



## Why is Finland lagging behind in export growth?

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### Abstract

This paper tries to find an answer to the question of why has Finnish exports performed so poorly during the last two decades. It also tries to assess the related question of why is the level of openness of the Finnish economy much lower than in neighboring countries and countries with similar size and structural features of the economy. The market share analysis shows that Finnish export performance has suffered from unfavorable structure of markets and commodities in particular during the last ten years. The quality of exports has also deteriorated over time so that the share of raw materials and intermediate goods has grown. This has had unfavorable implications on export prices and the terms of trade.

**Keywords:** export performance, export market share, gravitation model

**JEL codes:** F14, F43, F62

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## 1. Is the Finnish economy open enough?

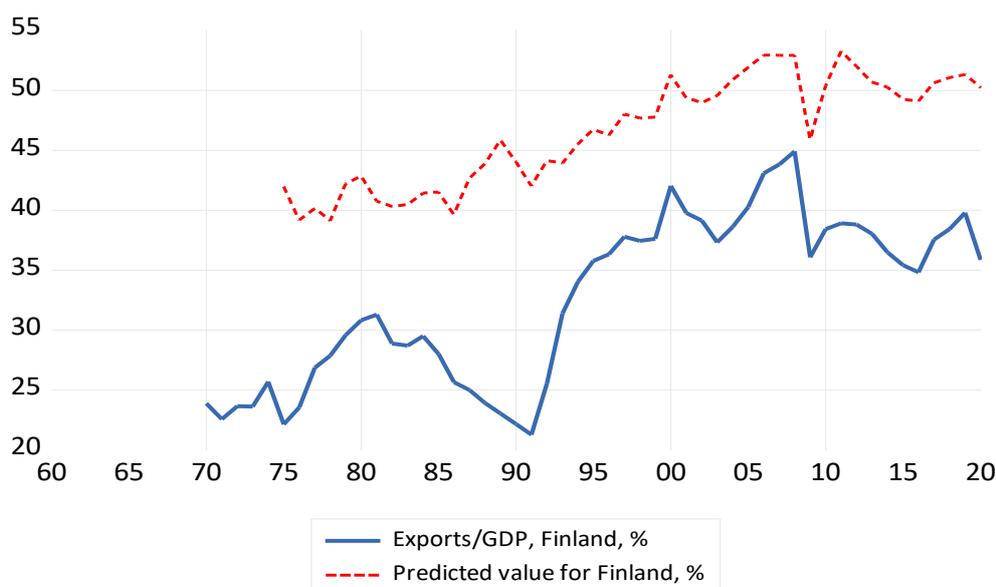
Finland is a small open economy and by definition it is highly dependent on foreign trade. As a small country it cannot specialize in production of all goods and services. Instead, it must rely on the world market for the supply of goods and services. The more it trades, the more it can benefit from relative advantages in production and exchange. From this perspective, it is alarming that in recent years Finland's exports have grown much less than the world market. As a result, we find that also Finland's current share of exports (as well as imports) of GDP is only about 40 %, which is much less than the mean (median) value of this share for EU countries which is currently 70 % (60 %). In 1975, the Finnish exports/GDP share was almost exactly the same as the weighted average of EU and (current) EMU countries but now it is 6-7 percentage point lower. Same observation can also be made when comparing Finland to the Baltic rim countries. Thus, the exports shares for 2019 are: Finland 39.8, Denmark 54.3, Sweden 44.2, Estonia 69.8, Latvia 60.3, Lithuania 74.1, Poland 55.7 and Germany 43.8. So, Finland is lagging behind all of those. Given the size and structure of the Finnish economy, Finnish exports/GDP share could well be at least 50 % (see calculations below and Appendix 2).

Even though the exports/GDP shares (or trade openness) are usually assumed exogenous it does not mean that they are completely unrelated to any background variables. Thus at least for comparison purposes, it is worthwhile to consider eventual relationships. In practice this can be done by estimating an equation where the export share is explained by such structural variables as the size of the economy, the growth pattern and the structure of production. Then using cross-country data, we can compare the observed export shares e.g. for Finland with the predicted values to see how the export shares have deviated from these conditional values for the last five decades. For this purpose we use global cross-country panel data from 200 countries. The predicted values are computed from the estimating equation reported below. According to these estimates the value of Finnish export share in 2019 should be 51.3 which grossly exceeds the actual value of 38.8 per cent. Moreover, as seen in Figure 1 the gap between actual and predicted values has not decreased for the last 20 years, but rather slightly increased. The estimated equation is:

$$x = 92.42 - 0.37\log(GDP) + 0.46\log(GDPpc) - 0.67agr + 0.17inv + 0.24\Delta\log(GDP + 1.17\Delta\log(POP)) + \text{fixed time effects}; R^2 = 0.34, n = 8470. t=1960-2018.$$

where  $x$  denotes total export/GDP,  $GDPpc$  denotes GDP per capita at constant US dollars,  $agr$  is GDP share of agriculture and  $inv$  denotes gross capital formation.  $POP$  denotes total population. More detailed results are presented in Appendix 1.

Figure 1 Comparison of the *Finnish* exports/GDP ratio with the predicted value



## 2. Recent trends of the Finnish export market share

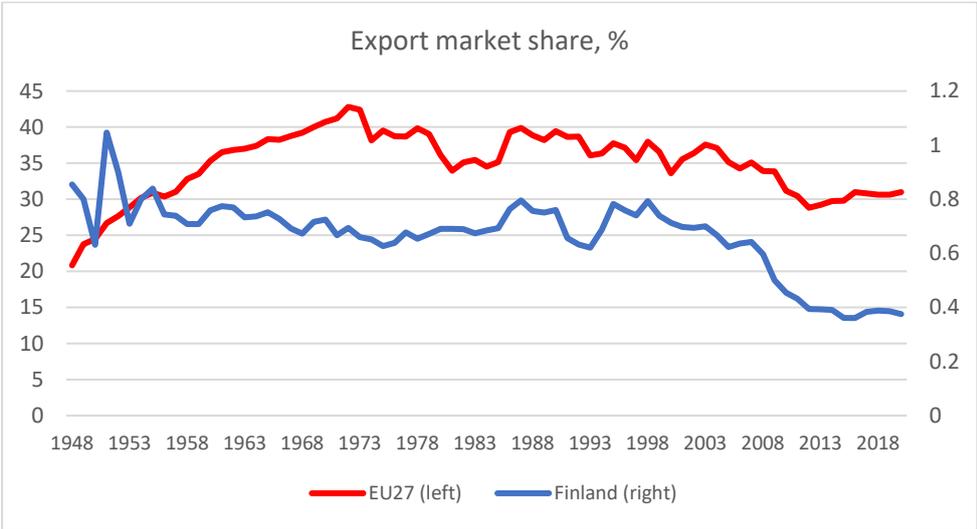
So, the level of Finnish exports is low, and this largely follows from poor developments since 2008. The question is why? There are two alternative routes of explanations. First, the low level of exports is due to deficient competitiveness – too high wages, prices, and other costs (see e.g. Stenborg et al. 2020). The other emphasizes various non-price factors which are related to the structure of Finnish production, choice of export markets and the selection of export goods (e.g. Mäki-Fränti 2017). We concentrate fully on this latter set of explanations, as the former has been more frequently scrutinized over the years. Another reason is that access to various data sets has improved recently which allows us to evaluate the importance of structural factors.

The Finnish case has been analyzed earlier by e.g. Mäki-Fränti (2017) who concluded that structural factors contributed positively to exports during the early years of 2000 but later the contribution has turned negative. The role of structural factors has been studied extensively in Europe and in general these studies have found significant negative contributions, particularly in Italy (see Lissovolik (2008)) and France (Burton and Kizior 2021). For other countries see e.g. Gaulier et al. (2013). The causes of relatively poor performance of Finnish exports are analyzed in Stenborg et al. (2020) and a longer historical perspective is provided by Haaparanta et al (2017). This paper focusses on the most recent developments, which seem to deviate somewhat from the developments of the first decade of 2000.

We start by looking at the post-WWII market share of Finnish exports, illustrated in Figure 2. Market share is here defined as Finnish total exports compared to world (total) exports. Quite clearly, there are only few subperiods in which Finland has succeeded to increase its

market share. These periods, such as the post 1991-1993 depression years, have been short-lived. The biggest setbacks have been the financial crisis in 2008-09 and the collapse of the Nokia mobile phone production in 2008-2011. Finnish setbacks appear to be much larger than those of other EU countries on average. At one point of time (1951), the Finnish share was above one percent while the latest UNCTAD estimates is only 0.38 per cent.

Figure 2 The share of Finland and EU27 of World exports



Note: EU values include intra-EU trade  
 Data source: Unctad.  
<https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>

It is to be expected that Finnish exports do not grow as fast as those of emerging economies in the long run. The catching-up process improves the export potential of emerging economies compared to developed economies, on average. However, the developments in Finnish exports have also been exceptionally poor compared to other developed economies since 2008.

Previous analyses have quite convincingly shown that the post 2007 period has been characterized by rather poor price competitiveness; a problem which has penalized Finnish exports (see Stenborg (2020) and Kaitala (2021)). Even so, there are good reasons to ask how much possible structural factors have contributed to the development of export growth.

It is true that Finland suffers from long distances to the main fast-growing market areas, but one might expect the distance effect, central in the often used gravity model of foreign trade (first estimated by Tinbergen (1962) and Pöyhönen (1963)), to diminish over time due to improved logistic facilities. However, the deterring effect of distance can still be detected from the data (see the estimation results below) – at least in the form of choice of trading partners. The further away a country geographically is, the less Finland tends to trade with it.

In any case, the growth rate of exports should not only depend on geographical factors. When competing in the fast-growing market areas (Asia, South America) Finland does not have much disadvantage compared to other European countries. After the collapse of Soviet

trade, when central Europe was the destination of the majority of Finnish exports, Finland surely had a geographical disadvantage but now this disadvantage cannot be blamed for failures in export growth as trade takes place globally (see figure in Appendix 3).

The ITC database facilitates an analysis of the importance of distance on the choice of export partners. Empirical analyses suggest that distance has some effect on the choice of export partners but still the main drivers are the size of the export partner and the level of competition in the respective partners' markets. Thus, we can derive the following estimates from the 2019 cross-section analysis of Finnish trade with group of 182 countries:

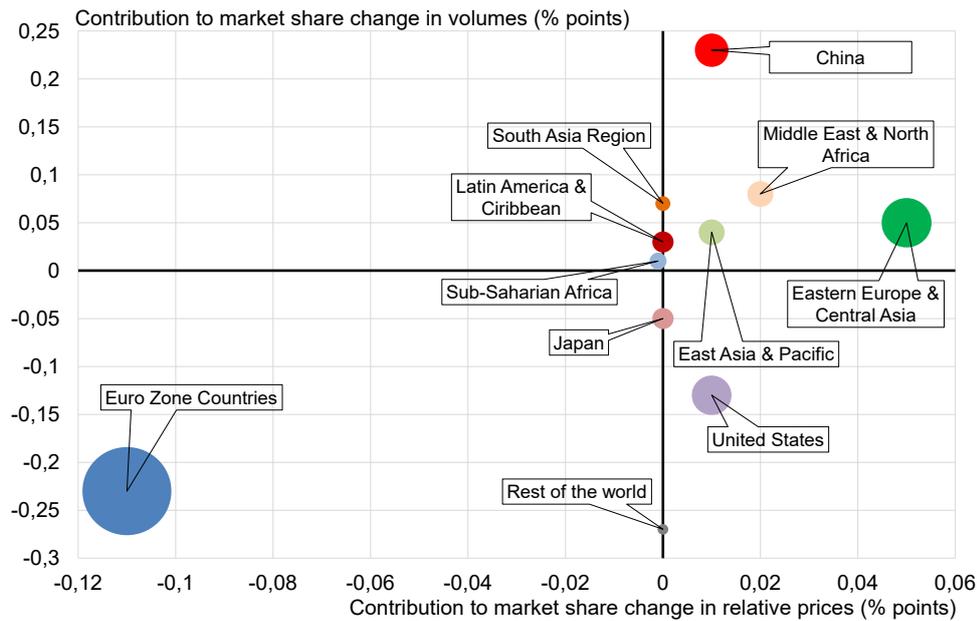
$$\text{share} = 0.63 - 1.21\log(\text{distance}_{fin}) + 0.85\log(\text{distance}_{par}) + 0.69\text{share}_{imp} + 1.23\text{concentration}, t_1 = 2.68, t_2 = 3.17, t_3 = 2.88, t_4 = 4.94, t_5 = 1.52, R^2 = 0.60, SEE = 1.05, n = 182.$$

where *share* denotes the *share* of country (i) in Finnish exports, *distance\_fin* the distance from Finland to country (i), *distance\_par* the average distance between the partner country (i) and all its import partners (k), *share\_imp* the share of country i's imports of the whole world's total imports and *concentration* the Herfindal index of the partner country i's import partners' market shares.  $t_i$ s denote robust t-ratios. All coefficients are statically significant at the 5 per cent level of significance with robust t-values. The average value for distance between trade partners in the World (Finland) is 5278 (2830) km and the average import concentration rate 0.16 (0.07). The morale of the results is the following: more exports go to countries which are close to Finland, and which have long distances to their other import partners. More exports also go to countries which are bigger in terms of import demand and where fewer countries compete in the exports markets (markets are less competitive in the sense of the Herfindahl index).

### 3. How much structural factors matter?

First, we ask how much of the relatively slow export growth has been due to “wrong” export goods and how much to “wrong” export markets. How much did Finland differ from the most successful countries in terms of export goods and export market portfolios? Figures 3 and 4 provide a partial answer to these questions:

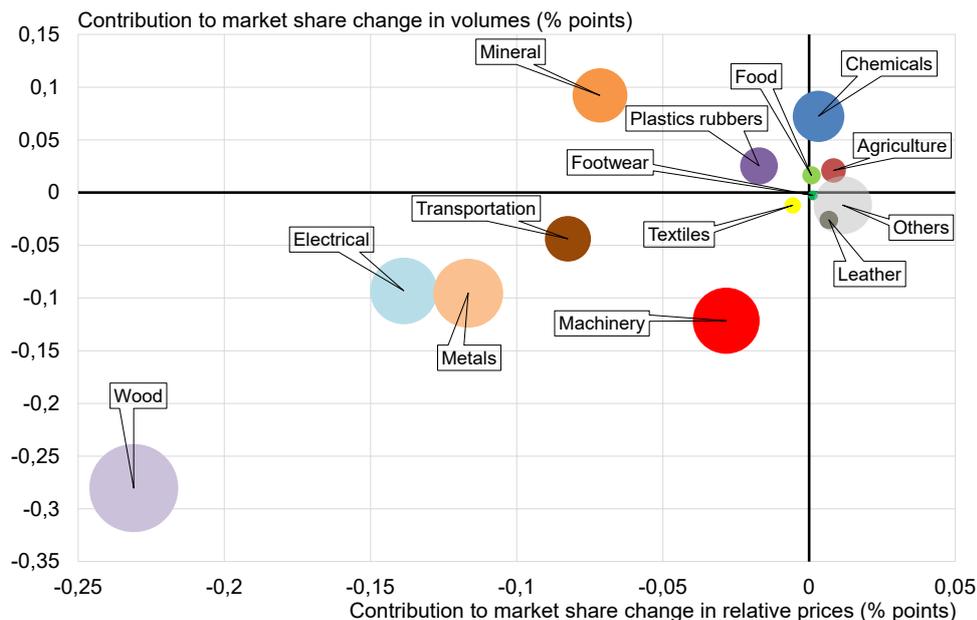
Figure 3 Change of Finnish exports' market share due to changes in world export markets



Note: the size of the symbol reflects the average size of Finnish goods' exports in 2006-2019. Relative prices reflect relative import prices of specific export areas in relation to world export prices. Values on axes indicate average volume and relative price contributions to the Finnish exports' share in 2006-2019. Data source: World Bank, the MEC data base; <https://mec.worldbank.org/>

According to figure 3 the Euro area has been the dominant market area for Finnish exports, but in the world scale, it has been the slowest growing export market both in terms of volumes and export prices. Its negative contribution to Finnish goods exports market share has not been balanced by exports to Eastern Europe and China while the contribution of the other market areas has not changed the overall nature of development.

Figure 4 Change of Finnish exports' market share due to changes in the structure of exports



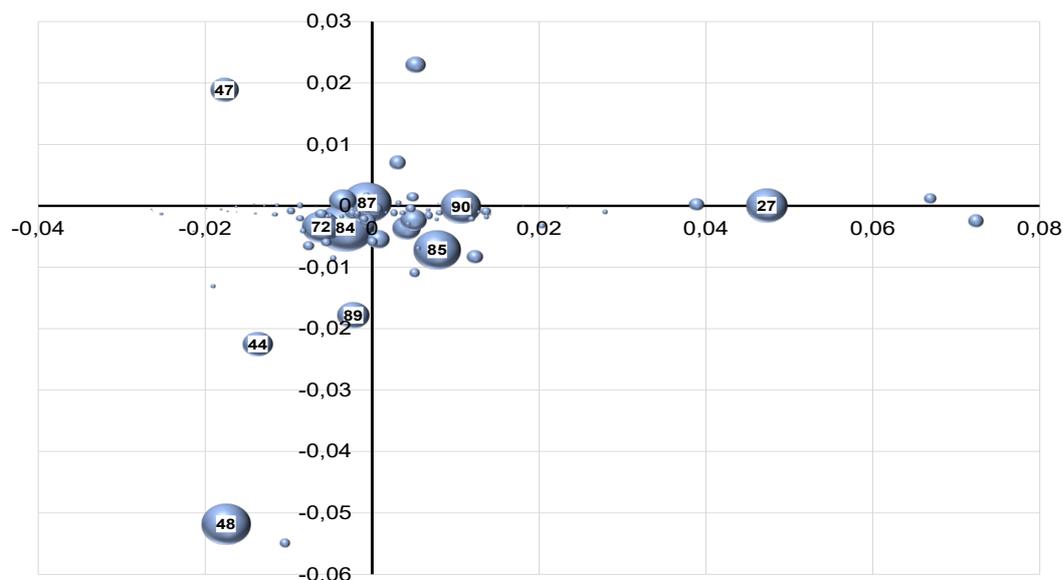
Note: notation is the same as in Figure 3. Now only relative prices reflect relative export prices of different product groups in relation to world export prices. Data source: World Bank, the MEC data base; <https://mec.worldbank.org/>

Looking at the product structure of exports, we find that the forest industry is by far the biggest contributor to the fall in Finland's exports as a share of world trade (figure 4). During the 2006-2019 period both relative prices and volumes of forest industry exports have decreased significantly and at the same time most of the other industries (like metal and machinery) have followed suit, more or less. By contrast, it is very difficult to find an industry which would have succeeded in increasing both volumes and relative prices. Chemicals (e.g. biodiesel) come close to that outcome but the relative price effect is almost zero. The negative contribution of the metal industry and electronics is somewhat surprising because they are usually considered to be the other key branch in Finnish exports in addition to forest industry. The only export sector in Finland where both volumes and relative prices have modestly increased is agriculture.

Altogether, 36 % of decline in the Finland's export market share can be attributed to these two factors (namely destination countries and product structure). This does not mean, of course, that the rest of the market share decline can be attributed to price competitiveness: it may also be that several (relative) quality factors within different broad product categories (industries) have changed in such a way that Finland has lost its export markets. Equally well it may be that poor price competitiveness has affected the band of export countries and selection of export goods. The above-mentioned estimate of the share of structural factors (36 %) is somewhat higher than the previous estimates (Mäki-Fränti 2017). There are several possible reasons for this deviation: different sample periods, Nokia's exit from mobile phone markets, problems with Russian exports (sanctions after 2014) and the decline of forest (paper) industry in Finland.

These considerations give reason for looking more closely at individual commodities or commodity groups. Hence, in Figure 5 we examine altogether 97 groups. The growth of world market imports (minus the average value for 1995-2019) is plotted on the x-axis and change in Finland's share of the world export market on the y-axis. Preferably, Finland should find herself in the upper right quadrant on the chart but for most product groups this is not the case. Moreover, figure 5 tells us that there are relatively few product groups which really matter for total exports (the size of the plotted symbol), and they originate largely from metal and forest industry. In fact, the total market share of the 87 remaining product groups is only 29 %. It is true that similar patterns can be found with many other EU countries – most notably with Italy (Lissovolik 2008) – but that does not rescue Finnish exports.

Figure 5 Change in Finnish exports of goods by 97 product categories 1995-2019.



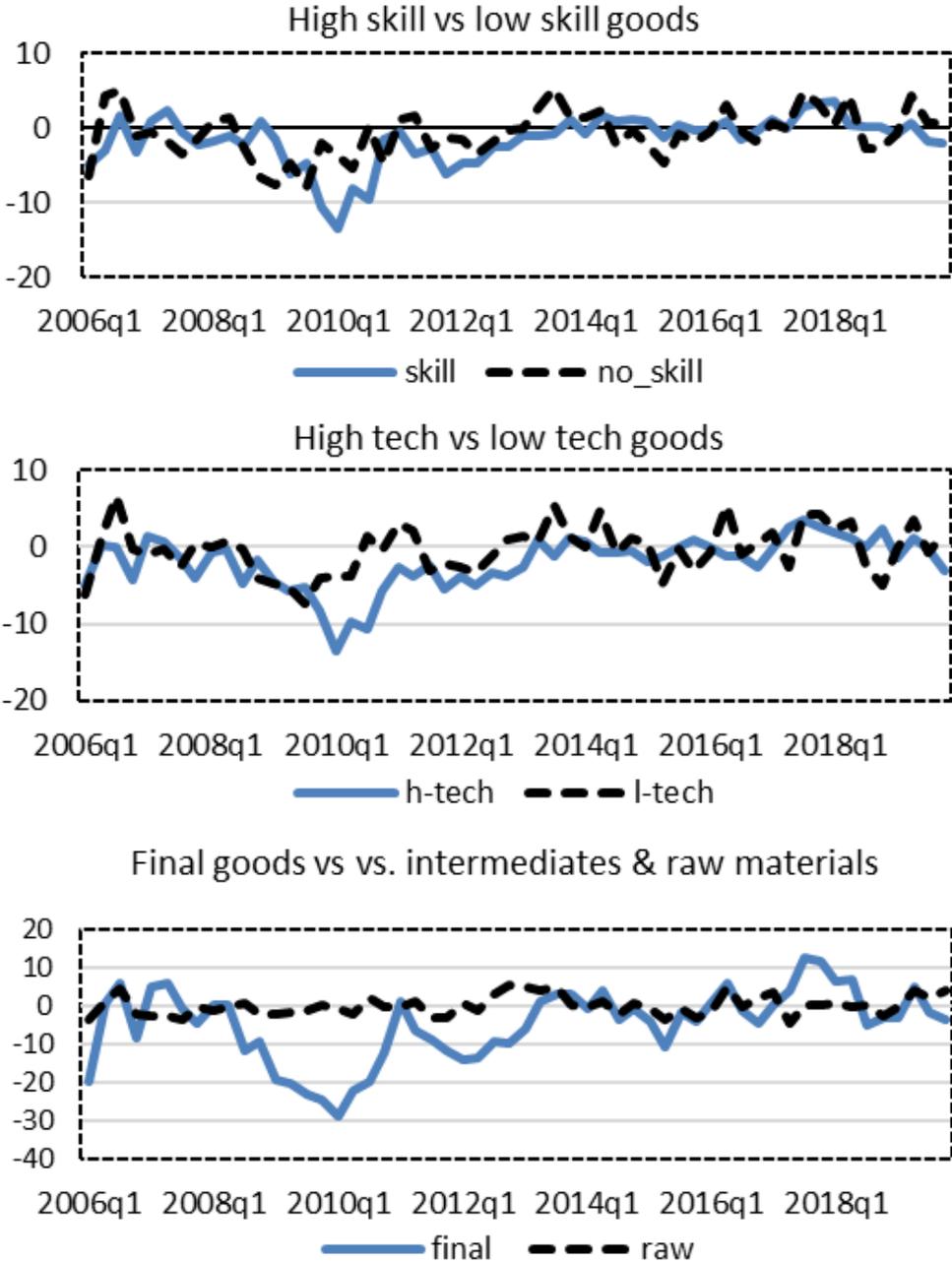
- 84: Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
- 48: Paper and paperboard; articles of paper pulp, of paper or paperboard
- 87: Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof
- 85: Electrical machinery and equipment and parts thereof; sound recorders and reproducers; television image and sound recorders and reproducers, parts and accessories of such articles
- 27: Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
- 90: Optical, photographic, cinematographic, measuring, checking, medical or surgical instruments and apparatus; parts and accessories
- 72: Iron and steel
- 89: Ships, boats and floating structures
- 44: Wood and articles of wood; wood charcoal
- 47: Pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard

Note: the Pct point change in Finland's market share of the respective product categories is plotted on the y-axis and the growth rate of world imports (minus the average rate) of the same product group is plotted on the x-axis. Highlighted are Finland's 10 biggest export categories. The size of the bubbles corresponds to the size of exports of the product group in 2019. Data source: Comtrade data base.

## 4. Has the quality of exports increased or decreased?

Industries and product categories may not tell the whole truth of the structure of exports. It is useful to scrutinize the product classification also from the skill and technology perspective. The end use of the products is of interest as well. Figure 6 characterizes these features telling a rather disappointing story. Finnish goods exports have not developed neither towards more i) skill-intensive products, ii) high technology and/or iii) final goods (instead of intermediate goods and raw materials) but rather the opposite. In this sense, the “quality” of exports has decreased (this point is also made in Koski and Kaitila 2021). That does not directly indicate that the quality of goods would have deteriorated because the “quality” is assessed on the basis of (name) classification of different products. So, “quality” changes inside a certain product group cannot be estimated. Instead, they can be seen in the changes in relative prices (see figures 2 & 3).

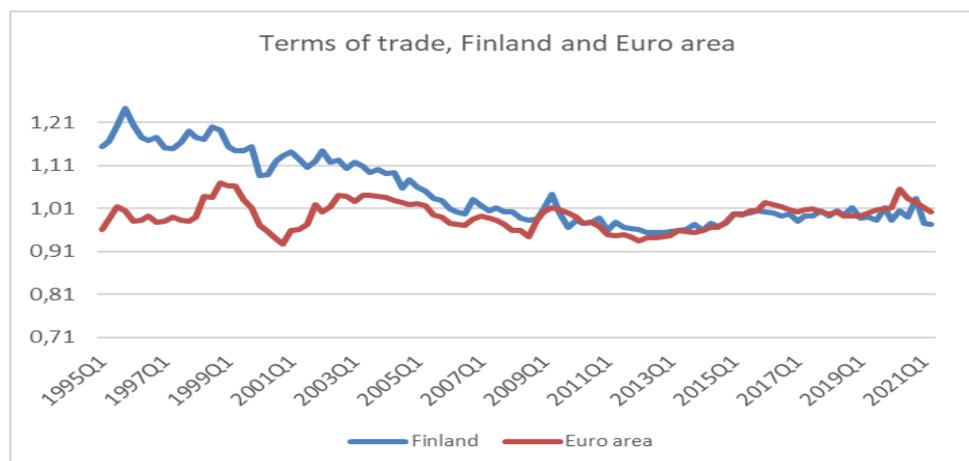
Figure 6 Decomposition of the adjusted market share change in terms of quality of exports.



In all graphs, the values reflect the share of adjusted market share changes due to exports of different types of goods. (source: <https://mec.worldbank.org/builderpush>). Adjusted market shares are market shares which have been adjusted in terms of a change in the partner countries and the structure of exports. With skill components, "high skill" denotes the sum of high skill and medium skill while "low skill" denotes the sum of low skill, resource intensive and primary and other products. In the same way, "high tech" denotes the sum of high and medium tech products while "low tech" denotes the sum of low tech, resource based, primary and other products. In the end use (processing stage) classification, "final" comprises consumption and capital goods while "raw" comprises intermediate goods and raw materials. For computational details, see Gaulier (2013)

The fall of Nokia and the financial crisis have had a clearly visible and long-lasting effect on the quality of Finnish exports, and even though the situation has not deteriorated further, no major improvement has taken place either. These developments are probably the reason for the unfavorable development of the terms of trade during the last two decades. Part of that may reflect quality adjustments that are made to export and import prices but still there is clear difference in the evolution of Finland's terms of trade compared to Euro Area (see Figure 7).

Figure 7 The terms of trade for Finland and Euro area.



Data source: Ameco data base.

## 5. Services' exports have performed somewhat better

Finally, in this study we have not considered exports of services but several comments on those still merit a note. The share of services' exports for Finland is currently a bit over 30 %. During the past 20 years, the share has doubled which has led many commentators to predict that services exports will "save" Finnish exports in the future. Although this might be fair assessment, there are several caveats. First, the starting point of Finnish services exports has been very low in comparison to most other countries and the menu of services has been much smaller than e.g. in the UK, which is a prime example of a country with a very large share (almost one half) of services of total exports (it is also noticeable that the UK's market share of World services' exports is still larger than that of China, namely 6.9 % vs. 6.5 %). The share of Finnish services exports was 0.55 % in 2021 while the corresponding share for Sweden was 1.29 %. This low value is mainly due to Finland's low level of finance, travel, and transport services exports but also due to low level of most welfare services (e.g. schooling) exports (see Appendix 4 for details). During the last ten years, the growth rate of Finnish services' exports has been almost the same as the global growth rate. Hence, the seemingly good growth rates of exports have not translated to increases in the markets shares and the Finnish market share is almost the same as in early years of the 2010s. The only service category that has grown very rapidly is "goods related services" (maintenance and repair services), which is now roughly five times larger than in 2010. Unfortunately this item corresponds to only 7 per cent of total services exports in 2021 (see Appendix 4 for further details) . Slow growth of goods exports obviously contributes negatively to services' exports. Thus, we should not consider the development of services' exports independently of the developments of goods exports.

## 6. Conclusions

According to our analyses, Finnish exports suffer both quantity and quality problems. Growth of Finnish exports has lagged behind the growth of exports in the world market. This seems to result from both the choice of exports markets and the selection of exported commodities. Perhaps the most disturbing observation is, however, the fact that also the average quality of exports has deteriorated: Finland has not succeeded in producing more sophisticated, high tech and high skill intensity commodities. Although many European countries suffer from similar problems, our neighbor countries (e.g. Sweden and Denmark) have anyway succeeded much better to respond to challenges on global export market developments. Some of these features have been visible already earlier but our study with the most recent data show that these tendencies have only deteriorated.

It is obvious, that something should be done with Finnish exports. Needless to say, price competitiveness is a factor, which cannot really be substituted by some other factors particularly because it is more difficult to find suitable policy instruments. As for structural factors, the challenges lie in reversing the negative development in the quality of exports. The quality of exports is a direct result of the quality of production and that in turn is directly related to the quality of relevant education and research. There is a broad consensus in the literature that Finnish exports require improvements but thus far quite little concrete actions has been done.

One should also acknowledge that the low prospective growth rate of the Finnish economy is not independent of the level and growth of exports. If the low level prevails, we cannot expect the Finnish economy to benefit from the international division of work and the economies of scale.

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## Appendix 1

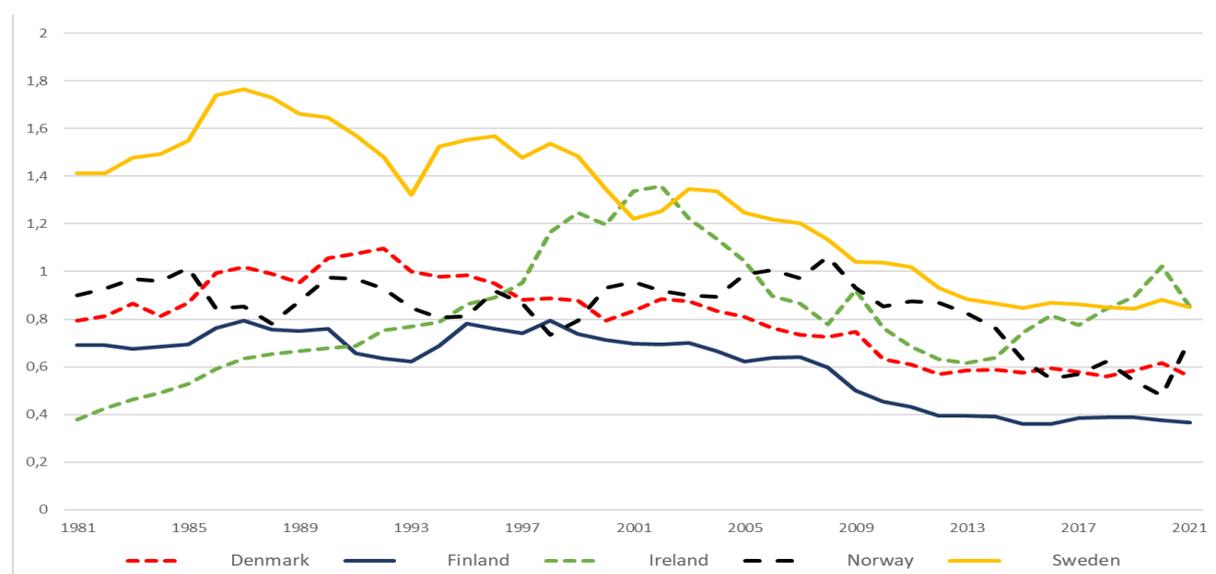
Estimation results for the trade share equation

	1	2	3	4	5
<b>constant</b>	94.719 (57.93)	67.878 (38.98)	92.416 (39.12)	88.411 (26,73)	
<b>log(Y)</b>		-.014 (21.03)	-.037 (49.30)	-.036 (33.07)	-.026 (46.60)
<b>log(Pop)</b>	-.037 (41.54)				
<b>log(Y/Pop)</b>			.046 (25.36)	.050 (17.69)	.028 (28.40)
<b>agr</b>			-.667 (5.56)	-.715 (18.38)	-.522 (33.50)
<b>inv</b>			.168 (5.26)	.156 (3.98)	.168 (9.01)
<b>Δlog(Pop)</b>			1.179 (5.62)	1.271 (5.23)	.907 (7.42)
<b>Δlog(Y)</b>			.238 (4.36)	.207 (2.99)	.069 (32.50)
<b>R<sup>2</sup></b>	0.216	0.099	0.342	0.283	0.300
<b>SEE</b>	23.54	25.04	21.02	22.50	21.72
<b>Estimator</b>	OLS	OLS	OLS	OLS	Huber

The dependent variable is the export/GDP ratio. Numbers inside parentheses are robust t-values. Huber denotes Huber's robust estimator. Y denotes GDP at constant US dollars, Pop total population, agr the share of agriculture of total production and inv the investment/GDP ratio. All equations include fixed time effects. The number of data points is 8479. The sample period is 1960-2020 except for column 4, where it is 1990-2020.

## Appendix 2

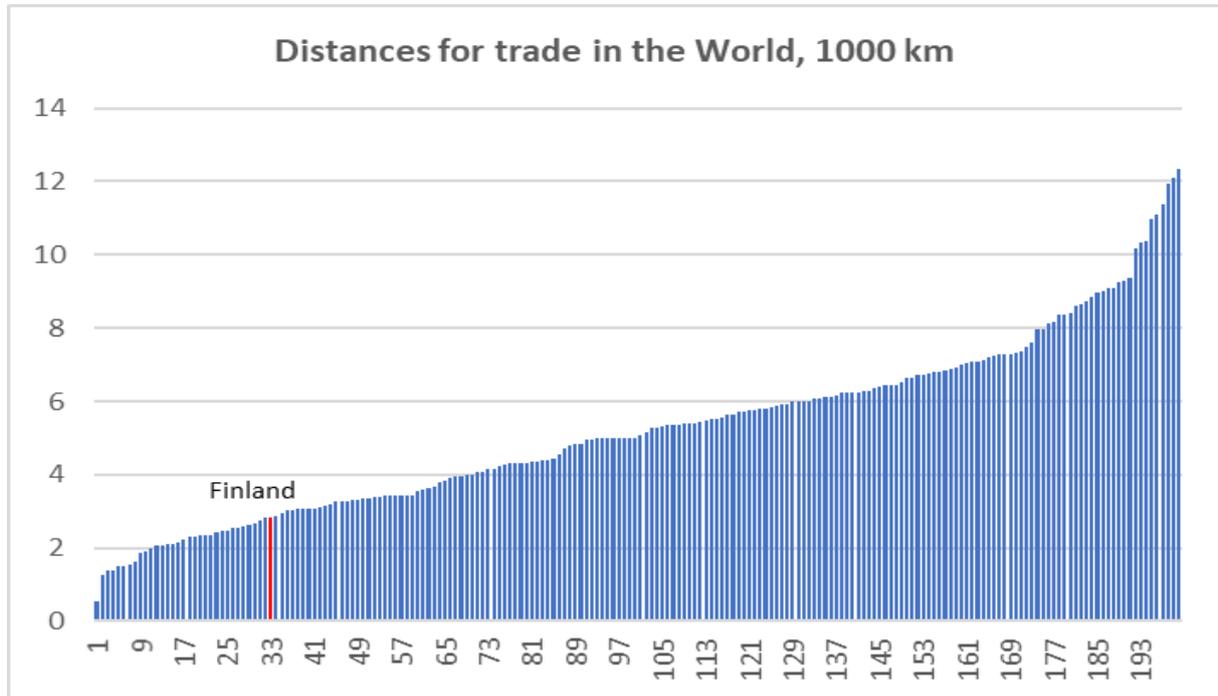
Export Market shares 1981-2021 of selected European countries



Source: Unctad data bank

## Appendix 3

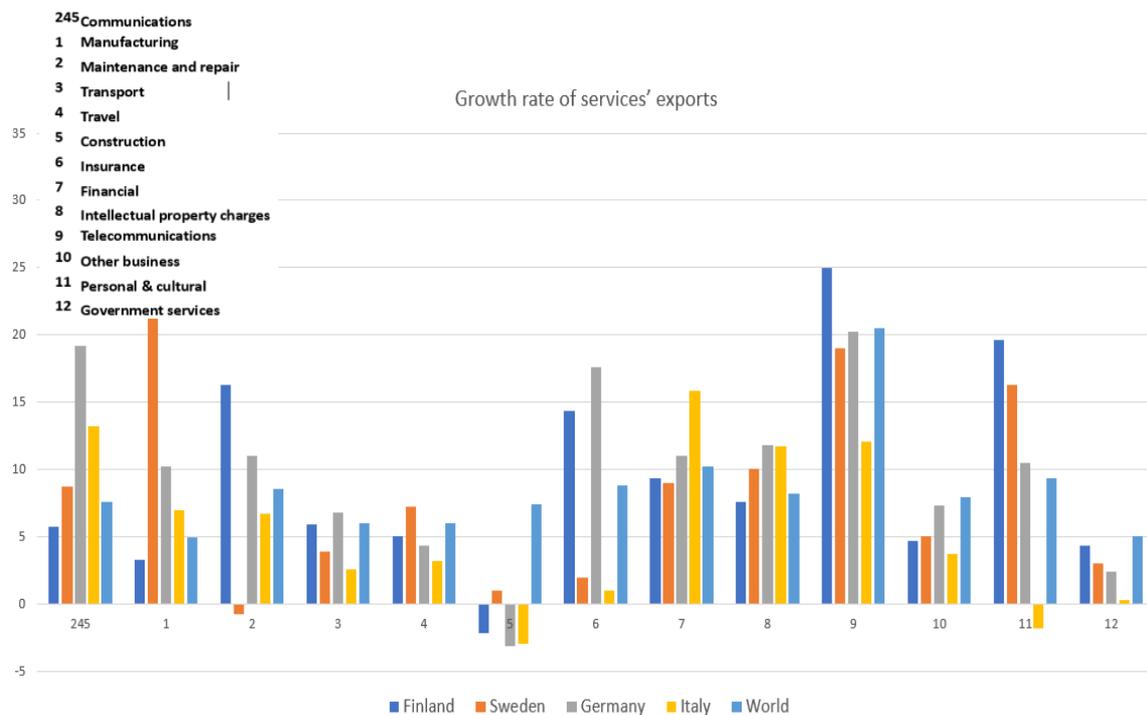
Average distances for trade for different countries 2020



Bars indicate values for different countries. Values are weighted average distances between country *i* and its all import partners. Data source: ITC Trade Map; <https://www.trademap.org/Index.aspx>

## Appendix 4

Average annual growth rate of services' exports 2000-2009 by commodity groups



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