelt sind. Die dort hergestellten Produkte weisen nur niedrige oder bestenfalls mittlere Einkommenselastizitäten auf. Dagegen ist die Produktion von Investitionsgütern mit hoher Wertschöpfung und Nachfrage nach hochqualifizierten Arbeitskräften unterrepräsentiert, wesentliche Investitionsgüterindustrien mit hoher Arbeitsproduktivität fehlen weitgehend.

Dahinter steht eine Entwicklung in den letzten 15 Jahren, in denen die Kapitalbildung im Sektor handelbarer Güter – und insbesondere im Verarbeitenden Gewerbe – weit unterdurchschnittlich war. Die Kapitalbildung erfolgte bis zum aktuellen Rand vornehmlich in Branchen, die nicht-handelbare Dienstleistungen erstellen. Dieses Bild findet sich auch in der sektoralen Struktur der ausländischen Direktinvestitionen wieder. Estland hat kaum Auslandskapital anziehen können, das für den Aufbau wettbewerbsfähiger Industriestrukturen notwendig wäre. Und wenn in die estnische Industrie investiert wurde, profitierten davon insbesondere Branchen mit einem niedrigen Technologieniveau. Den Schwerpunkt für ausländische Direktinvestitionen bildeten stattdessen der Immobiliensektor sowie der Groß- und Einzelhandel.

Diese Strukturschwächen der estnischen Wirtschaft zeigen sich entsprechend in der Exportstruktur, die deutlich unterdurchschnittliche Anteile von Produkten mit höherem oder auch nur mittlerem Technologiegehalt aufweisen. Eine in diesem Zusammenhang durchgeführte Constant Market Share-Analyse (CMS) zeigt, dass die estnische Exportleistung in den letzten Jahren stagnierte. Estlands Exportleistung zeichnete sich vielmehr durch nachlassende preisliche Wettbewerbsfähigkeit und einen fehlenden Fokus auf globale Wachstumsregionen aus. Sogar im Vergleich mit den eigentlich weniger entwickelten baltischen Nachbarn Lettland und Litauen zeigten die estnischen

Exporte nur eine unterdurchschnittliche Entwicklung. Einen Hoffnungsschimmer kann die CMS allerdings vermitteln, nämlich durch das Potential, das estnische Exporteure zur Verbesserung ihrer Präsenz auf wachsenden Produktmärkten haben.

Was das estnische Produktionspotential betrifft, wie es durch den Komplexitätsindex nach Hausmann und Hidalgo gemessen wird, zeigt sich zwar auch hier ein Rückstand gegenüber den hochentwickelten Ländern, zu denen Estland aufschließen möchte. Bis 2013 rangierte das Land hinter den meisten der neuen EU-Mitglieder mit einem Indexwert, der nur mäßig über dem weltweiten Durchschnitt lag. Das aktuellste Ranking von 2014 zeigt für Estland einen Sprung in der Rangskala nach oben, auch wenn diese Messungen erst einmal nur vorläufig sind.

4. Schlussfolgerungen

Die Analyse der Mikroebene zeigt, dass die Achillesferse der estnischen Wirtschaft struktureller Natur und durch eine technologische Lücke gegenüber den führenden Industrienationen gekennzeichnet ist. Den Schwerpunkt der estnischen Produktionsstruktur bildet nach wie vor die Produktion von rohstoff- und arbeitsintensiven Gütern mit einer geringen Technologie- und Humankapitalintensität. Damit sind die Hauptkonkurrenten auf den Weltmärkten unter den Unternehmen aus Entwicklungs- und Schwellenländern zu finden. Wesentlicher Wettbewerbsparameter der überwiegend angebotenen standardisierten Produkte ist in dieser Marktkonstellation der Preis – Wettbewerbsfähigkeit wird auf diesen Märkten durch möglichst niedrige Preise definiert. Dagegen gibt es kaum Preissetzungsspielräume im Sinne monopolistischer Konkurrenz, etwa im Sinne überlegener Produktqualitäten oder technischer Besonderheiten. Durch die Mitgliedschaft im Hartwährungsverbund Eurozone hat Estland kaum eine Chance, einen harten Preiswettkampf zu gewinnen, zumal ihm das Instrument einer nominalen Währungsabwertung zur Verbesserung der preislichen Wettbewerbsfähigkeit in einer derartigen „Abwärtsspirale“ nicht zur Verfügung steht. Seine preisliche Wettbewerbsfähigkeit könnte es nur durch eine reale Abwertung, also eine Senkung der heimischen Löhne und Preise der betreffenden Produkte, verbessern. Eine derartige reale Abwertung hätte allerdings die unerwünschte Nebenwirkung, dass dadurch die Einkommenslücke zu den reicheren EU-Mitgliedern vergrößert statt verkleinert würde. Um einer solchen Entwicklung und dem Sog der Abwärtsspirale zu entgehen, müsste Estland im Gegenteil ein Kandidat für eine reale Aufwertung werden.

Die Schlussfolgerung aus den vorliegenden Untersuchungsergebnissen lautet daher, dass Estlands Produktportfolio einen wesentlich höheren Anteil an technologie- und humankapitalintensiven Güter mit höheren Wertschöpfungspotentialen und eigenen Preissetzungsspielräumen benötigt. Der damit verbundene Anstieg der Produktivität würde eine reale Aufwertung ermöglichen und dabei helfen, die Einkommenslücke zu den höher entwickelten EU-Mitgliedstaaten schneller zu verringern. Unter diesen Umständen würde Estland zu einem Balassa-Samuelson-Land werden.
Die Herausforderung für die estnische Wirtschaftspolitik besteht daher darin, ein attraktives Geschäftsumfeld für Investoren zu schaffen, die den notwendigen industriellen Wandel in Estland voranbringen. Im größeren Umfang als in der jüngeren Vergangenheit sollten ausländische Direktinvestitionen in der Produktion handelbarer

Güter, vor allem im Verarbeitenden Gewerbe, attrahiert werden. Wie die Entwicklung der letzten Jahre zeigt, sind es weder die Finanz- noch die Immobilienwirtschaft, die ein hinreichend nachhaltiges Wachstum für einen erfolgreichen Aufholprozess gegenüber den Kernländern der EU generieren.