

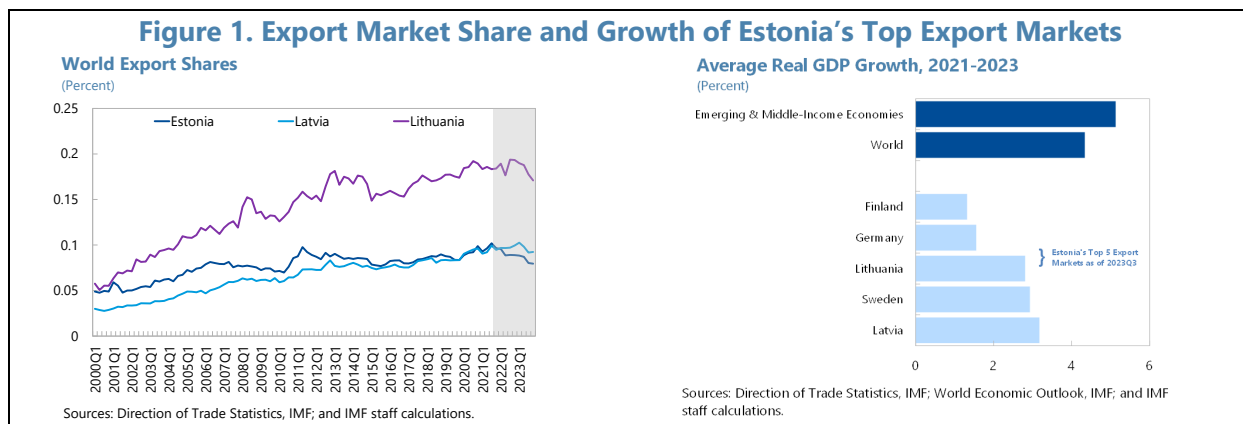
WHAT EXPLAINS ESTONIA’S RECENT LOSSES OF EXPORT MARKET SHARES¹

Estonia’s export market share has fallen sharply, signaling that exporters have difficulties to keep up with foreign competition. While the immediate cause of this decline can be traced back to an adverse combination of external shocks triggered by the war in Ukraine, signs of faltering export performance surfaced already in the aftermath of the global financial crisis, and thus predate recent shocks. Using a constant share decomposition, this paper shows that, unlike in Latvia and Lithuania, a significant portion of the decline in Estonia’s export share can be attributed to the ‘intensive margin’, i.e., a shrinking share of Estonia’s exports in the main destination markets—a sign of weakening external competitiveness and declining relative productivity.

A. Introduction

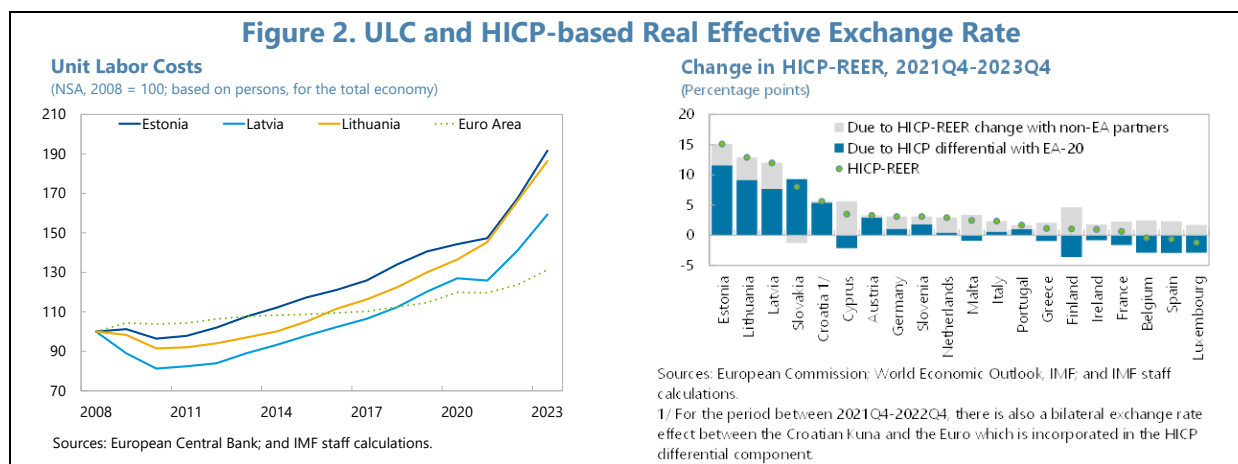
1. Estonia’s export market share has fallen sharply in recent quarters, both in absolute terms and relative to developments in comparable economies. Having remained remarkably stable throughout the COVID-19 pandemic, Estonia’s merchandise exports as a share of global exports have steadily declined for nine consecutive quarters, falling by 23 percent between 2021 Q3 and 2023 Q4 (Figure 1).

2. The immediate cause of this decline was an adverse combination of external shocks. Notably, Russia’s war on Ukraine has led to extensive disruptions in supply chains and increased input costs. Commodities such as timber and metals, previously supplied from Russia and Belarus, are now sourced from more expensive markets. Additionally, the euro’s appreciation against the currencies of important trading partners, such as Sweden and Norway, has diminished the competitiveness of Estonian exporters, which specialize in medium- and low-tech goods, and hence tend to be relatively sensitive to price changes. Furthermore, the underperformance of key external markets, particularly the Scandinavian construction sector, has further depressed exports (Figure 1).



¹ Prepared by Gianluigi Ferrucci and Sadhna Naik.

3. While the recent shocks may have exposed Estonia’s underlying vulnerabilities, signs of a structural deterioration in the country’s external performance and competitiveness predate the shocks. Productivity growth began faltering shortly after the global financial crisis, failing to keep pace with the appreciation of the real exchange rate. As a result, relative costs in Estonia have increased more than in the euro area. The recent significant adjustments in price and cost levels have exacerbated this trend (Figure 2).



4. A protracted fall in the trade share signals a persistent inability of Estonian exporters to keep up with competition in destination markets and may be a symptom of structural weaknesses. This paper delves into the factors that have contributed to Estonia’s diminishing export share, aiming to quantify, to the extent possible, the impact of subdued productivity compared to competitors on the country’s export performance. The most direct approach to addressing this question would be to calculate relative productivity measures for all Estonian export industries. However, detailed data for such comparisons are lacking on a comparable scale across countries. Thus, this paper follows a different approach, and uses constant share analysis (CSA) to break down and assess the impact of geographical and product concentration of external trade from competitiveness losses.

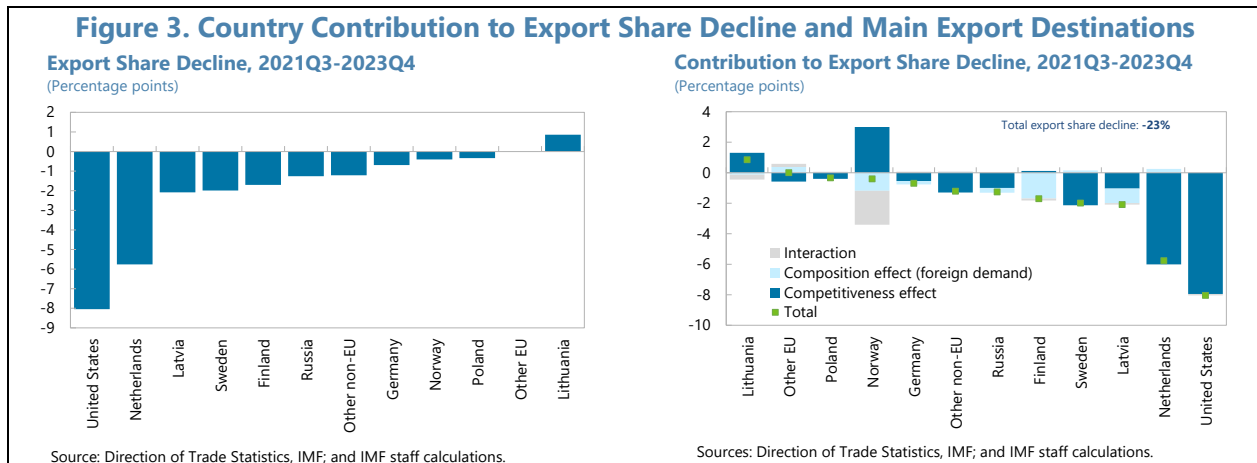
5. The rest of the paper is structured as follows. Section B discusses the recent evolution of Estonia’s export market share. Section C illustrates the methodology. Sections D to F assess the relative importance of structural versus cyclical factors in explaining Estonia’s export performance, also in relation to the other Baltic countries. Section G makes some conjectures on the services export share. Section H concludes.

B. The Decline in Estonia’s Export Market Share

6. We start our analysis by looking at the contributions by export destination to the overall change in Estonia’s share of world merchandise exports. For convenience, we focus on Estonia’s top ten export destinations, as well as a residual category including exports to the rest of

the world, which we further break down into EU and non-EU aggregates.² Since by construction the contributions across all countries and country groups must add up to the 23 percentage points decline observed in Estonia’s export market share between 2021 Q3 and 2023 Q4, this measure provides a simple way of examining the distribution of the overall change across export destinations.

7. The largest negative contributions to Estonia’s export share decline came from the US, the Netherlands and Latvia (Figure 3). The negative contribution from the US is particularly noteworthy, as the country ranked only as the 10th largest destination of Estonia’s exports in 2023 despite accounting for the largest contribution to the fall.³ In contrast Sweden—one of Estonia’s largest export destination absorbing 9 percent of its exports in 2023, and often mentioned as a key culprit for the fall in Estonia’s exports—ranks only fourth on this measure. The role of Russia—not a key export market—was also limited.



C. Methodology

8. This section illustrates intuitively the constant share analysis (CSA) methodology.

Following Gilbert (2017), let us consider the special case of an economy, r , that exports one product to one partner economy, p . Let total exports of the economy be X_r and total world exports be X_W . Then the economy’s share of world exports is X_r/X_W . Letting X_{Wp} be world exports to country p , r ’s export market share can be rewritten as:

$$\frac{X_r}{X_W} = \frac{X_r}{X_{Wp}} \frac{X_{Wp}}{X_W}$$

² The top ten export destinations are based on export data as in 2023 Q3.

³ The decline may reflect changes in supply chains of a limited number of large exporters, a phenomenon frequently observed in small open economies.

In words, the country's export share is equal to its share of world exports to country p multiplied by the share of p in world exports. Now, let:

$$\theta_r = X_r/X_W, \theta_{rp} = X_r/X_{Wp}, \text{ and } \delta_p = X_{Wp}/X_W.$$

Then, substituting, the expression becomes: $\theta_r = \theta_{rp} \times \delta_p$.

Let the change between any two periods be denoted by Δ , so $\Delta\theta_r$ is the change in the export share, and so on. Then, it must be the case that:⁴

$$\Delta\theta_r = \Delta\theta_{rp}\delta_p^0 + \Delta\delta_p\theta_{rp}^0 + \Delta\theta_{rp}\Delta\delta_p$$

where the shares δ and θ are evaluated at their initial values. This is the simplest version of the export market share growth decomposition.

9. The economy in this simple example can increase its export market share by getting a larger share of its partner market, by having the partner market grow, or both. The decomposition allows to disentangle these effects. In particular, the expression shows that it is possible to decompose the change in the export market share into three components:

- **The first term is the effect on the share of expanding in the partner market, holding the size of the partner constant.** This intensive margin, or competitiveness effect, measures the portion of the change of r 's export share that is attributable to a higher penetration of r 's exports in the destination market, holding the size of the destination market constant; that is, it approximates the gains in r 's export share that are attributable to competitiveness gains;
- **The second term is the effect of the growth in the size of the export partner, holding relative penetration constant.** This extensive margin, or composition effect, measures the portion of the change of r 's export share that is attributable to the change in the size of the destination market. By weighing the change in the size of an export destination market in world trade by the average share of r 's exports to that particular export destination, we are able to approximate what would have happened to the overall share had r 's share remained constant and had only the size of the export market changed;
- **The third term is the interaction of the two effects above.**

10. Gilbert (2017) provides an intuitive geometric exposition of the CSA breakdown.

Essentially, the change in the export share is the area in red in Figure 4, which can be broken down in three areas representing the intensive and extensive margins and the interaction term. A more detailed description of the methodology and an example of how it is applied to measuring

⁴ To show this, let $z = xy$, then: $\Delta z = xy - x_0y_0$. Adding and subtracting xy_0 : $\Delta z = xy + xy_0 - xy_0 - x_0y_0 = x\Delta y + y_0\Delta x$. Further adding and subtracting $x_0\Delta y$ yields: $\Delta z = x\Delta y + x_0\Delta y - x_0\Delta y + y_0\Delta x$. Factoring and rearranging yields: $\Delta z = x_0\Delta y + y_0\Delta x + \Delta x\Delta y$.

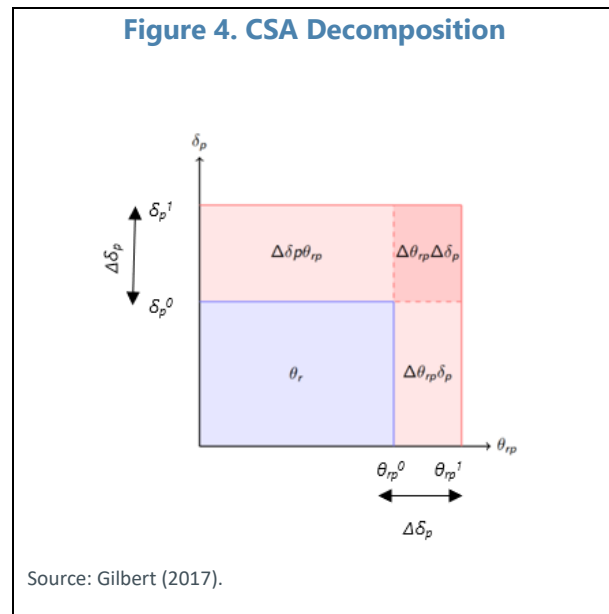
competitiveness is provided in di Mauro et al. (2005). Although the methodology is beset by several well-documented theoretical problems, it is informative for our purposes.⁵

11. The formula can be generalized to more than a single export destination. It can also be extended to a detailed breakdown of export categories and goods. As we are mainly interested in the geographical dimension, in what follows we will mainly focus on the CSA for Estonia’s exports by destination country, using detailed IMF Direction of Trade statistics. But we will also consider trade by sector in one case.

D. CSA Decomposition: Estonia

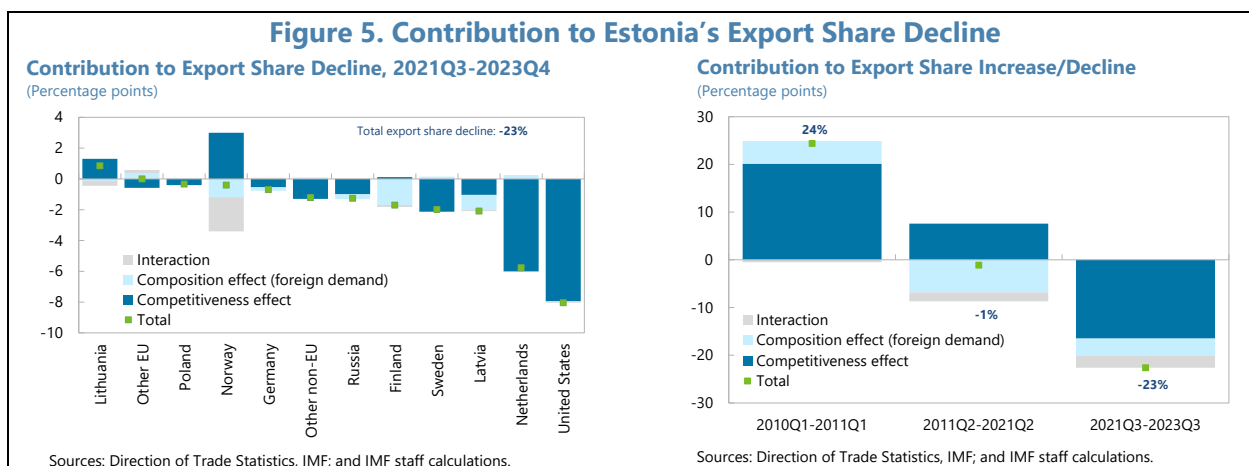
12. What explains Estonia’s losses of export market share? Using constant share analysis, this section seeks to identify changes in Estonia’s export market share that are related to the intensive margin, and hence to country’s competitiveness as discussed above, from those that reflect composition effects related to changes in the size of the destination markets.

13. The decline in Estonia’s export share has been largely driven by the intensive margin. Among the export destinations that contributed to the fall in Estonia’s export market share between 2021 Q3 and 2023 Q4, a significant part of the decline was driven by the intensive margin, i.e., by the shrinking market share of Estonia’s exports in those countries, which has to do with falling competitiveness (Figure 5). Only a small fraction of the share declines in a handful of countries (most notably, Finland, Latvia, and Norway) was due to the shrinking share of world trade claimed by those countries, i.e., composition effects or the extensive margin. In the case of Russia, the negative contributions from composition and competitiveness effects likely reflect, at least in part, the effects of the EU trade sanctions in response to Russia’s invasion of Ukraine. According to this measure, therefore, Estonia has mostly lost ground to its competitors in certain export markets above and beyond what could have been explained by the individual dynamics in those markets.



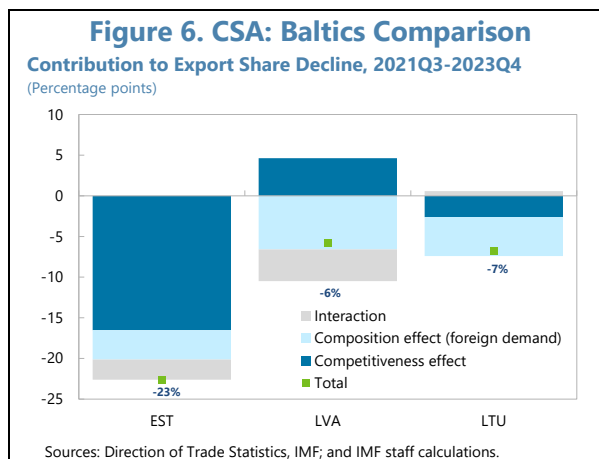
⁵ Among the limitations, CSA assumes that the market structure remains unchanged over the analyzed period, ignoring the effects of technological advancements, changes in consumer preferences, and regulatory changes. It focuses on changes in market share attributable to internal factors such as price competitiveness and product quality, but it does not account for external factors, such as global economic conditions, exchange rate changes, and competitor actions. It assumes that products within the market are homogeneous, ignoring product differentiation, which can impact market share independently of price or volume changes. Finally, CSA provides information on changes in market share but does not offer insights into the underlying causes of those changes. Disentangling the effects of different factors influencing market dynamics requires additional analytical techniques or qualitative research. For a comprehensive discussion of these, and other, limitations of CSA, see Richardson (1971).

14. We can use CSA to determine the drivers of the change in the export share over different time intervals. Over a longer-term perspective, the increase in Estonia’s export market share during 2010 Q1-2011 Q1 was mainly attributable to a strong contribution from the intensive margin (Figure 5). The broadly flat export share between 2011 Q2 and 2021 Q2 was the result of a negative composition effect offsetting the positive contribution from competitiveness. However, an important caveat to this analysis is that the attribution becomes less precise the longer the time interval considered.



E. CSA Decomposition: Comparison Across the Baltics

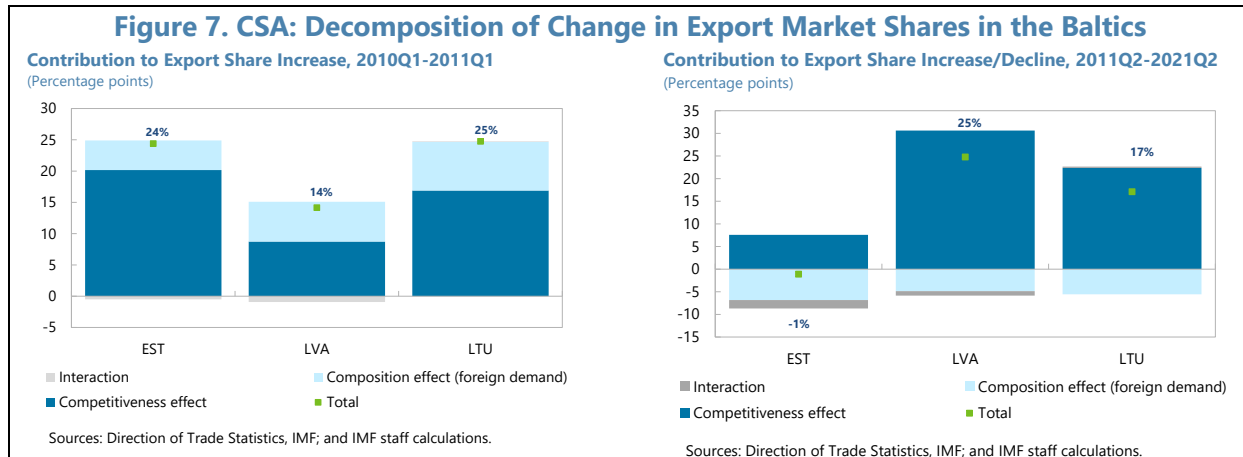
15. A cross-country comparison using CSA shows losses of export shares for the Baltic region, but Estonia is worse off. During the post-Covid period, Latvia, and Lithuania also experienced losses of export shares, albeit less pronounced than in Estonia (by 6 percent and 7 percent, respectively, see Figure 6). A CSA decomposition applied to these countries shows that competitiveness issues (the intensive margin) played a much less prominent role overall. In Latvia, a large contribution to the fall came from the interaction term, which at the country-level was mainly associated with Russia. In Lithuania, the fall in the export share mainly reflected a large contribution from the extensive margin, and hence was mainly associated with shrinking foreign demand.⁶



16. Figure 7 shows the CSA breakdown for the three Baltic countries across different time periods. In the post-GFC period until 2011 (2010 Q1 and 2011 Q1), very large competitiveness gains underpinned the strong export market dynamics, particularly in Estonia and Lithuania. In the period

⁶ Annex Figure 1 shows the country contribution to the export share declines in Latvia and Lithuania.

between 2011 Q2 and 2021 Q2, strong export market dynamics continued to be mainly driven by competitiveness gains in Latvia and Lithuania, but the export share remained flat in Estonia.

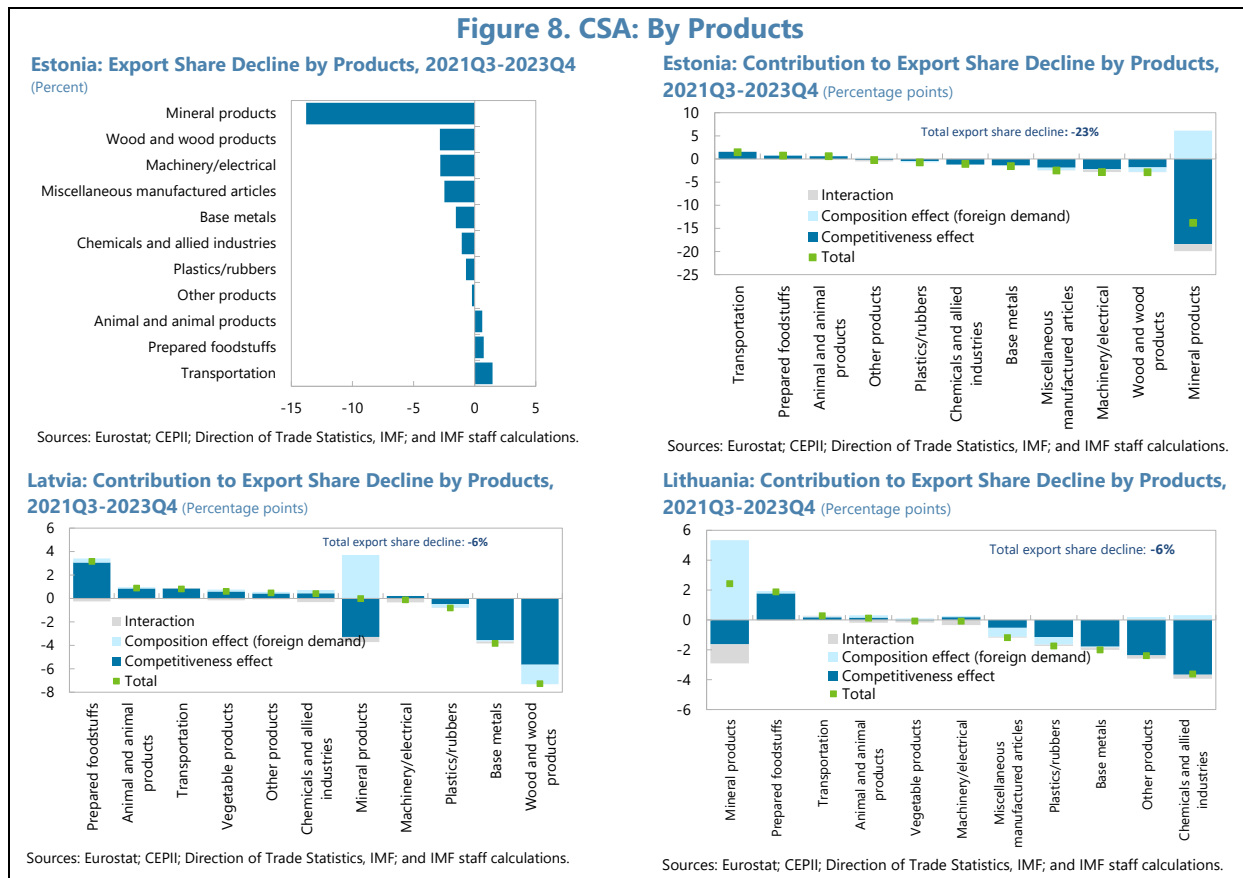


F. Sector Contributions to Export Performance

17. The CSA methodology can also be applied to exports by product categories. For this decomposition, we follow Mandel (2012) who runs a similar analysis for the US, and use Eurostat’s 2-digit harmonized system commodity data for each Baltic country.⁷ Focusing on the top 10 commodity exports as in 2023Q3, Figure 8 shows that losses of export shares in Estonia are mainly due to the intensive margin and concentrate in mineral, wood, and machinery/electrical products. In Latvia, the picture is more mixed, with losses in some sectors partly offset by gains in others. Lithuania’s small decrease in the export share mainly owes to the intensive margin.

⁷ We combine intra-EU and extra-EU exports to get total trade and re-group the 92 export categories in the database (‘chapters’) into the 21 ‘major sections’ reported in the [Harmonized System \(HS\) Nomenclature 2022 Edition](#), following the table developed by the World Customs Organization (WCO). To get world shares of each commodity, we use the CEPII database (see Gaulier and Zignago, 2010).

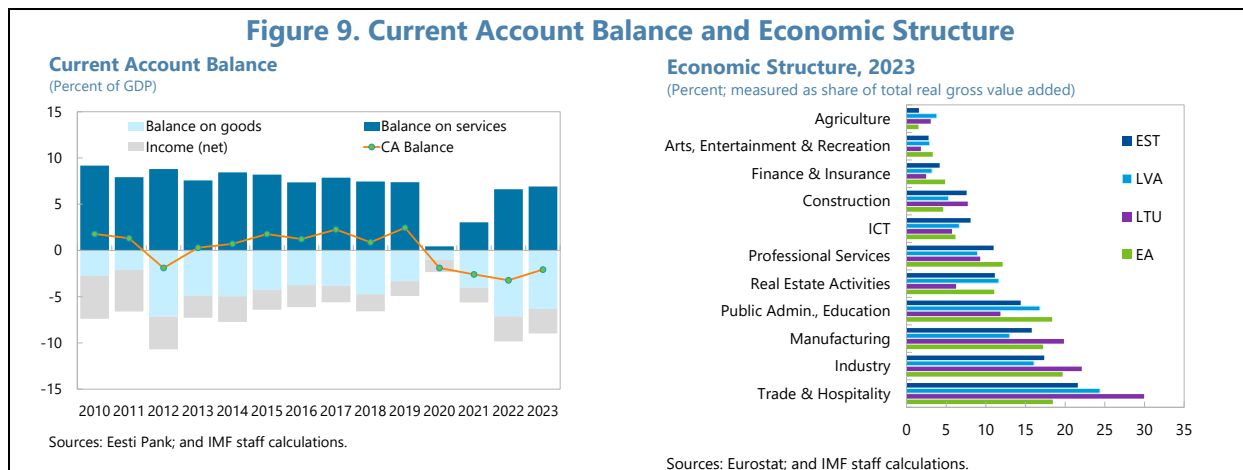
Figure 8. CSA: By Products



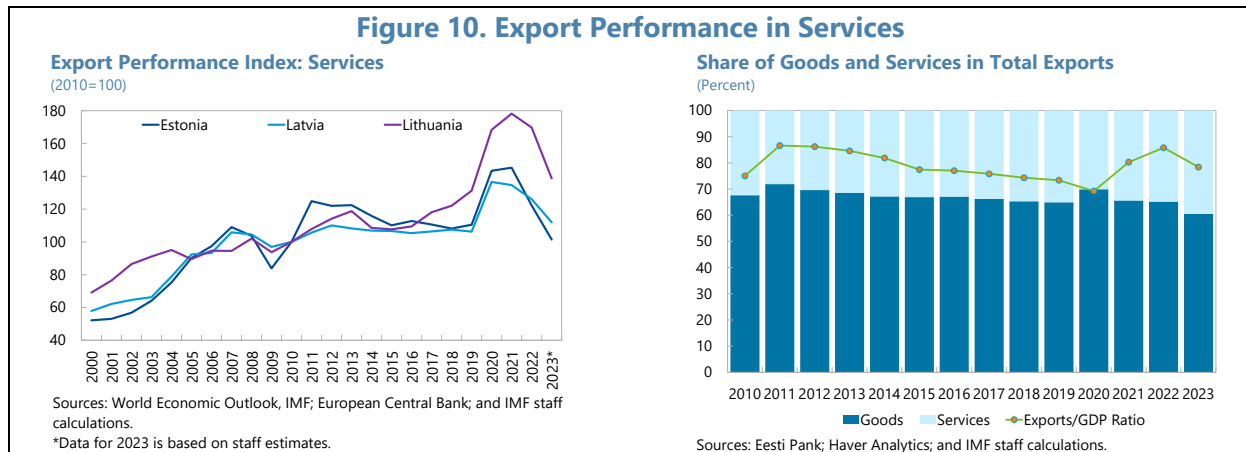
G. The Services Export Share

18. An argument could be made that Estonia’s diminished role in merchandise trade could reflect a structural transformation with a shifting emphasis from export of goods to export of services. Underpinning this argument is the large contribution to the trade and current account balances from the net external balance in services and the relatively high and rising share of services in total gross value added, particularly the ICT sector (Figure 9).

Figure 9. Current Account Balance and Economic Structure



19. The recent evolution of services exports relative to foreign demand offers little support for such an argument. A CSA decomposition for the services export share, which would provide valuable evidence in support or confuting the prior above, cannot be performed due to lack of data. However, the Export Performance Index (EPI) shows that Estonia’s services exports have increased by less than foreign demand since 2021, indicating that some loss of competitiveness has been recorded also in services (Figure 10).⁸ Moreover, as services still account for only about a third of total exports, strong gains in services export shares would be required to fully offset the sharp falls in goods export shares to leave Estonia’s total export of goods and services an unchanged share of total world exports.



H. Conclusions

20. Estonia's falling export market share indicates a persistent challenge for exporters in maintaining competitiveness against foreign counterparts. While the immediate cause of the decline was the external shock stemming from Russia's war in Ukraine, faltering productivity and a progressive softening of external competitiveness resulting in a flat export market share have been evident since the global financial crisis, and thus predate the recent shocks.

21. This paper finds that unlike in Latvia and Lithuania, the majority of Estonia's export market share decline can be attributed to the so-called 'intensive margin'. This refers to the diminishing share of Estonia's exports in key destination markets, indicating a decline in external competitiveness and relative productivity. Services growth has also lagged foreign demand since 2021, suggesting emerging challenges in this segment of external trade as well.

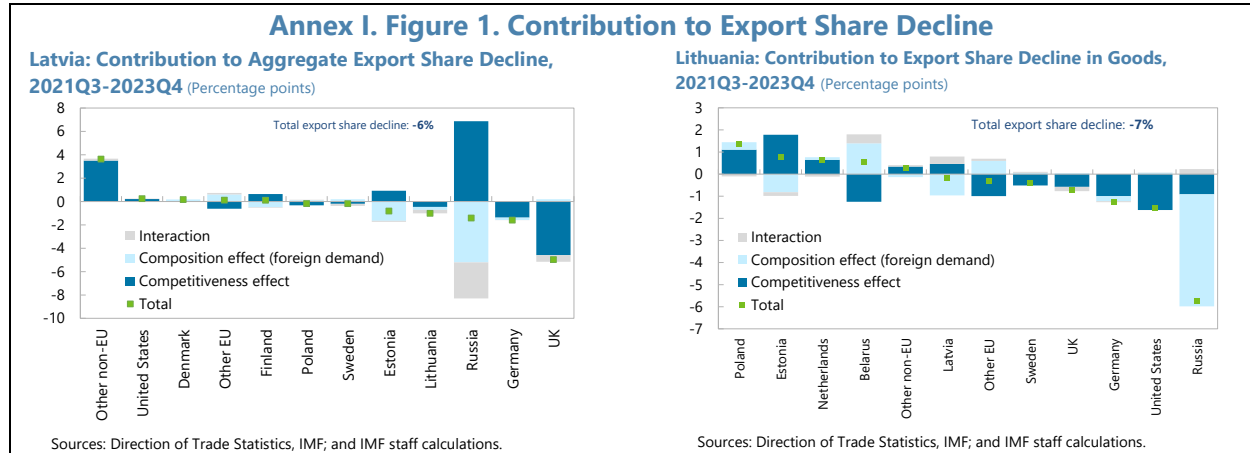
22. A few high-level policy implications can be drawn. Addressing the erosion of external competitiveness will require structural reforms aimed at enhancing productivity, removing impediment to a structural transformation of the economy towards more technologically intensive and higher value-added products and services, as well as efforts to ensure that real wage growth

⁸ The Export Performance Index (EPI) is defined as the ratio between country *i*'s export volumes and its export demand, in turn defined as the weighted average of import volumes of country *i*'s trading partners using trade weights that reflect the relevance of the trading partner as a destination for country *i*'s exports.

remains closely aligned with productivity growth. By addressing these underlying challenges, Estonia can restore external competitiveness and ensure continued convergence towards the income levels of EU most advanced economies and Nordic neighbors.

Annex I. Additional Results

Annex I. Figure 1 shows the country contributions to the decline in the aggregate export market shares in Latvia and Lithuania. In Latvia, losses of export shares mainly reflected a strongly negative interaction term in Russia, likely reflecting the effects of the EU sanctions. In Lithuania, the small overall decrease in the export share was mainly driven by Russia.



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