
Economic integration and exchange rate arrangements in the post-soviet period. The Baltic states in comparative perspective*

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Abstract

Which have been the consequences of the euro for integration and economic performance in the Baltic Sea region? After the collapse of the Soviet Union, the three Baltic states and Poland have been rapidly catching-up with Western Europe. The Great Recession became a great setback for the former, while less so for Poland. A difference is the monetary policy: the Polish zloty depreciated in the critical moment of the crisis, while currency boards with the aim of joining the euro bestowed appreciation for the Baltics and Finland. Contrary to the purpose, monetary integration has not fostered integration in trade, and the share of the Eurozone in Baltic trade has stagnated. A comparison with other countries in the Baltic Sea region suggests that the euro provides “the golden fetters” of our time. Emigration, also a kind of integration, has become a safety valve with severe social and economic consequences for the Baltic states.

JEL classification: E39, E42, F14, F15, F43, N14

Keywords: economic growth, integration, exports, EMU, Baltic Sea region, exchange rates

1. Introduction

Which have been the consequences of the euro for integration and economic performance in the Baltic Sea region? This paper addresses that question through a comparative examination of six countries of which four today are in the euro, and two are not. The four in the euro are Finland, a member from the start, and Estonia, Latvia, and Lithuania, who joined the euro in 2011, 2014 and 2015, respectively. However, to qualify for the Economic and Monetary Union (EMU) the Baltic countries were in currency boards with pegs of their respective currencies to the euro from the early 2000s, and to other “hard” currencies before that, why they broadly have shared the

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conditions of a member country from early on.¹ The two outside the euro are Poland and Sweden. Another country with ports on the Baltic Sea is Russia, but being outside the EU and the single market it does not fit in the comparison. In those respects Germany would fit in, but as a much larger country, than the six compared, the question of integration looks a bit different. Denmark also has a long coast to the Baltic Sea and is of comparable size but would complicate the comparison by formally being outside the EMU though in actual practice pegging her krone to the euro. Thus the paper zooms in on two “old” countries, Sweden and Finland, with the latter in the euro, and four “new”, Estonia, Lithuania, Latvia, and Poland, with the three first in the euro.²

The core argument of the paper is based on effective exchange rates, both nominal and real. The Bank for International Settlements (BIS) provide time series back to 1994, but they do not include exchange rates with countries in the former Soviet Union, except Russia, which make them less feasible for the present analysis. Therefore, new series on effective exchange rates have been consistently constructed for all six countries 1995-2016, based on exchange rates and trade with their 20 largest trade partners. For the “new” countries this includes accounting on exchange rates retrieved from central banks of former Soviet republics, for example the Belarus ruble which was not published until February 2019. More about the data when they enter in the discussion.

The next section contains a short discussion of exchange rates, economic growth and convergence; section three provides an overview of economic growth in the Baltic Sea region over the past quarter century; section four examines exports and integration in the region; section five examines the role of exchange rates for competitiveness and in the global financial crisis; section six assesses the long-term consequences of the

¹ Estonia adopted a currency board (CBA) with a peg of the kroon to the Deutsche Mark in 1992 and Lithuania similarly introduced a CBA with a peg to the US dollar in 1994, while formally Latvia retained some influence for its central bank although with a peg to the SDR (special drawing rights) from 1994. Later on all three shifted the peg to the euro.

² The division between ‘east’ and ‘west’ is not appropriate, since Finland, at least in the early post-war period, is often conceived as a kind of semi-eastern country and geographically its border in fact stretches further east than those of any of the other compared countries. Neither is ‘transition countries’ appropriate, unless for the first decade, and a label for Finland and Sweden would still miss. The Baltics and Poland are therefore grouped as the ‘new’, while Finland and Sweden are grouped as the ‘old.’

austerity policy in the Baltic countries, in turn a consequence of the pegs to the euro; section seven concludes.

2. Convergence and exchange rates

The role of exchange rates for catch-up and convergence in Europe over the 20th century has not been negligible (Ljungberg and Ögren 2017). A consensus has emerged that an early leave from the Gold Standard in the 1930s was crucial for a recovery from the Great Depression (Temin 1989; Eichengreen 1992; Crafts and Fearon 2013). The abandonment of gold and the fixed exchange rates were also one of the ingredients in the catch-up by the Scandinavian countries during the interwar period. Moreover, in the postwar period the Mediterranean countries could catch-up, buttressed by depreciating currencies (Ljungberg and Ögren 2017). It has also been pointed out that successful catch-up by developing countries have benefitted from weak currencies (Rodrik 2008). However, there is a common presumption that a country's drawing on the exchange rate is a sin and should be condemned as "beggar thy neighbour policy." Yet, arguably it is only in the view of a zero-sum game that a depreciating currency lays the cost on foreign countries. By allowing for a more expansionary economy, it will rather enhance a growth that spills over also on trading partners (Eichengreen and Sachs 1986). The long-term growth of western Europe can be interpreted in these terms. Countries that began a process of catch-up became gradually more integrated with other European countries, and typically the poorer countries had lower price and wage levels. With the integration follows a levelling of prices and wages, and consequently inflation rates tend to be higher in catching-up countries. Even if productivity growth is faster in the catch-up countries, the gain in competitiveness is eroded by the higher inflation. Hence, the depreciation in the postwar period up to the 1990s of weaker currencies such as the Italian lira, Spanish peseta, Portuguese escudo, Greek drachma and also of the Irish punt and Finnish markka, sustained the catch-up of these countries and contributed to the growth of the European economy (Ljungberg and Ögren 2017). It might seem unfounded to talk about depreciation in the postwar period, since apart from the big European devaluation in 1949, one of the pillars of the Bretton Woods system until 1971 was the "pegged but adjustable" exchange rates and there were only a limited number of "adjustments" (Eichengreen 2008). However, there is a difference between a

peg to an anchor, and the effective exchange rate a country encounters vis à vis its trading partners. In the later 1960s most of the mentioned currencies depreciated, and they did even more so during the following decades with the exchange rate arrangements under the “Snake” and then the European Monetary System (Gros and Thygesen 1992; Eichengreen 2008).

However, in the 1980s the concerns about the external balance problems, which had been central in the earlier discussions about European economic and monetary integration, were superseded by the idea about “the advantage of tying one’s hands”, that is, of fixed exchange rates irrespective of the structural differences between countries. This idea was based on the principle of rational expectations with the belief in a rule based economic policy, with fixed exchange rates as one of its pillars.³ After the collapse of the Soviet Union, these neoliberal ideas exerted a weighty influence on the transition to market economies in the former planned economies, one case in point being the adoption of currency boards in the Baltic countries (Hanke et al 1992; Feldmann and Kuokstis 2017). This was the beginning of a monetary policy with fixed exchange rates that eventually led to the adoption of the euro. On the other hand Poland, the largest of the central and east European countries, has kept its zloty floating. Similarly Finland and Sweden have chosen different arrangements, Finland being among the twelve original countries in the euro while Sweden has retained its floating krona, after a referendum in 2003. Hence the question whether these different monetary arrangements have had any significant impact on integration and economic performance in the Baltic Sea region is indeed relevant.

3. Growth and integration in the Baltic Sea region

The Iron Curtain divided the Baltic Sea region just as it divided continental Europe. Neighbouring countries took, or were enforced to, different paths of development. This is not the least highlighted by the gap in income levels between East and West after the collapse of the Soviet empire. Hence, in 1995 Poland was at one third of the per capita income level of Sweden, while Estonia, Latvia and Lithuania were at just about one fourth of the Swedish income level (Ameco 2018). Although far to the

³ “The advantage of tying one’s hands” was the title of an influential paper by Giavazzi and Pagano (1988). For a discussion of the paradigm shift in the view on exchange rate arrangements, see Ljungberg and Ögren (2019).

east, economically and politically westward Finland had been close to the Swedish level before the crisis of the early 1990s, but that crisis lowered Finland's income per capita with some 12 per cent compared to a loss of "only" 6 per cent for Sweden – widening a gap which however should be almost closed in 2008, on the eve of the next crisis.

The regional divide is even more clear in a somewhat longer perspective and while the post-war period saw a convergence of income levels in the West, countries under Soviet dominion lagged behind. According to the data in Maddison (2007), Poland in 1950 had been clearly above the Mediterranean countries Greece, Portugal and Spain, at about two thirds of the income level of Finland and at 36 per cent of the Swedish level.⁴ At that point in time Sweden had, along with Denmark, achieved about the same level as the United Kingdom, and in Europe these three countries were only behind Switzerland (Maddison 2007). However, in the mid-1990s countries in western Europe had converged to a broadly similar level and only Greece, Portugal, Spain and Ireland were still somewhat behind but in a process of catch-up. And with the fall of the Iron Curtain also eastern countries began to catch-up.

Table 1. Comparative growth and relative income levels, 1995-2016

	Estonia	Latvia	Lithuania	Poland	Finland	Sweden	Eurozone
1995-2016	3.82	4.51	5.48	5.19	1.91	2.01	1.00
1995-2008	6.47	7.67	7.51	5.19	3.69	2.89	1.80
2008-2016	2.05	1.52	3.48	4.41	-0.28	1.57	-0.21
Relative GDP per capita level in current PPS (Sweden=100)							
1995	27.4	24.2	26.0	33.9	85.8	100	89.8
2016	60.9	52.4	61.1	55.4	88.8	100	86.3

Note: Calculations on Ameco database; upper panel shows average annual rate of change of GDP per capita, in percent, according to fitted trend; PPS stands for 'purchasing power standard' and with World Bank PPP international dollars the relatives would only differ in decimals.

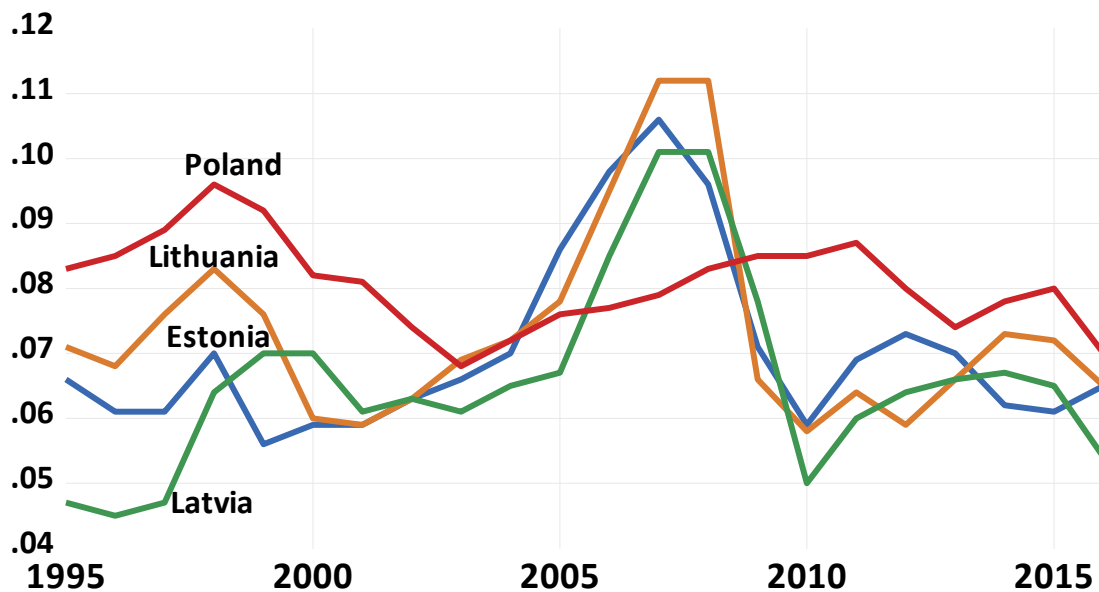
Seen over the period 1995-2016, it is clear that the Baltic states and Poland have made a successful catch-up in GDP per capita terms. Adjusted for differences in price levels (PPPs), they have climbed from less than one third, and just above one third for Poland, to more than a half of the Swedish level. One should recall that this was not due to a particularly poor performance of the Swedish economy. On the contrary, over this

⁴ GDP per capita in 1990 PPP international dollars. The implicit assumption is that the relative PPPs of 1990 also hold for other years of comparison, which is a conventional though problematic simplification.

period the annual growth rate of Sweden was double that of the Eurozone as a whole, 2 per cent a year against 1 per cent, as can be seen in table 1.⁵

The take-home of the table is, first, that the three Baltic countries as well as Poland have made an impressive catch-up, and not surprisingly “Baltic Tigers” became a nick-name in the mid-2000s. But the table also highlights, secondly, that there is a difference in growth rates before and after the global financial crisis. The difference is rather moderate for Poland, but down to one fifth for Latvia and clearly significant also for Estonia and Lithuania. Thirdly, the slow-down in growth is also significant for Finland, Sweden, and the Eurozone as a whole. However, while Finland and the Eurozone turned into negative growth from 2008 to 2016, the Swedish figures were still clearly positive.

Figure 1. Construction sectors as a share of GDP, 1995-2016



Source: Ameco 2018

Hence, compared within the respective groups of “new” and “old”, the countries with (a peg to or) the euro performed better up to the global financial crisis, while after the crisis the pattern was reversed with Poland and Sweden performing better. This

⁵ We leave aside the index problem hidden in the table, namely that the growth rates implied by the changes of the relative levels do not match the actual growth rates shown by the national data. For a discussion, see Prados de la Escosura (2000), and for a discussion of how this index problem could be used as a tool for analysis of structural change, see (Schön 2012).

change of fortune motivates a closer search for the forces of the growth and convergence in the Baltic region. Clearly the integration of capital markets was crucial for the pre-crisis growth of the “new” countries. This followed from the liberalization of transnational capital movements in the preceding decades, and the opening up of the Baltic countries in connection with the creation of their currency boards. Big Swedish banks established subsidiaries in the Baltic countries where they soon came to dominate the capital market, in particular in Estonia (Árvis et al 2009).

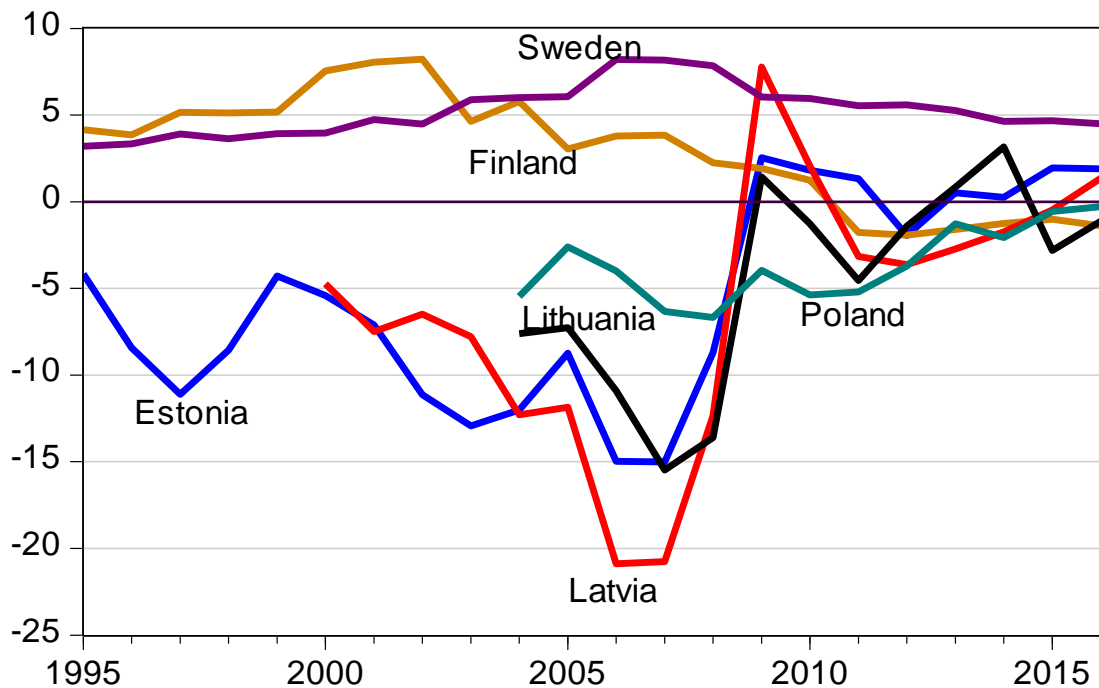
The peg to the euro pressed down the nominal interest rates in the Baltic countries and at the time of the accession to the EU in 2004, nominal rates approached those in the Eurozone. With inflation rates some percentage points higher in Estonia and Latvia, this actually meant negative real interest rates in these countries, which in turn boosted a tremendous rise in private debt. Poland, with no peg of the currency and somewhat lower inflation, could also benefit from open capital markets although there was no over-heating. The scale of the over-heating in the Baltic countries is highlighted by the rapid growth of the construction sectors to more than 10 per cent of GDP, a share comparable with pre-crisis Ireland or Spain. This can be seen in figure 1, which also shows the more moderate development of the Polish construction sector. In the crisis, building activity almost collapsed, and employment in Baltic construction declined, from early 2008 to early 2010, between 40 and 50 per cent, compared to 6 per cent in Finland, while employment in both Sweden and Poland continued to grow over de crisis years (EC 2011, p. 26).

In the decade up to 2008, the “old” countries, Finland and Sweden, faced low interest rates but even lower inflation why real interest rates were low but positive.⁶ However, the “old” and “new” countries faced quite different situations in their external balances, as can be seen in figure 2. Despite the catch-up was much based on fast growing exports, imports grew even faster in Estonia and Latvia, and all the “new” had deficits on their current accounts. The reverse applied to Finland and Sweden, with big surpluses even though for Finland this was declining and turned negative from 2011. The long-standing Swedish surplus was a basis for the expansion of Swedish banks in the Baltics. In particular Estonia and Latvia accumulated large debts up to the crisis and

⁶ Interest rates and inflation according to Ameco database.

huge capital imports with the establishment of foreign banks was the other side of this development.

Figure 2. Current accounts as per cent of GDP, 1995-2016



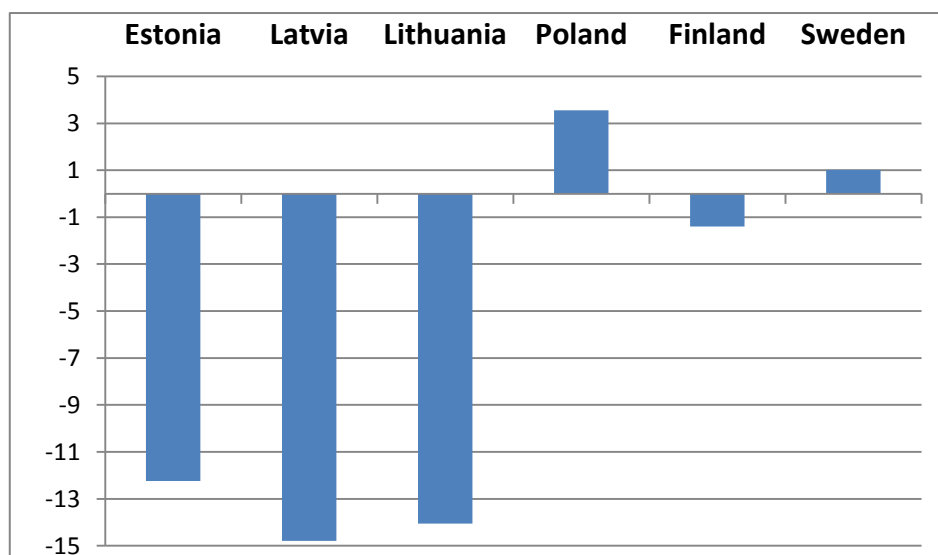
Source: Ameco 2018.

A turnaround to surplus on current accounts took place in 2009 for the Baltic states, despite a sharp fall in exports of around 15 per cent, since their decline of imports was remarkably steeper, around 30 per cent. Poland only slightly alleviated its moderate current account deficit, which continued to stay negative. Its exports fell the least among both “new” and “old” countries between 2008 and 2009, only 7 per cent, while imports fell 12 per cent. Finland’s exports fell most of all, 27 per cent and with a reduction of imports with only 17 per cent the surplus on current accounts diminished. The other “old” country, Sweden, also had a larger decline of exports than of imports, 18 and 14 per cent respectively, which also reduced its foreign surplus. In the crisis, “new” countries improved their current accounts by reducing imports, while the “old” countries slightly reduced surpluses due to the decline of exports. Another divide took place, however, between countries with (pegs to) the euro and with floating currencies. Thus Finland and the Baltic countries with the euro or euro-pegs faced much sharper declines of trade, for the latter the substantial decline of imports meant a reduction of

consumption. Sweden and Poland, with floating currencies, only suffered a retardation and aggregate consumption even increased from 2008 to 2009, as highlighted by figure 3. The differences also remained in the somewhat longer term. Finland had recovered its consumption level in 2010, but Estonia first in 2015, Lithuania in 2016, and Latvia not even in 2017.

To summarize so far, the catch-up by the “new” countries up to the crisis took place in an environment of financial integration which boosted growth, in particular for the Baltic countries. Before returning to “the global financial crisis”, which turned into “the great recession”, the impact of exchange rates on the somewhat longer term development will be examined.

Figure 3. Percentage change in total consumption, 2008-2009



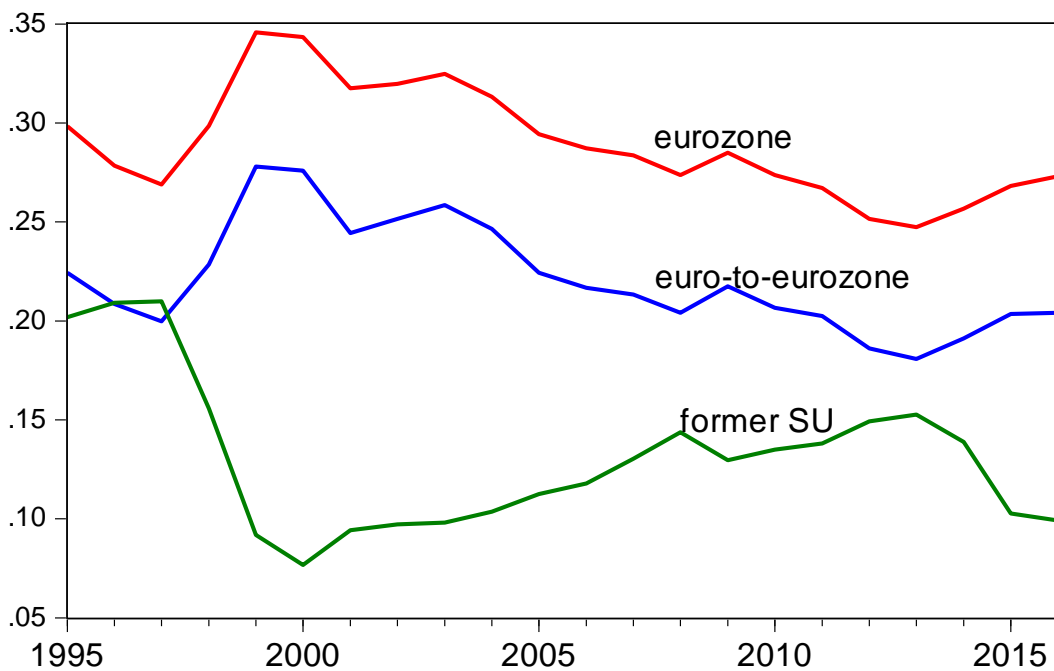
Source: Ameco 2018; private and government consumption combined.

4. Trade and exchange rates

In the run-up to the euro, there appeared a literature claiming that currency unions have a tremendous effect on the growth of trade between the countries that adopt a common currency (starting with Rose 2000). Even though the extreme statements of the hypothesis were severely criticized there remained a belief in the trade and growth enhancing effect of one money – one market (for a discussion, see Ögren

2019).⁷ In consideration of the Baltic Sea region, the implication is that trade with the Eurozone would have increased, notably for Finland and the Baltic countries. In a context of overall growth of trade, it should furthermore mean a relative growth, that is, the trade within the currency union would take a larger share. Figures 4 and 5 are a simple check of the hypothesis. Only exports are considered because that will arguably better show whether a country is competitive and integrated in a larger area. The unweighted average for all the countries of their shares of total exports destined for the different markets is shown, whilst just the share of total exports would bias towards the bigger countries. Of course, when the share to a country within the region is calculated, the destination country cannot be counted as an exporter, so it is the average of the six countries less one country.

Figure 4. Average shares of exports to the Eurozone and Former Soviet Union, 1995-2016

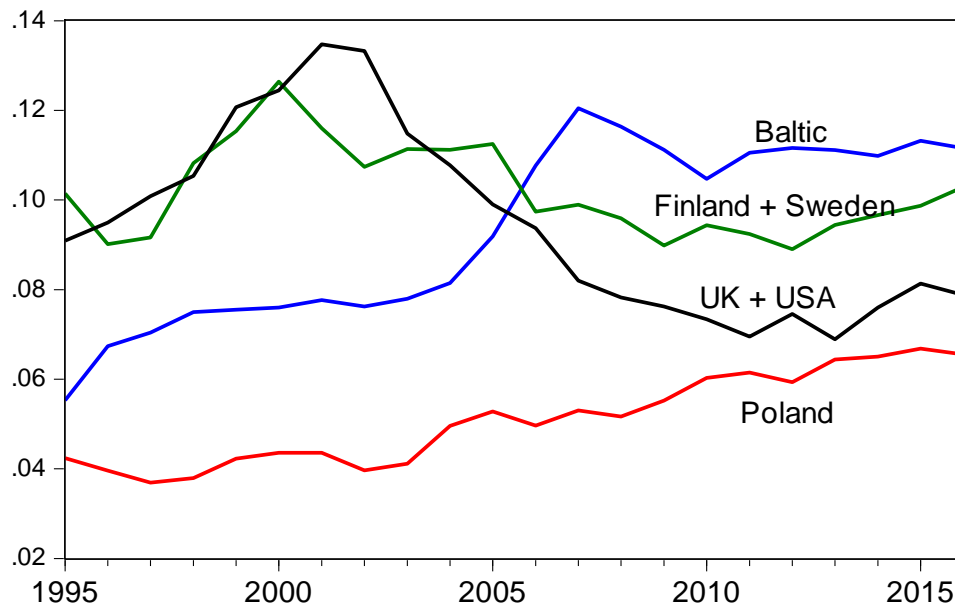


Note: Unweighted average of the six countries' export shares – 'euro-to-eurozone' include exports from the Baltic countries and Finland and excludes Sweden and Poland. Former Soviet Union includes from 9 republics, for Poland and Lithuania, to 12, for Estonia and Latvia, and 10-11 for Sweden and Finland. Calculations on data from World Bank-WITS

⁷ The title of Rose's original paper, "One money, one market: the effect of common currencies on trade" paraphrased the title of the European Commission's study to evaluate the benefits and costs of the then prospective economic and monetary union, "One market, one money" (European Commission 1990).

The development of exports in the Baltic Sea region does not support the one money – one market hypothesis. On the contrary, figure 4 shows that after an increase in the 1990s of the export share destined for the Eurozone, there was a downward trend, which only might have broken after 2014. The development is similar for the whole group of countries and for the four countries now in the euro, as shown by the two curves “Eurozone” and “euro-to-eurozone”. It is notable that also the latter curve is on a downward trend several years after 2003, despite the accession by the Baltic countries to the EU, with a dismantling of the final trade barriers. The picture does not change if we instead of relative shares look at growth in export volumes: both before and after the crisis the exports to the Eurozone of the combined Baltic countries developed not fully as good as that of Poland, while before the crisis Finland was only marginally better than Sweden. After the crisis both Finnish and Swedish exports to the Eurozone declined, the Finnish somewhat steeper. Hence, being in the euro (or having a peg to) has not created more trade, and for the whole region exports to the rest-of-the-world have grown more than to the Eurozone.

Figure 5. Average shares of exports within the Baltic Sea region and to the UK and USA, 1995-2016



Note: Unweighted average of the six countries' export shares to notified export markets. Calculations on data from World Bank-WTTS.

By contrast, the export shares to the republics in the former Soviet Union shows a mirror-shaped development, a decline during the Russian crisis in the late 1990s followed by a long rise broken only in 2014. The whole decline after 2014 falls on Russia while the exports to the other former Soviet republics were rather stable. One can thus conclude that the break was caused by the Russian import restrictions which followed on western sanctions after Russia's occupation of Crimea. The concomitant rise of the export share to the Eurozone, as well as to the UK and USA as shown in figure 5, reflect the diminishing share of Russia. The relative increase hides an actual fall in exports of all six countries, not only to the Eurozone but to all main export markets in 2015 without any recovery in 2016. Figure 5 shows the development of export shares to other markets, including within the region. Notable is the almost doubling of the share going to the three Baltic countries although the whole increase took place before the crisis with an acceleration after their membership in the EU. Poland on the other hand, has faced a fifty per cent increase of imports from the other countries in the region, from about 4 to about 6 percentage points, smoothed over the whole period. The "old" countries, Finland and Sweden, took a growing share in the 1990s but had a decline or stagnation since 2000. The UK and USA, usually significant trading partners for countries all over the world, have also fallen back since 2000. Broadly interpreted, these developments suggest a tighter integration of trade within the Baltic Sea region, and a globalization. The globalization can be inferred from the shrinking shares of previously significant export markets, the "old" countries, the UK and USA as well as the Eurozone, which would indicate a diversification of exports to new markets. One should at the same time notice, that a shrinking share up to the crisis did not imply a decline of the volume in absolute terms, because until 2008 the growth of exports was very high and a relative decline could go along with growing volumes. After the crisis the "old" countries as well as the UK and USA kept their roles as markets, which under the circumstances of a slow-down of exports indicate a stagnation of new markets, in other words a stagnation of the globalization. The described development of trade may indicate that a common currency is of less importance for transaction costs than presumed by the hypothesis about one money - one market, or that transaction costs in the era of globalization anyway are marginal. One way to approach this problem, is to look at the export elasticities with respect to relative prices and nominal exchange rates.

The expectations would be that export volumes increase with declining relative prices and with a depreciating currency. If these expectations are not met, it indicates that exports are not price sensitive, due to a very competitive price level at the start or a very specialized production.

The exchange rate is taken as the amount of the domestic currency for one unit of the foreign, which means that an appreciation (depreciation) is indicated by a fall (rise) in the exchange rate.⁸ The estimations are performed with the following equation:

$$\text{Ln}(\text{EXP}) = \alpha + \beta_1 \text{Ln}(\text{NER}) + \beta_2 \text{Ln}(\text{RPX}) + \beta_3 \text{Ln}(\text{IMP}) + \gamma_1 + \varepsilon \quad (1)$$

where Ln denotes natural logarithm; EXP is the volume in constant 2010 prices of a country's exports, destined to the 20 main trading partners in a stacked panel; NER is the bilateral nominal exchange rate to the country in question, RPX is the ratio of the consumer price indices of the trading partners to the (implicit) deflator of exports of the home country, and IMP is the import volumes from the same countries, in a matching panel. In general, export prices of a country are rising at a lower rate than consumer prices (CPI) and it is assumed that these better reflect the competitiveness of the exports than the domestic CPI, while CPI reflects the price movements on the export markets.⁹ Since the home country is in the denominator of relative prices, a higher inflation along with growth of exports is shown with a negative sign for RPX . Imports (IMP) are included as a control variable accounting for the growth dynamics of the trade partners as well as the degree of integration. However, since export deflators have not been found for all countries, imports are deflated with the CPI of the country of origin. To account for idiosyncrasies of countries, such as difference in trade barriers, country

⁸ Annual exchange rates are, in most cases, calculated as the average of monthly closing rates, in most cases taken as cross rates with the British pound. These are collected from the Global Financial Data for the "old" countries and Poland, while websites of the ECB, the Bank of England, the Bank of Sweden (Riksbanken), the Czech National Bank, the National Bank of Ukraine, and the National Bank of the Republic of Belarus are the sources for the "new" countries. For the Belarus rouble and the Kazakhstan tenge no quotations were found before 1997, and they were extrapolated with the Russian rouble for 1995 and 1996. For a details about the construction of the effective exchange rates, see Ljungberg (2019).

⁹ The implicit export deflator is derived as the ratio between aggregate exports in current and constant prices, from the Ameco database, from where CPIs also are taken. The use of the implicit export deflator for estimating the relative prices to all trading partners is based on the simplifying assumption that price changes are uniform for a country's different exports.

fixed effects are applied, denoted with γ_i and ε is the residual.¹⁰ If the exchange rate *NER* is positively (negatively) correlated with the export volumes, then the growth of exports has been concurrent with a depreciating (appreciating) currency. If relative prices *RPX* are positively (negatively) correlated with the export volumes, the growth of exports have been concurrent with relatively falling prices in the exporting country. “Concurrent” is used to play down the role of causality, since the interplay of factors is complex. For example, the equation coefficients measure changes while levels are accounted for by the fixed effects, which means that the initial over- or undervaluation of the exchange rate or the initial price competitiveness are unknowns. Nevertheless, the direction of causal effects can be assessed.

Table 2 reports the results. Notable is that changes in the exchange rate only in very few cases have been enhancing exports, which should show up as statistically significant positive coefficients for *NER*. This is the case for Latvia, in particular before the crisis, but only when exports to former Soviet republics are excluded. Poland and Sweden are similar. Currencies of the former Soviet republics have undergone substantial depreciations against the Baltic and western currencies, most extremely the Belarus rouble to about 1/1000 over the period 1997-2016 while the Kazakhstan tenge fell to about 1/7 over the same period, somewhat less than the Russian ruble since 1995. After the crisis Lithuania had some weak evidence of export growth enhanced by a depreciating currency. However, even when excluding the former Soviet republics among the trading partners, most of the countries have coefficients that indicate appreciating exchange rates along with growth of exports. For a country with a floating currency the Polish behaviour might be a deliberate policy, to accept appreciation in prosperity and depreciate in recession. The big current account deficits of the Baltic countries, before the crisis, would indicate that their currencies have been overvalued but despite the further appreciation of exchange rates, exports continued to grow up to the crisis. Considering relative prices, the picture is also mixed but in most cases growth of exports has gone along with declining relative prices or improved competitiveness, most clearly for Poland. Most important for the growth of exports, however, is the imports from the corresponding country, emphasizing the role of the general economic

¹⁰ Trade barriers differ not only between countries but also between commodities and over time and would ideally be included in the model. To accurately collect these data would however require a project on its own.

conditions and the integration of markets. The mostly insignificant role of the exchange rate for the development of exports is noteworthy and speaks against the conception of competitive devaluation. Nevertheless, exchange rate depreciation might be expansionary through other mechanisms by releasing constraints on economic policy, as long ago showed by Eichengreen and Sachs (1985, 1986).

Table 2. Export elasticity: export volumes regressed on bilateral nominal exchange rates, bilateral relative prices, and imports vis à vis 20 trading partners

		1995-2016	2001-2008	2009-2016
Estonia	<i>NER</i>	-0,155 (0,623)	-0,225 (0,800)	-0,247 (0,643)
	<i>RPX</i>	0,600* (0,057)	2,233** (0,014)	-0,219 (0,785)
	<i>IMP</i>	0,820*** (0,000)	0,781*** (0,000)	0,519** (0,001)
	<i>Adj. R²</i>	0,833	0,755	0,947
		n=436	n=160	n=160
Estonia (excl. Russia, Ukraine)	<i>NER</i>	-0,399 (0,320)	-0,868 (0,443)	-0,586 (0,447)
	<i>RPX</i>	0,312 (0,406)	2,539** (0,018)	-0,257 (0,823)
	<i>IMP</i>	0,817*** (0,000)	0,791*** (0,000)	0,514*** (0,004)
	<i>Adj. R²</i>	0,828	0,745	0,945
		n=392	n=144	n=144
Latvia	<i>NER</i>	-0,430*** (0,000)	0,336 (0,210)	0,138 (0,427)
	<i>RPX</i>	-0,240 (0,113)	0,591* (0,073)	0,215 (0,416)
	<i>IMP</i>	0,928*** (0,000)	0,914*** (0,000)	0,273*** (0,000)
	<i>Adj. R²</i>	0,849	0,884	0,973
		n=436	n=160	n=160
Latvia (excl. Russia, Belarus, Ukraine)	<i>NER</i>	0,555** (0,014)	0,881*** (0,001)	0,400 (0,101)
	<i>RPX</i>	-0,159 (0,354)	-0,324 (0,481)	-0,991** (0,022)
	<i>IMP</i>	0,820*** (0,000)	0,582*** (0,000)	0,182** (0,011)
	<i>Adj. R²</i>	0,870	0,895	0,975
		n=370	n=136	n=136
Lithuania	<i>NER</i>	-1,648*** (0,000)	-2,323*** (0,000)	0,521* (0,100)
	<i>RPX</i>	-1,019*** (0,001)	1,736*** (0,006)	0,670* (0,099)
	<i>IMP</i>	0,779*** (0,000)	0,263** (0,022)	0,241*** (0,010)
	<i>Adj. R²</i>	0,746	0,672	0,871
		n=436	n=160	n=160

		1995-2016	2001-2008	2009-2016
Lithuania (Excl. Russia, Belarus, Ukraine and Kazakhstan)	NER	-2,640*** (0,000)	-1,747*** (0,001)	0,985* (0,078)
	RPX	-1,151** (0,021)	-3,960*** (0,000)	0,261 (0,711)
	IMP	0,632*** (0,000)	0,114 (0,421)	0,234* (0,073)
	Adj. R ²	0,748	0,671	0,854
		n=348	n=128	n=128
Poland	NER	-0,128 (0,197)	0,277** (0,039)	0,143 (0,204)
	RPX	0,982*** (0,000)	1,605*** (0,000)	0,694*** (0,000)
	IMP	1,381*** (0,000)	1,221*** (0,000)	0,703*** (0,000)
	Adj. R ²	0,928	0,959	0,980
		n=436	n=160	n=160
Poland (Excl. Russia and Ukraine)	NER	-0,285** (0,011)	0,267* (0,064)	-0,002 (0,991)
	RPX	0,915*** (0,000)	1,482*** (0,000)	0,534** (0,041)
	IMP	1,387*** (0,000)	1,224*** (0,000)	0,782*** (0,000)
	Adj. R ²	0,933	0,960	0,982
		n=392	n=144	n=144
Finland	NER	-0,018 (0,721)	-0,359** (0,030)	0,042 (0,738)
	RPX	0,564*** (0,000)	1,611*** (0,000)	-0,750*** (0,003)
	IMP	0,439*** (0,000)	0,373*** (0,000)	0,115** (0,027)
	Adj. R ²	0,893	0,931	0,970
		n=436	n=160	n=160
Finland (Russia excluded)	NER	-0,179* (0,085)	-0,393** (0,026)	-0,215 (0,163)
	RPX	0,667*** (0,000)	1,696*** (0,000)	-0,305 (0,263)
	IMP	0,395*** (0,000)	0,364*** (0,000)	0,082 (0,109)
	Adj. R ²	0,890	0,924	0,970
		n=414	n=152	n=152
Sweden	NER	0,079 (0,273)	0,085 (0,471)	-0,145 (0,164)
	RPX	0,650*** (0,000)	0,879*** (0,000)	-0,231* (0,092)
	IMP	0,651*** (0,000)	0,728*** (0,000)	0,653*** (0,000)
	Adj. R ²	0,963	0,977	0,984
		n=436	n=160	n=160
Sweden (Russia excluded)	NER	-0,139* (0,070)	0,231** (0,017)	-0,232** (0,032)
	RPX	0,925*** (0,000)	2,833*** (0,000)	0,120 (0,397)
	IMP	0,615*** (0,000)	0,671*** (0,000)	0,564*** (0,000)
	Adj. R ²	0,966	0,986	0,986
		n=414	n=152	n=152

Note: Probabilities in parentheses; * denote statistical significance for the null at the 10 % level, ** 5 % and *** 1 %; trade data from World Bank WITS, exchange rate data, see footnote 6 and the text.

5. Exchange rates, competitiveness, and the crisis

Given their big current account deficits before the crisis the Baltic currencies can be judged as overvalued. However, the preceding examination indicates that the exports of the “new” countries were rather insensitive for exchange rates or prices. On the other hand, the overvalued currencies and ongoing appreciation attracted large imports which were further fueled by the corresponding capital imports. By looking at bilateral relations, the preceding examination gave no insights in the overall development of exchange rates and competitiveness. Such insights are provided by the nominal (NEER) and real effective exchange rates (REER). These are calculated for the six countries based on the trade, combined imports and exports, with their 20 biggest trade partners in 2005-2007. By having annual weights pertaining to the year of comparison, account is taken of quantity (trade) effects which from year to year might be significant. NEER thus measures a country’s exchange rate in actual transactions in foreign trade. REER, by also taking account of relative prices, is a measure of competitiveness in comparison with the trade partners. For the REER, relative prices measured by countries’ CPI are taken as the annual changes, similarly as the exchange rates, and both NEER and REER are derived as chain indices.

$$\text{NEER}_h = \Sigma[(e_{hj} m_{hj}) + (e_{hj} x_{hj})] \quad (2)$$

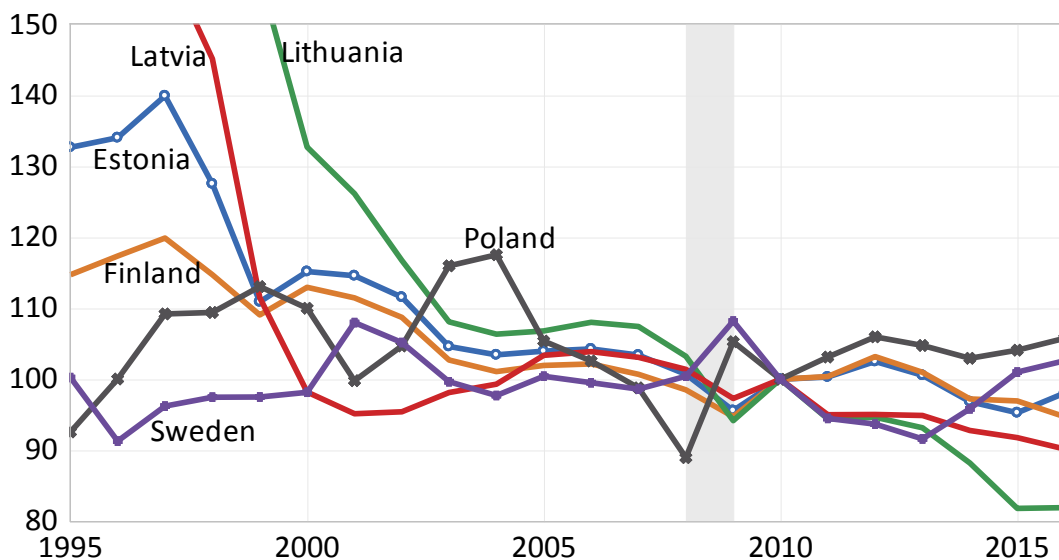
$$\text{REER}_h = \Sigma[(e_{hj} m_{hj} * p_j / p_h) + (e_{hj} x_{hj} * p_j / p_h)] \quad (3)$$

where subscripts denote country h and j respectively; e_{hj} is the annual change in the exchange rate taken as the amount of country h ’s currency for one unit of country j ’s; m is the share of country h ’s imports coming from country j ; x is similarly for the exports; p denotes the annual changes in the consumer price index.¹¹

¹¹ As mentioned, BIS time series on effective exchange rates only include relations with Russia among the former Soviet republics. However, Belarus, Ukraine, and also Kazakhstan are among the major trade partners of the Baltic countries and are included in the present series. The quantity effect becomes unsatisfactory in the BIS indices also because trade weights do not pertain to the year of comparison and are constant over three years or more. CPIs are from Ameco database. The difference if the export deflator of country h is used for exports, instead of the CPI, makes a most marginal difference in the aggregate result.

A rising REER curve in figure 6 means a gain in competitiveness and could be the result of either currency depreciation or falling relative prices, or both. The reverse with a falling curve: the real exchange rate appreciates and competitiveness diminishes. This was the case for the Baltic countries and Finland, in the 1990s and largely down to the crisis, except for a few years around 2005. Poland and Sweden have a moderate depreciation until the early 2000s, but from the accession in 2004 Poland appreciates sharply. What happens in the year of crisis 2008-2009 is notable: whereas the countries with the euro, or a peg to the euro, appreciate, Poland and Sweden switch to depreciation. After the crisis developments are somewhat dispersed but a couple of years later, trends seem associated with the currency: appreciation for countries with the euro and depreciation for non-euro. A look at figure 7 with the developments of NEER, reveals a very similar pattern and suggests, that the changes in REER are largely driven by the nominal effective exchange rates and less by relative prices. Three observations seem reasonable: first, that the peg to the euro and the euro itself made countries more inclined for appreciation. Second, that the sharp appreciations of the Baltic countries in the 1990s and early 2000s paved the way for the rise of imports and the current account deficits.

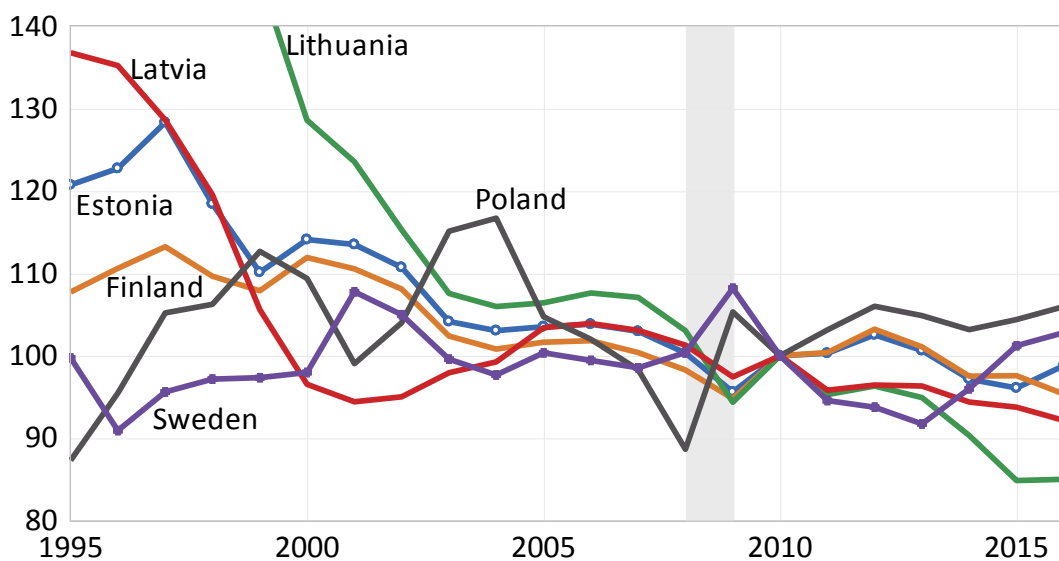
Figure 6. Real effective exchange rates (2010=100), 1995-2016



Note: Sources and calculations, see text.

The definitive causality in the chain of capital imports – trade imports – and currency appreciation is elusive, but the differences between Poland and the Baltic countries are illustrative and suggest that the monetary policies have been crucial. The third observation is that floating currencies worked as shock absorbers in the crisis. While Finland and the Baltic countries accelerated their appreciations when the crisis struck in 2009, the Polish zloty depreciated with close to 19 per cent and the Swedish krona with almost 8 per cent.

Figure 7. Nominal effective exchange rates (2010=100), 1995-2016



Note: Sources and calculations, see text.

It is tempting to estimate the impact of these opposite changes in nominal exchange rates with a counterfactual growth account. As already mentioned, exports fell sharply in all countries in 2009, and no assumption is made about any change in this development. The counterfactual exercise is instead to estimate the value of actual exports in the domestic currency, had no change in the exchange rate taken place, and see what difference this kind of ‘fixed currency’ would make to GDP. In this way the counterfactual makes no assumptions about any effect of the exchange rate on trade volumes but just makes an account of the income value of exports with different exchange rates. One could of course apply this exercise to any year but the point is to assess the cyclical impact of exchange rates in times of crisis.

$$\text{Counterfactual GDP} = \text{GDP} - \text{GDP} * XSH + \text{GDP} * XSH / (\text{NEXR}_{2009} / \text{NEXR}_{2008}) \quad (4)$$

where *XSH* stands for ratio of exports to GDP and *NEXR* is nominal effective export weighted exchange rate. It is motivated here to take the export weighted instead of the conventional NEER because we want to estimate the impact on export values, which in turn contribute to GDP, while imports are not a direct item in GDP. Table 3 reports the results. Under normal circumstances, the negative impact of the (pegs to the) euro, as well as the positive impact of the floating currencies should be perceived as substantial. However, given the huge decreases of GDP in the Baltic countries in 2009, the estimated negative impact of the pegged exchange rate is not much more than marginal for Estonia and Lithuania and scarcely marginal for Latvia. Also for Finland, with the euro, the difference is negative and marginal in relative terms. By contrast, the floating currencies significantly smoothed the crisis for Poland and Sweden. In case of Poland, the actual mild slow-down of the growth rate would have turned to a 4 per cent decline in GDP with no-change in the exchange rate. Sweden's down-turn would have been similar to that of Finland. Other things equal, with (a peg to) the euro Poland and Sweden would have appreciated about the same as Finland and as a consequence come out slightly worse than in the counterfactual case.

Table 3. Counterfactual estimate of exchange rate effects: percentage change 2008-2009

	Estonia	Latvia	Lithuania	Poland	Finland	Sweden
Change in NEXR	-5.3	-2.5	-6.7	22.0	-1.6	8.0
Actual change in GDP	-14.7	-14.4	-14.8	2.8	-8.3	-5.2
Counterfactual GDP change (no change in NEXR)	-11.9	-13.7	-11.9	-4.0	-7.9	-7.6
Impact of NEXR on GDP, percentage points	-2.8	-0.7	-2.9	6.8	-0.4	2.4
Impact with BIS NEER	-1.6	-0.9	-1.9	5.6	-0.5	2.5

Source: see table 1 and table 2.

The bottom line in table 3, "Impact with BIS NEER", shows for comparison the outcome of the counterfactual exercise if the BIS nominal effective exchange rates had been used. The differences are not striking yet underlines the importance of having the

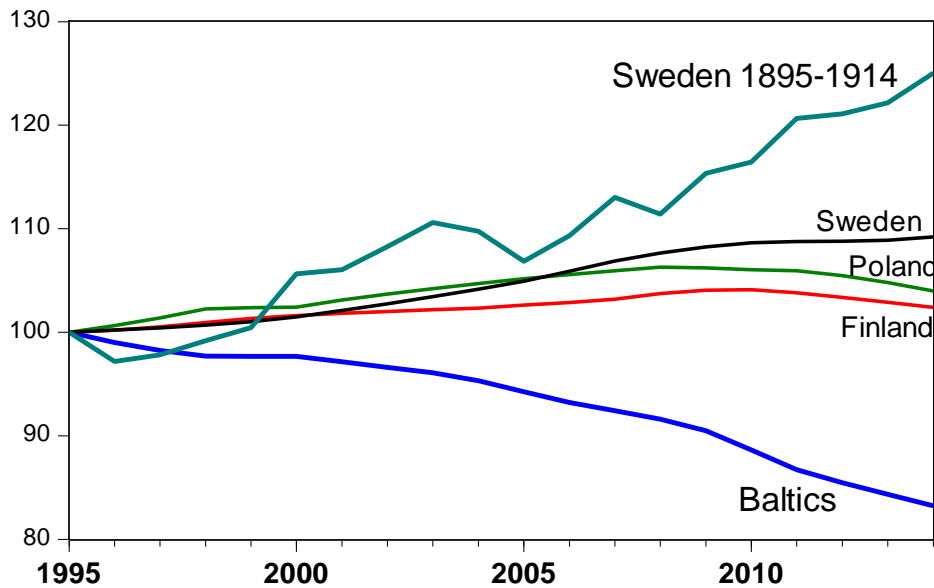
relevant sample of trade partners in the calculations. Thus the “new” countries (except Latvia) appreciate somewhat more with the present NEXR, which is reasonable with the inclusion of their relations with weak currency countries further east, that are not included in the BIS indices.

6. Prospects for the future

The internal devaluation in the Baltic countries had severe social consequences, as can be inferred from the steep fall, and very slow recovery, in aggregate consumption (figure 3 above). Kuokstis (2015) highlights the absence of popular protests in the Baltics and argues that Estonians were most compliant with the austerity policy due to the high legitimacy of the regime. However, the long-term consequences of the internal devaluation seem even harder for Lithuania and Latvia, the latter not even in 2017 back on the pre-crisis level of consumption. Among the ‘old’ countries Finland continues to suffer from the Great Recession, and had over 2008-2016 not only insignificant (0.33% p.a.) growth in public consumption but also slower growth (1.0 per cent) of private consumption than the average for the other countries in the region (1.9 per cent p.a.). Maybe the popular legitimacy of the Baltic regimes explains the compliance with the austerity policy but arguably the background of Soviet history, and the sufferings in the 1990s, contributed to the lack of protests. It is difficult to test the argument, since a candidate for a comparison, Poland, not only was scarcely hit by the Great Recession but also has a different background under Soviet rule with a strong resistance led by *Solidarnosc*.

However, there is other evidence that questions the popular compliance, namely emigration. This was substantial before the crisis and in the crisis the outflow from the Baltic countries doubled (Hazans 2016). Even worse, while the migration flows include temporary movements, the residential population declined almost three times as fast after the crisis. Also Poland and Finland have faced outflows after the crisis, while Sweden continues to increase its population, partly due to immigration. The severity of the Baltic emigration is, however, highlighted by the decline by 20 per cent of the population in productive ages (15-64), from 5 million in 1995 to 4 million in 2016.

Figure 8. Population in productive age (1995=100; Sweden 1895=100)



Source: Calculations on Ameco and Statistics Sweden.

Must the outflow of people be bad? Maybe the Baltics will repeat the Scandinavian success stories of the late 19th century, with mass emigration and high economic growth? However, the mass migration a century ago took place along with a rapid natural population growth, which nevertheless secured a supply of labour for decades to come. A look at figure 8, with populations in ages 15-64 in the Baltic Sea region 1995-2014, and a century before in Sweden, illustrates the problem. While the population in productive age has significantly declined in the Baltic countries over recent decades, in the era of mass emigration the Swedish population in productive age significantly increased.

7. Concluding discussion

The integration of capital markets which was much propelled by the European Union has been crucial for the integration and convergence in the Baltic Sea region over the past quarter century. However, after the global financial crisis convergence has lost momentum. Between the “old” countries divergence has even been sustained, with Finland for a long period in negative growth while Sweden has returned to growth. Among the “new”, the Baltic countries were in 2016 still far below where they would have been if their respective trend 1995-2007 had sustained: Lithuania at 68 per cent, Estonia and Latvia had not reached 60 per cent. Poland, on the other hand, was hitting

its growth path. The “old” countries are on a higher income level, but have also succeeded differently: Finland only at 69 per cent while Sweden reached 85 per cent of its pre-crisis growth path in 2016. As measured by the volume of trade within the Baltic Sea region, integration advanced significantly up to 2008, but has then stagnated.

Arguably the monetary regime shaped by currency pegs and joining the euro has not been beneficial for sustained economic growth in the Baltic Sea region. It is not, as one might surmise, that the currency pegs have been a brake on exports even if the Baltic countries ran large deficits on current accounts before the crisis. The mechanism worked differently as shown by the different trajectories of the Baltic countries and Poland. First, the monetary regime of currency pegs created an atmosphere of overheating and huge inflows of foreign capital leading to a financial bubble that began to shatter in early 2008, before the fall of Lehman Brothers. Second, the overheating made the crisis strike much harder with falls in GDP of 15 per cent. Third, currency pegs or the euro made these falls deeper while floating alleviated the crisis in Poland and Sweden. International expertise suggested the Baltic countries to abandon the pegs, but these were determined to pursue an ‘internal devaluation.’ On the one hand this is understandable, since the currency boards had lured households and private business to borrow in foreign currency. A depreciation, which would have been a consequence of a dumping of the pegs, would have led to a social disaster. The lesson must be that currency pegs, let alone joining the euro, is not a sustainable path for catching-up countries.

When looking at the overall development over the past quarter century, one may conclude that the old division between East and West has been substituted by a distribution on ‘old’ and ‘new’, but it seems that the division between ‘in’ and ‘out’ of the euro is more important. With a historical reference (Eichengreen 1992; Eichengreen and Temin 2013), the euro provides ‘the golden fetters’ of our time.

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