

# Impacts of the Largest Export Guaranteed Operations in Finland



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## Abstract

This study focuses on the impacts of the largest export guaranteed operations on employment and value added including effects through companies' value chains. The results suggest that the activities of Meyer and Nokia related to export guarantees create value added accounting for 0.29% (Meyer) and 0.27% (Nokia) of the Finnish GDP. Corresponding employment effects are 0.32 % (Meyer) and 0.12 % (Nokia) of the Finnish total employment. These effects cannot be interpreted in such a way that without export guarantees the Finnish GDP and employment would decline correspondingly. Our other results suggest that export guaranteed operations slightly crowd out other activities, but the net effect remains positive. The results also show that the suppliers of Meyer and Nokia are more productive than companies belonging to the control group.

# Tiivistelmä

## Suurten vienninrahoitushankkeiden vaikutukset

Tässä muistiossa on analysoitu suurimpien vientirahoituskohdeiden synnyttämiä arvonlisä- ja työllisyysvaikutuksia käyttämällä panos-tuotosmallia. Tulosten mukaan Meyerin ja Nokian vientitakuiden piirissä oleva toiminta synnyttää arvonlisävaikutuksia, jotka arvoketjuvaikutukset mukaan lukien vastaavat Meyerin osalta 0,29 % ja Nokian osalta 0,27 % Suomen bkt:sta. Työllisyysvaikutusten vastaavat luvut ovat 0,32 % (Meyer) ja 0,12 % (Nokia) Suomen kokonaistyöllisyydestä. Näitä vaikutuksia ei kuitenkaan voi tulkita niin, että ilman näiden yritysten vientitakuun piirissä olevia hankkeita Suomen bkt ja työllisyys olisivat lukujen verran pienempiä. Tulokset viittaavat siihen, että vientitakuun piirissä oleva toiminta jossain määrin syrjäyttää muuta samalla alueella olevaa taloudellista toimintaa. Syrjäyttäminen ei kuitenkaan ole läheskään täydellistä, vaan nettovaikutus on selvästi positiivinen. Toimittajayrityksiä koskeva vertailu osoitti myös, että Meyerin ja Nokian toimittajayritykset ovat tuottavampia kuin vastaavat muut yritykset.

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Tämä muistio perustuu laajempaan, aiemmin suomeksi julkaistuu raporttiin (Ali-Yrkkö & Kuusi, 2018). Kirjoittajat kiittävät Valtioneuvoston kansliaa rahoituksesta.

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**Key words:** Export credit agency, ECA, Guarantee, Exports, Finnvera, Value added, Employment, Impact, Value chain

**Avainsanat:** Vientitakuu, vientirahoitus, Finnvera, arvonlisä, työllisyys, vaikutus, arvoketju

**JEL:** G23, G28

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## Public export guarantees have increased

In the last few years, the amount of public export guarantees granted by the Finnish government has increased rapidly. The total liabilities are over four times larger than just a decade earlier. In the years 2012–2016, the amount of guarantees granted amounted to ca. 3% of total exports (Figure 1). The share has been considerably higher than in other countries.

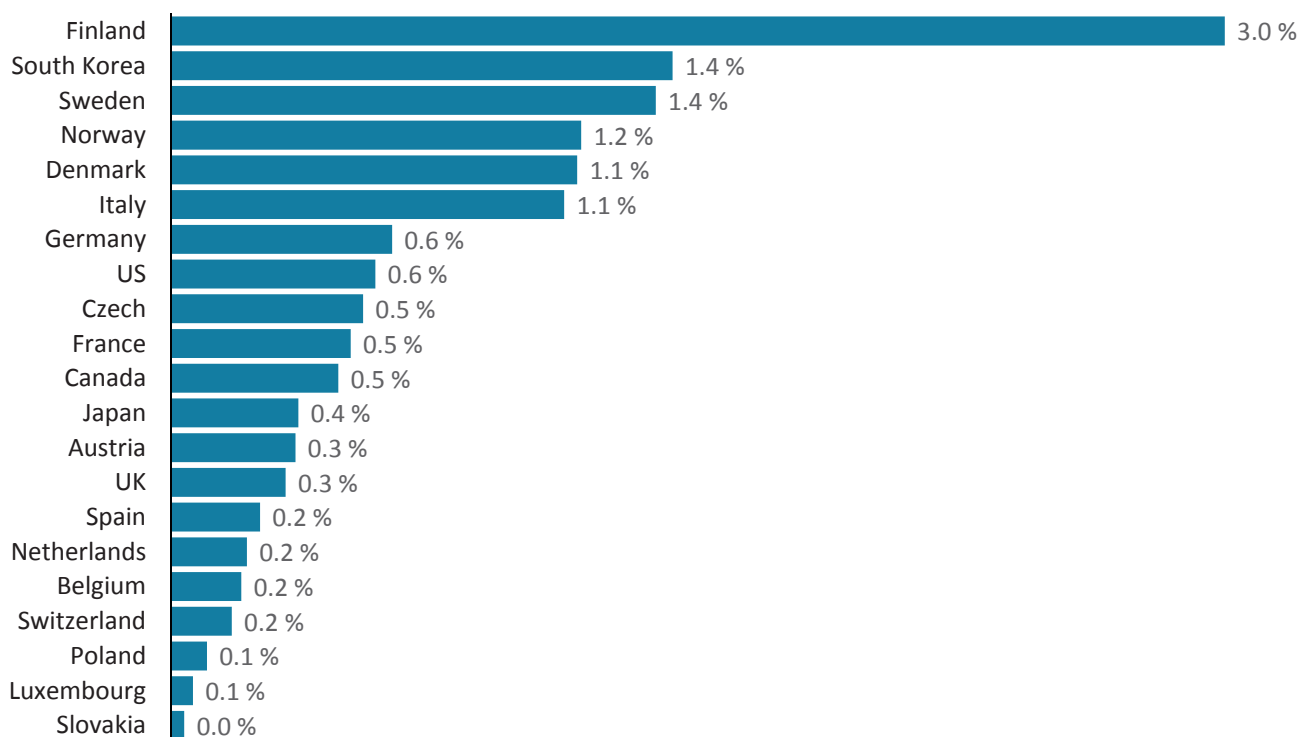
Although the 3% share might not appear to be high, it is more than twice as large as that prevailing in the second and the third most intensive users of the public export guarantees (South Korea and Sweden, respectively). However, in 2016–2017 the share of guarantees has increased to 2.5% of the Swedish total exports. The government serves as the ultimate guarantor of these liabilities, and therefore it is important to study how large are the benefits and risks associated with public export guarantees.

The provision of public export support is usually motivated by the financial market imperfections that limit the amount of private export funding below the socially optimal level. The main imperfection concerns the ability of the private financiers to judge the expected profitability and riskiness of the exporting projects. Thus, they are not always able or willing to fund the projects.

The access to public export support is not limited only to developing countries, but it is also used as a way to promote exports in many developed countries such as Sweden, Germany, and the United States. The official export credit agencies provide funding and export guarantees. As a result, more economic activity in the form of new value added and employment growth is expected.

In terms of assessing the benefits of the export promotion, it is important to notice that only a fraction of the sales price of an export contributes to the producing country's GDP. That is because an increasing share of all exported goods and services are produced as a part of global value chains entailing imported components and

**Figure 1** The amount of export guarantees granted relative to total exports 2012–2016, % (average)



**Source:** Authors' calculations. **Data source:** OECD (Arrangement Export Credits by member country (USD Millions)) and Worldbank (Exports of goods and services (USD millions)).

other intermediate goods and services. Therefore, only a limited share of the value added generated in the export operation is ultimately domestic, and accordingly a part of the export promotion is targeted towards imports from abroad (Figure 2).

The Finnish official export credit agency, Finnvera, and its fully owned subsidiary, Finnish Export Credit, participate in the funding of exporting projects in two main ways. Finnvera gives guarantees against political or commercial risks associated with the financing of exports. Political risks are risks that arise from the economic or political situation in a country where a Finnish export company has customers. Commercial risks pertain either to the buyer or to the buyer’s bank. Finnvera can also provide funding (max. 80%) directly to the buyer of Finnish exports.

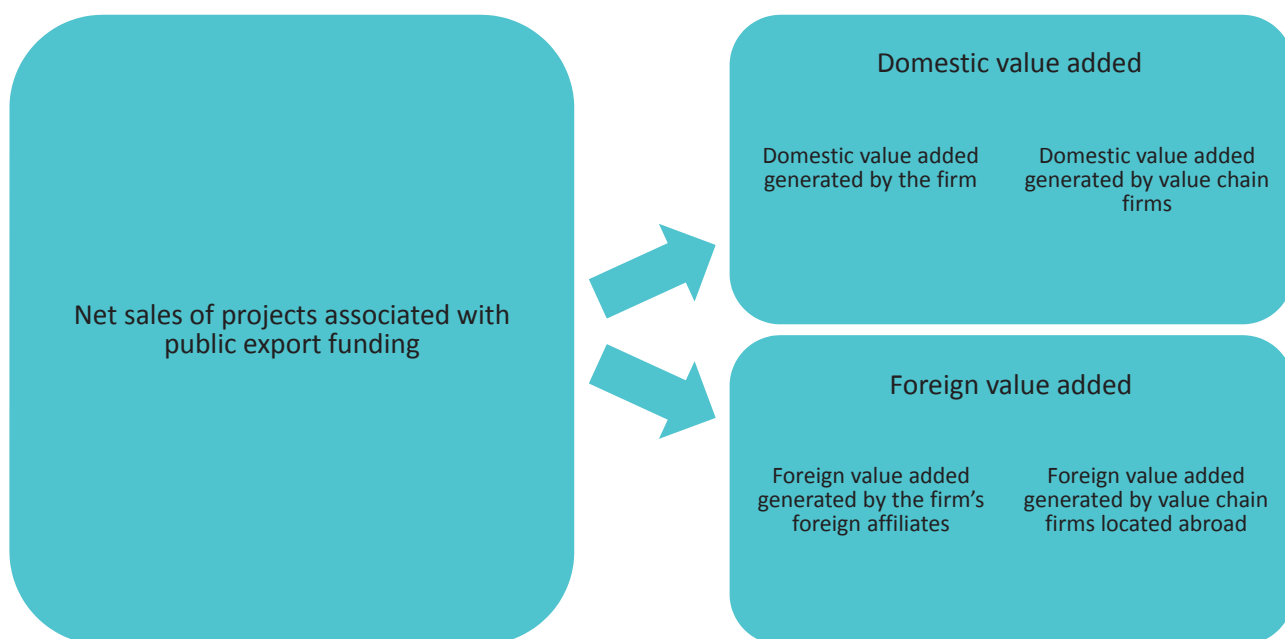
Especially in case of large export operations, the trade involves loans with long maturities. Private financiers are often not willing to carry these risks. The lack of private funding motivates the existence of Finnvera and other export credit agencies although it is questionable whether the government can provide better judgement regarding the risks and benefits of the projects.

## Value added and employment effects

A large proportion of the value added of goods and services is nowadays generated in value chains with multiple tiers. This study concentrates on the impacts of the largest export projects associated with the public exports funding. They involve Nokia and Meyer Turku Oy (Meyer Turku Oy is fully-owned by German shipbuilder Meyer Werft GmbH) and their clients. Nokia and Meyer are the leading companies of the associated large networks of domestic and foreign suppliers that provide intermediate goods and services to the project. These suppliers benefit indirectly from the export support even if they do not have received it directly.

There is little previous, systematic information concerning the value added and employment effects of the export promotion that would take into account the value chains. One goal of our analysis is to quantify how much domestic value added is generated in Finland by Meyer and Nokia as well as their domestic suppliers through the value chains. This information is important, as it can help to compare the domestic economic benefits of the projects to the risks that they may involve. Having said that,

**Figure 2 Public export support promotes potentially both domestic and foreign economic activity**



we emphasize that our analysis does not aim at providing counterfactual analysis that would involve the quantification of the size and quality of economic activities in the absence of the export promotion.

## Data and methods

This research builds on a unique dataset that includes firm-specific information concerning the economic activities of Nokia and Meyer and their suppliers in Finland. In addition, we employ the input-output tables of the National Accounts.

We quantify the total size of the value chains that are associated with an export project by using model-based estimations. The model is calibrated based on the input-output tables as well as firm-level information. In addition, we conduct econometric analysis to measure the crowding-out impacts on firms that are not members of the value chain. The details of methods have been described in Ali-Yrkkö and Kuusi (2018).

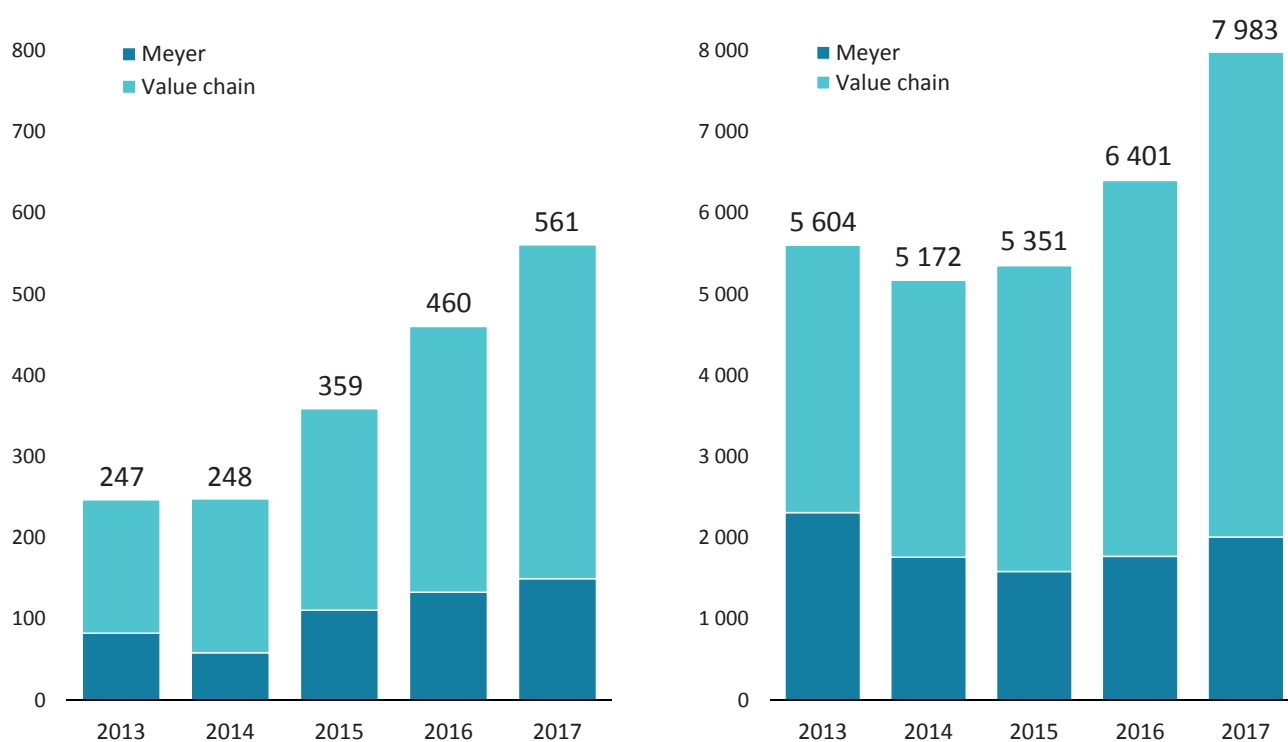
## Impacts of Meyer

We first analyze Meyer's value chains in Finland. Meyer Turku Oy focuses on the building of large cruise ships, and its business is fully covered by the export guarantees. Therefore, we analyze the economic impacts of the whole firm (Figure 3).

Most of the value added in the Meyer's export projects are generated by its direct or indirect suppliers in the value chain (the left-hand side of Figure 3). For example, in the year 2017 Meyer generated 150 EUR million value added in Finland, whereas the suppliers and their domestic value chain generated 411 EUR million value added. In total, the Meyer's export projects generated 561 EUR million value added in Finland, i.e. 0.29% of the Finnish GDP.

Although the purchases of Meyer are predominately domestic (75%), it should be acknowledged that even the domestic purchases have foreign value-added components. The domestic producers import intermediate goods, and therefore the overall domestic content of the

**Figure 3** Amount of domestic value added and number of employees stemming from projects associated with the public export funding, Meyer



**Note:** The value-added impact is measured in EUR million, and the employment impact in numbers of employees (not all necessary being full years).

project is smaller than the purchase would suggest. When the numbers of employees of Meyer and its suppliers are summed up, the total gross effect of Meyer on the total employment is 7980 persons, i.e. 0.32% of the total employment in Finland.

### Impacts of Nokia

In the case of Nokia, the export support provided by Finnvera covers only a fraction of its business. In the last few years, Finnvera has been involved in sales that constitutes on average 13% of Nokia Finland’s total sales. The variation between years is large. For example, in the year 2016 the share of the funded projects was marginal.

Figure 4 quantifies the size of the economic activities associated with the export promotion in case of Nokia.

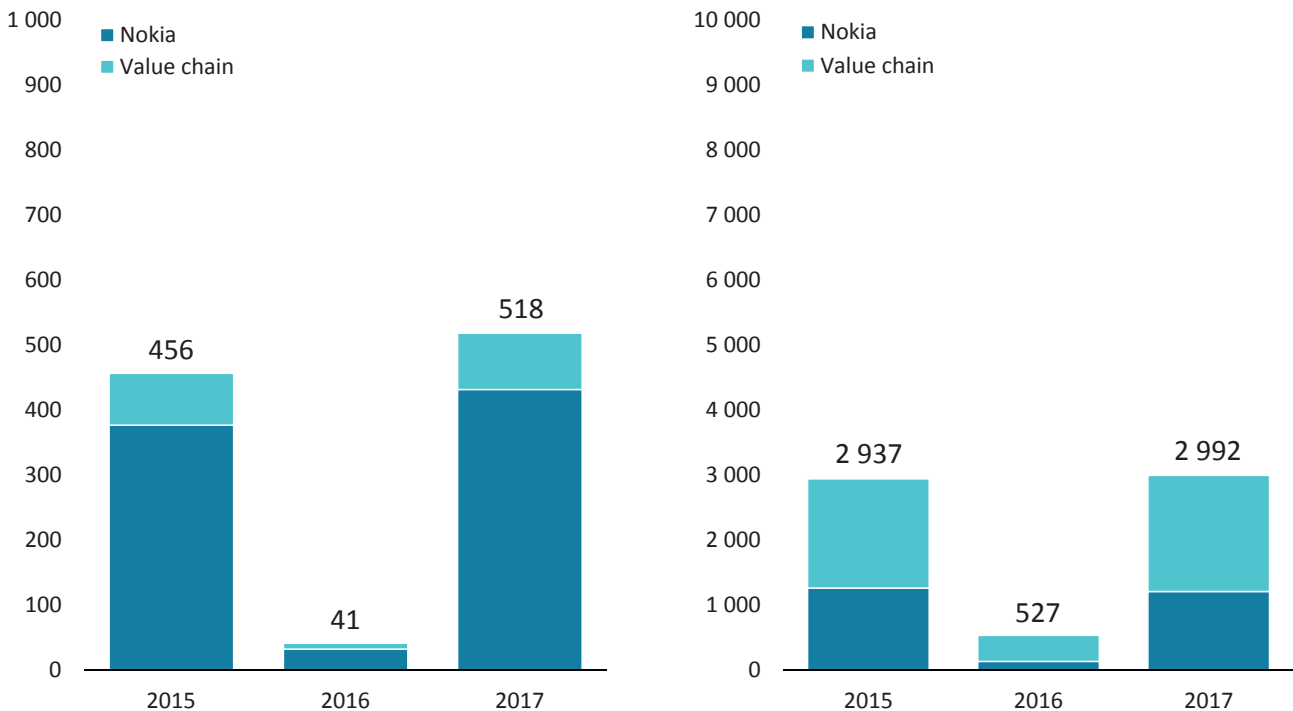
In 2017, the Nokia’s export operations that involved Finnvera generated 518 EUR million value added in Finland,

i.e. 0.27% of the Finnish GDP (the left-hand side of Figure 4). Most of the value added, 430 EUR million, is generated by Nokia itself. Its suppliers in the value chain generated only 90 EUR million value added. In the same year, the size of these projects in terms of the employment is roughly 3,000 persons, i.e. 0.12% of all employment in Finland.

## How large is the impact of 1 EUR billion export guarantee for different types of projects?

A direct comparison of the numbers above is complicated by the fact that the amount of the export funding varies by the type of operation. To better compare the amount of economic activity to the amount of the sup-

**Figure 4** Amount of value added and number of employees stemming from projects associated with the public export funding, Nokia



**Note:** The value-added impact is measured in EUR million, and the employment impact in numbers of employees (not all necessary being full years).

port, we therefore measure the economic activity for a fixed-sized operation.

As an example, we consider a 1 EUR billion operation. We find that such an operation produced by Meyer would generate in total 635 EUR million Finnish value added. A similar-sized operation produced by Nokia would generate in total 320 EUR million Finnish value added.

The results suggest that the corresponding employment effect would be 9,100 persons in the case of Meyer, and 2,600 persons in the case of Nokia.

## What can we really say about the effect of the export promotion?

The numbers above should be interpreted with caution. They quantify the size of the Nokia's and Meyer's economic activity that is associated with the export promotion. They do not provide an answer to a more difficult question: What would be the economic consequences of discontinuation of the support or its reorientation. To isolate the real effect of the support, one should ask has the promotion increased exports and what kind of activities can one expect to replace the supported activity.

The production of the cruise ships would likely cease if the public export promotion were cancelled. The buyers of the ships demand the support, and the competing countries are still their active promoters. On the other hand, the impact on the Nokia's projects is harder to predict. This is because its products, telecommunications networks, are also sold without the help of public export promotion. Access to the public support is one factor behind its competitiveness alongside others. Its role should not, however, be underestimated: For example, the neighboring country, Sweden, has an active policy in providing support to the Nokia's Swedish rival, Ericsson.

Another relevant question is what kind of activities would be expected to replace current ones if the role of Nokia

and Meyer in the Finnish economy is diminished. One answer is provided in our comparison between these firms and their suppliers, as relative to other Finnish companies. We find that the productivity (value added per employee) of the Nokia Finland is currently substantially higher and Meyer's marginally higher than in the Finnish companies on average.

Similarly, we find that the productivity of Nokia's and Meyer's suppliers exceeds the average. This finding suggests that it is unlikely that the replacing economic activity would represent the same level of high productivity. For the suppliers, on the other hand, the pivotal questions are how much new business would they be able to create with other clients and when would that happen. Meyer and Nokia are currently the only Finnish producers of cruise ships and telecommunications networks, respectively. Therefore, the supplier firms would need to find the substitute demand for their products from abroad or from other industries.

In addition to the productivity differences, we have also found other interesting differences between the supplier firms and the other Finnish firms. The first tier suppliers of both firms tend to export more than the other similar firms in general. Furthermore, there are subtle differences in the dependency of the firms on their clients. In the Meyer's supply chain, the main client's share of total sales was on average 36%, whereas in the corresponding group of other Finnish companies the share was only 26%. In case of Nokia's suppliers, we did not find similar differences.

We have also investigated whether the operations covered by the official export support have crowded out other economic activity. While the identification of the crowding-out effect is challenging, and the results include a fair amount of uncertainty, we have found some evidence suggesting that the crowding-out effect exists (for details, see Ali-Yrkkö and Kuusi, 2018). Despite the crowding-out, however, we still find that an increase in the volume of the export operations creates regional positive employment effects net of the crowding out.

## Knowledge spillovers are hard to quantify

There is a consensus in the economic literature that successful government policy interventions should generate positive externalities beyond their direct effects on the supported firms. In this respect, especially the promotion of R&D activities has been considered beneficial. The R&D and other types of learning tend to spill over to other firms, at least when employees switch between firms.

Both Nokia and Meyer engage in R&D activities in Finland. The scope is large especially for Nokia (Ali-Yrkkö, 2010; Ali-Yrkkö et al., 2013). In the case of Meyer, the exact numbers are not available but based on the aggregate numbers of the whole ship-building industry it seems that Nokia Finland's R&D expenditures are at least 50 times higher than Meyer's corresponding expenditures. Thus, it is likely that the technological spillovers from Nokia are also substantially larger.

Naturally, activities other than R&D may also involve externalities. By interacting with their clients, the suppliers may learn important information that may greatly help their businesses in the future. However, our analysis suggest that the suppliers of Meyer and Nokia were less able to take advantage of this information as compared to the corresponding other firms. The results build on our survey that collected information about the opinions of the firms concerning the benefits of their client networks.

## Towards a cost-benefit analysis

The export funding involves risks and costs. It is not, however, evident what kind of indirect costs it potentially generates.

For example, in the United States the current value estimates of the funded projects are not based on the market-based interest rates but rather the government's interest rates (CBO, 2014). Typically, that leads to overestimation of the profitability of the operations because the calculations do not fully account for the associated

risks. If the higher, risky interest rates are used, the current value estimates of the projects may turn negative. It is notable, however, that the government does not make direct losses when it provides the low-interest funding, as it can borrow the funds at the same rate from the private financial market. The government has a better ability to absorb risks in principle, but it may also suffer from loan losses. Having said that, the government's costs are typically indirect and arise from the associated market distortions and the general increase of the riskiness of the public funding.

Our research focuses on providing new information concerning the economic benefits of large export operations. We find that their value-added and employment effects can be substantial. However, as noted before, the numbers do not directly imply the net effects of export promotion in absence of a clear counterfactual. We leave the task of assessing the risks of the system and comparing them with the benefits and crowding-out effects to the future research. In this respect, it would also be beneficial to study the net impacts of the export promotion on the Finnish exports in the future.



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