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GLOBAL GROWTH FOR COMPANIES

Impact Study

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BUSINESS FINLAND

We believe in the power of ideas. That's why we fund and help Finnish companies grow quicker and develop their innovations to become global success stories.

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FOREWORD

In order to succeed in international markets, companies must be able to continuously renew and reinvent themselves and increase turnover via high added-value products and services. According to OECD, the small and medium-sized enterprises (SMEs) still play a minor role in generating value added, innovation and global integration.

It has been agreed between Business Finland and the Ministry of Economic Affairs and Employment (TEM) that Business Finland's impact and the achievement of objectives will primarily be monitored through impact analyses and studies of individual target areas. Business Finland has two strategic target areas, which are 1) Global Growth for Companies, and 2) World-class Ecosystems and Competitive Business Environment. Impact studies implemented in each target area and impact studies presenting their results comprise the actual and official method for monitoring Business Finland's success and impact.

Business Finland export-promoting services include global network in 40 different countries. Business Finland provides advice for new markets and help in networking with local businesses and operators. Business Finland also helps companies to find new, growing markets and customers, and thereby increase international networking, innovation, and sales. Business Finland funding for SMEs and midcaps are R&D and innovation funding as well as business subsidies funding operating in Finland and aiming at the international markets or looking to expand their international business.

Main questions for this evaluation study are as follows. How Business Finland export-promoting services and export-related R&D funding have succeed to improve the global growth for Finnish companies? What is a role of export-promoting services in developed countries (Business Finland global network in America and Europe) when focusing on the global growth for companies? Main focus in the study has been to carry out the economic impact analysis.

The economist team of ETLA carried out this evaluation study. Business Finland wishes to thank the evaluators for their thorough and systematic approach. Business Finland expresses its gratitude to the steering group and all others who have contributed to the study.

Helsinki, November 2020

Business Finland

EXECUTIVE SUMMARY

EVALUATION FRAMEWORK: BACKGROUND, DATA AND METHODS

The economic rationale for export promotion is based on market failures arising from asymmetric information and externalities. Private firms lack the incentives to share information on international market conditions and business opportunities with their rivals after incurring such discovery costs. However, individual firms capture only a fraction of this knowledge's social value; the social returns to successful discoveries are larger than the private returns. Such market failures provide a rationale for government intervention.

We used data concerning small and medium-sized enterprises (SMEs) that used Finpro's services in 2008-2016 and corresponding data from SMEs engaged in internationalization activities but not using Finpro's services. Our study focused on the question of whether the Finnish SMEs' use of publicly funded services for internationalization impacts their growth in terms of turnover, value added, employment, exports, and labor productivity. We further assessed whether there exist positive spillovers from Finpro's customers to firms that did not use Finpro's services. Given that the available statistical data on the Finnish firms' performance is limited to the years before the establishment of Business Finland (BF), our empirical assessment concerns the impacts of the predecessors of BF, i.e., Finpro and Tekes, rather than the new joint organization.

We used the most comprehensive data of Statistics Finland combined with the detailed firm-level data on the interventions of BF's predecessors (i.e., firms' usage of Finpro's export promotion services and the R&D subsidies they obtained). We analyzed these data by the two-stage method: a coarsened exact matching (CEM) was followed by difference-in-differences estimations to capture the causal impacts of publicly funded export promotion activities and R&D subsidies. A literature review and qualitative research (i.e., stakeholder survey and interviews) complement our empirical analysis of BF interventions' economic impacts.

INTERNATIONALIZATION SERVICE USAGE INCREASED SALES GROWTH

The sales of companies that used Finpro's internationalization services grew more than the sales of their counterparts. Furthermore, Finpro service use decreased a firm's likelihood of switching to the lowest 10% sales and employment growth quantile. The simultaneous use of Finpro services and R&D subsidies' reception increased the probability that a firm switches to the highest 10% sales growth quantile. We did not find any clear evidence of the impact of Finpro's internationalization service usage on the other growth performance indicators.

Our study empirically assessed the presence of information spillovers via the employees working in the management, R&D activities, or planning moving from the companies that were Finpro customers to those that were not. The idea was that the internationalization information and know-how obtained via Finpro's export promotion services might have spilled from hired employees to companies that were not using Finpro's services and further promoted their growth. We did not find any apparent spillover effects materializing as higher growth of companies that had hired employees from the firms using Finpro's internationalization services.

NORDIC COLLABORATION IS IMPORTANT

Business Finland's international offices provide advisory services, sparring, and light coaching to the Finnish firms that aim at entering foreign markets. The customers of international offices planning to enter new markets or improve their competitiveness in their current foreign markets are primarily SMEs. The areas of advisory concern, for instance, business culture, decision-making culture, insurance, and visas, required in the new target country/market of a firm. An essential part of the BF officers' work is finding the right or relevant local stakeholders and contacts for the Finnish market entrants and further connecting them with the appropriate local service providers, experts, consultants, and potential investors.

Some of the respondents emphasized the importance of collaboration with other countries' export promotion offices' officers. There were only three BF officers in the Nordic Innovation House of Palo Alto (California), but the community of workers providing export and internationalization support for Nordic companies amounted to approximately 50. Nordic collaboration has turned out to be an extremely fruitful way to promote Finnish firms' internationalization activities. The joint Nordic network

organizes, for instance, accelerator programs for the start-ups, a joint program for projects aimed at transforming research into business opportunities as well as for various shorter training programs (e.g., in health tech). One of the means that the BF officers mentioned as a successful in facilitating the Finnish firms' internationalization is the market-specific sparring of the firms entering the new geographical markets.

The BF officers also mentioned inadequate know-how and competence as substantial obstacles to Finnish firms' growth in international markets. Potential Finnish market entrants often lack understanding of the functioning of their new target markets, do not know the local regulation or legal requirements for the products or services (e.g., what information is required on the product packages), do not recognize the main competitors of the firms' products and have a poor understanding of their potential customers.

TIIVISTELMÄ

VAIKUTTAVUUSARVIOINNIN TAUSTA, AINEISTO JA MENETELMÄT

Vienninedistämistukien taloustieteelliset perustelut pohjautuvat informaation epäsymmetriaan ja ulkoisvaikutuksiin. Kansainvälistymiseen panostaneilla yrityksillä ei ole kannustimia jakaa hankkimaansa, muita yrityksiä laajemmin hyödyttävää tietoa ulkomaan markkinoista ja liiketoimintaolosuhteista. Tällaisella julkisten vienninedistämispalveluiden kautta tarjottavalla tiedolla voidaan alentaa yritysten kansainvälisen kaupan kiinteitä kustannuksia, ja täten edistää uusille tuote- ja kohdemarkkinoille pääsyä. Tutkimuksessa arvioitiin tilastollisin menetelmin Business Finlandin vienninedistämispalveluiden käytön vaikutuksia pk-yritysten liikevaihdon, tavaraviennin, työllisyyden, arvonlisän ja työn tuottavuuden kasvuun vuosina 2009-2017. Lisäksi arvioitiin ulkoisvaikutuksia työntekijävirtojen kautta Business Finlandin asiakasyrityksistä muihin yrityksiin. Business Finland aloitti toimintansa vasta vuoden 2018 alussa, joten tilastollinen tarkastelu koski sen yhdistyneiden edeltäjien, ts. Finpron ja Tekesin, toiminnan vaikutuksia.

Tutkimuksessa käytettiin Business Finlandin tietoja Finpron palveluita käyttäneistä yrityksistä sekä niiden saamista t&k-tukipäätöksistä. Kiinnostuksen kohteena olivat vuosina 2008–2016 vähintään kerran Finpron vienninedistämispalveluita käyttäneet pienet ja keskisuuret yritykset. Finpron asiakasyritysten tiedot yhdistettiin Tilastokeskuksen yritystietokantoihin. Kontrolliryhmä muodostettiin CEM-vertaistamismenetelmällä vientiorientoituneista pk-yrityksistä, jotka eivät olleet käyttäneet vienninedistämispalveluja otosvuosina. Vienninedistämispalveluiden käytön vaikutusta yritysten kasvuun analysoitiin tilastollisesti ns. erotukset-erotuksissa -mallilla hyödyntäen vertaistamismenetelmällä laskettuja otospainoja. Vienninedistämispalveluiden vaikutuksia arviointiin myös kirjallisuuskatsauksen valossa. Business Finlandin Yhdysvalloissa ja Euroopassa toimiville virkailijoille suunnattu kysely ja virkailijoiden haastattelut tarjosivat lisäksi kvalitatiivista tietoa vienninedistämispalvelujen toiminnasta. Tämä aineisto kattaa kymmenen Business Finlandin kansainvälisissä toimistoissa työskentelevän henkilön haastattelun tai vastauksen sähköpostikyselyyn.

VIENNINEDISTÄMISPALVELUIDEN KÄYTÖLLÄ POSITIIVINEN LIIKEVAIHTOVAIKUTUS

Finpron vienninedistämispalveluita käyttäneiden yritysten liikevaihto kasvoi muita yrityksiä enemmän. Lisäksi Finpron palveluiden käyttö pienensi yrityksen todennäköisyyttä siirtyä alhaisen kasvun yritysten joukkoon liikevaihdon ja työllisyyden osalta. Yhtäaikainen t&k-tukien saaminen ja vienninedistämispalveluiden käyttö lisäsi yrityksen todennäköisyyttä siirtyä eniten liikevaihtoa kasvattaneiden yritysten joukkoon. Emme löytäneet selkeää tilastollista näyttöä vienninedistämispalveluiden käytön vaikutuksista muiden taloudellisten kasvumittareiden osalta.

Vienninedistämispalveluiden epäsuoria vaikutuksia arvioitiin analysoimalla ulkoisvaikutuksia työntekijävirtojen kautta Finpron palveluita käyttäneistä yrityksistä muihin yrityksiin. Hypoteesinamme oli, että mikäli Finpron palveluiden käyttö lisää yrityksen kansainvälistymisosaamista, niin uusi tieto ja osaaminen voi ”läikkyä” muihin yrityksiin siirtyvien työntekijöiden mukana. Täten myös vienninedistämispalveluita käyttämättömissä yrityksissä voitaisiin havaita kasvuvaikutuksia. Aineiston tilastollisen analyysin tulokset eivät kuitenkaan viitanneet merkittäviin työntekijävirtojen kautta syntyviin ulkoisvaikutuksiin.

POHJOISMAINEN YHTEISTYÖ ON TÄRKEÄÄ

Business Finlandin kansainvälisten vienninedistämistoimistojen palvelut keskittyvät paljolti neuvontaan, kevyeen valmennukseen, sparraamiseen ja ohjaamiseen sekä yhdistämiseen paikallisiin yksityisiin palveluntarjoajiin ja potentiaalisiin rahoittajatahoihin. Suurin osa asiakkaista on pk-yrityksiä. Kansainvälisille markkinoille tähtäävät suomalaiset pk-yritykset tarvitsevat valmennusta esimerkiksi maassa tarvittavien vakuutusten (esim. tuotevastuuvakuutukset Yhdysvalloissa) ja viisumien osalta sekä neuvontaa liittyen paikalliseen yritys- ja päätöksentekokulttuuriin. Merkittävä osa Business Finlandin kansainvälisten virkailijoiden työstä koskee suomalaisille kansainvälisille markkinoille pyrkiville yrityksille sopivien paikallisten toimijoiden löytämistä, kontaktien luomista näihin tahoihin ja suomalaisyritysten yhdistämistä paikallisiin palvelutarjoajiin ja konsultteihin kuten lakiasiaintoimistoihin, vakuutusten välittäjiin sekä media- ja PR-toimistoihin.

Yhteistyö muiden maiden vienninedistämispalveluissa työskentelevien työntekijöiden kanssa todettiin tärkeäksi. Kaliforniassa Palo Alton Nordic Innovation Housessa työskentelee päätoimisesti vain kolme suomalaisvirkailijaa, mutta pohjoismaisia työntekijöitä on noin 50. Pohjoismainen yhteistyö on ollut merkittävässä

roolissa suomalaisyritysten kansainvälistymisen edistämisessä. Yhteispohjoismainen verkosto järjestää muun muassa kiihdytinohjelmia startup-yrityksille, ja sillä on yhteinen ohjelma, joka edistää tutkimuksen muuntamista yritystoiminnaksi sekä lyhyempiä osaamisohjelmia esimerkiksi terveysteknologian osalta. Hyviksi suomalaisten yritysten kansainvälistymistä tukeviksi toimiksi on koettu myös tietyillä toimialoilla toteutettu markkinakohtainen sparraus ryhmille.

Suomalaisten pk-yritysten suurimmaksi kansainvälisen kasvun esteeksi Business Finlandin työntekijät näkivät yritysten osaamiseen ja paikallisia markkinoita koskevaan tietoon liittyvät puutteet. Kansainvälisille markkinoille tähtäävillä suomalaisyrityksillä on usein riittämätön ymmärrys paikallisten markkinoiden toiminnasta; ne eivät tunne sääntelyä tai lainsäädännön asettamia vaatimuksia tuotteille ja palveluille (esimerkiksi tuotteissa vaadittavia pakkaustekstejä) eivätkä tunnista yrityksen tuotteen keskeisiä kilpailijoita ja potentiaalisia asiakkaita.

1 BACKGROUND

This report comprises a comprehensive impact study shedding light on how Finnish government-owned export and innovation promotion agencies have succeeded in achieving their objectives associated with innovation and business subsidy funding and global network services. A fundamental objective of Business Finland's (BF) export promotion services is to promote the international growth of small and medium-sized enterprises (SMEs). Until the end of 2017, publicly funded internationalization services for Finnish companies were provided by Finpro.[1] In the beginning of 2018, Finpro was merged with Tekes, channeling public funding for innovation activities into a new organization, Business Finland (BF). Given that the available statistical data on the Finnish firms' performance are limited to the years prior to the establishment of Business Finland, our empirical assessment concerns the impacts of the predecessors of BF, Finpro and Tekes, rather than the new joint organization.

We used data concerning SMEs that used Finpro's internationalization support services in 2008-2016 and corresponding data from SMEs engaged in internationalization activities but not using Finpro's services. Our primary goal was to analyze whether and how internationalization services alongside research and development (R&D) subsidies have succeeded in improving the growth of Finnish SMEs. We measured firm growth from 2009 to 2017 by the development of multiple indicators: turnover, value added, employment, exports and labor productivity. The causal impacts of interventions cannot be captured by descriptive analysis or basic econometric methods (e.g., panel data regressions). A rigorous impact assessment of interventions requires the use of state-of-the-art statistical methods alongside sufficient data for analysis. We used the most comprehensive data of Statistics Finland combined with the detailed firm-level data on the interventions of BF's predecessors (i.e.,

[1] Since its consolidation with two other government-backed organizations in 2014, the other goals of Finpro, a 100 percent government-owned nonprofit organization, have been to attract foreign investments to Finland and to increase the flow of foreign tourists to Finland, see https://www.businessfinland.fi/4966a4/globalassets/finnish-customers/about-us/tulosohjaus/oy-yhteiskuntavastuuraportti-2017-final.pdf.

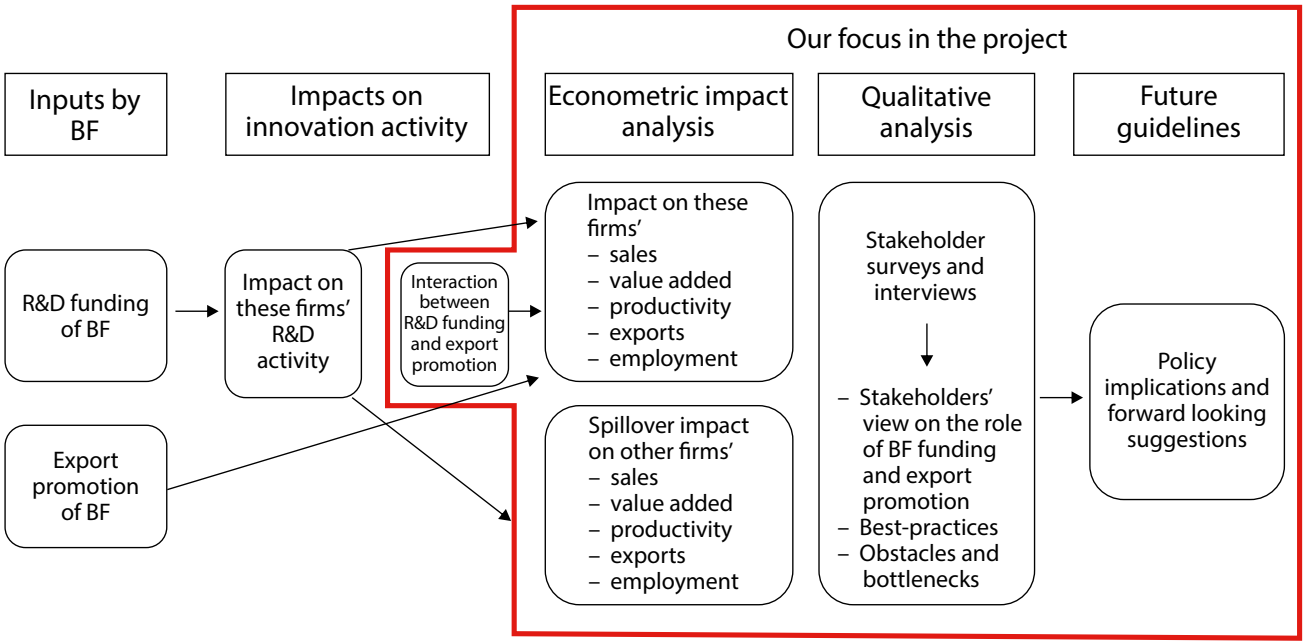
firms' usage of Finpro's export promotion services and the R&D subsidies they obtained). We analyzed these data by the two-stage method: a coarsened exact matching (CEM) was followed by difference-in-differences estimations to capture the causal impacts of publicly funded export promotion activities and R&D subsidies.

Our objective was to further analyze the wider societal impacts of public export promotion interventions by assessing whether there exist positive spillovers from Finpro's customers to firms that did not use Finpro's services. Spillovers are one of the major motivations for public interventions, but they are hard to study empirically. We constructed an econometric model to identify whether there was international growth promoting the transfer of knowledge and/or competence from Finpro's customer companies to other companies via the employees working in the management, R&D activities or planning (who moved from the companies that were Finpro customers to the companies that were not).

We used a literature review and qualitative research (i.e., stakeholder survey and interviews) to complement our empirical analysis of the economic impacts of BF interventions. The qualitative analysis was used to shed light on the concrete functioning and activities of Business Finland's export-promoting services. This part of the study was based on interviews and surveys with BF officers located in the United States and Europe. Our aim was to complement the empirical analysis with the self-assessment of BF international officers on the role of their activities in promoting the growth of Finnish companies. The idea was to obtain more detailed information on the primary means that export promotion agencies use for promoting firms' internationalization, BF officers' views on their most successful tools and best practices and the critical obstacles and bottlenecks hindering agencies from achieving their goals.

Figure 1 presents the evaluation framework of our project. The rest of the report is organized as follows. Section 2 first discusses the economic rationale for publicly funded export promotion services and then presents a literature review of the empirical studies exploring the effects of export promotion activities. Section 3 introduces the data and the econometric model used in the empirical part of the analysis. Section 4 presents the estimation results of the direct and indirect (i.e., spillover) effects of export support services. Section 5 summarizes the key findings from the survey and interviews with BF international officers. Section 6 presents an overview and the policy implications of the results of this impact study.

FIGURE 1. The evaluation framework.



2 LITERATURE REVIEW

2.1 ECONOMIC RATIONALES FOR EXPORT PROMOTION

The economic rationale for export promotion is based on the existence of market failures arising from asymmetric information and externalities (Hausmann & Rodrik, 2003; Lederman, Olarreaga, & Zavala, 2016). Private firms lack the incentives to share information on international market conditions and business opportunities with their rivals after incurring the costs of such discovery. However, individual firms capture only a fraction of the social value generated by this knowledge; the social returns to successful discoveries are larger than the private returns. Such market failures provide a rationale for government intervention. According to previous literature, information problems are a key barrier to exporting activity (Volpe Martincus, 2010). Incomplete information results in frictions in the matching of buyers and sellers across countries (Huang, 2007; Rauch & Casella, 2003). However, the nature of the market failure suggests that export promotion policies should operate at the extensive margin rather than the intensive margin (Lederman et al., 2016). Nevertheless, there remains ambiguity regarding whether such policies indeed operate through the extensive or intensive margin given the conflicting empirical results (Görg, Henry, & Strobl, 2008; Lederman et al., 2016).

Melitz (2003) provides a theoretical model of international trade. In this model, there are firms with different productivity levels. Firms face an initial uncertainty about their productivity before making the entry investment. Entry to the export market is likewise costly but takes place after the firms have gained knowledge of their productivity. There are two types of costs: fixed entry costs and variable per-unit trade costs. Exposure to trade induces more productive firms to enter the export market. Less productive firms cannot export profitably given the initial cost of exporting and therefore operate only in the domestic market. The least productive firms are forced to exit. Consequently, increased exposure to trade leads to a reallocation towards more productive firms and results in welfare gains. In such a model framework, export promotion policies induce firms – particularly those of medium-level productivity – to enter the export market by

lowering the fixed cost of exporting (Ferguson & Forslid, 2019; Makioka, 2019).

There remains a key question about whether internationalization drives innovation and productivity – or whether it is the other way around. The existing theoretical and empirical literature suggests that exports, innovation, and productivity are indeed interrelated. As noted by Aghion, Bergeaud, Gigout, Lequien, and Melitz (2019), modern growth theory suggests that international trade improves productivity growth through various channels – by increasing market size, by increasing competition, and by inducing knowledge spillovers. Lileeva and Trefler (2010) analyze the effects of exporting using a sample of Canadian plants and exploiting plant-specific tariff cuts as an instrument. They find that plants that started exporting or that exported more due to tariff cuts improved their labor productivity, innovated more, and had higher rates of adoption of advanced manufacturing technologies than other plants. Aghion, Bergeaud, Lequien, and Melitz (2019) study French manufacturing firms and find that firms respond to positive demand shocks in their export markets by increasing patenting. More productive firms entirely drive this effect. Peters, Roberts, and Vuong (2018) construct a structural model of R&D investments and compare R&D investments' long-term effects for exporting and domestic firms. They find that exporters have a higher return from R&D investments, invest more in R&D, and exhibit higher productivity growth rates.

Altomonte, Aquilante, Békés, and Ottaviano (2013) study the interaction of firm-level internationalization, innovation, and productivity across several European countries and document a positive association between these firm characteristics. Furthermore, they suggest that the positive relation between internationalization and innovation remains even after productivity is controlled for. These authors suggest that export promotion as such is unlikely to result in sustainable internationalization; *innovation* is likely to be the factor that drives internationalization in the medium to long term. The authors recommend better coordination and integration of internationalization and innovation policies, both of which should be provided under the same roof at the national and EU levels.

The previous literature suggests that innovation – and particularly product innovation – promotes firms' entry into export markets (Becker & Egger, 2013; Cassiman & Golovko, 2011). Egger and Keuschnigg (2015) provide theoretical analysis on innovation, finance, and trade in an open economy framework where entrepreneurs have a choice of financing their R&D investments with their own funds, venture capital, and bank financing. They show that policies, including R&D subsidies, implemented in the early stage of a firm life cycle, positively affect later-stage investments. Specifically, R&D subsidies promote innovation and entry – and result in welfare gains – because they complement innovative firms' other

funding sources and allow them to attract external investors for exploiting promising investment opportunities.

Internationalization is a complex process; small and medium-sized firms could face notable challenges in its implementation because of limited resources (Kraus, Mitter, Eggers, & Stieg, 2017). Several factors could drive firms' internationalization decisions. Zucchella, Palamara, and Denicolai (2007) suggest that the previous experience of entrepreneurs – and particularly international experience – is a key driver of an early internationalization of their firms. Kraus et al. (2017) provide an empirical analysis of internationalization drivers based on a survey of SME managers from Germany. According to their results, finance, particularly equity finance, market selection, proactive internationalization motives, and a long-term focus are the key drivers for successful internationalization. Of all these factors, finance is considered the most important determinant.

According to economic theory, innovation activities are prone to market failures. There are two main arguments for justifying government invention to rectify such market failures (Hall & Lerner, 2010). The first rationale is based on the 'public good' nature of innovations – the social returns exceed the private returns. Consequently, in the absence of public intervention, positive externalities of innovations may not be realized. The second rationale is based on financial market imperfections: financial constraints may impede innovation activity because of asymmetric information. However, despite the sound theoretical rationales, the empirical evidence on the effects of R&D subsidies appears inconclusive. Taken together, the views of the literature tend to be more positive than negative, but the results often fall in the gray area of being statistically nonsignificant (Ylhäinen, Rouvinen, & Kuusi, 2016). In the end, surprisingly little is known about the actual effects of such policies despite the vast amount of existing research.

Informational asymmetries could be acute among young and small firms engaged in radical innovation activities (Schneider & Veugelers, 2010). Hottenrott and Lopes-Bento (2014) study the effectiveness of targeted R&D subsidies aimed at international R&D collaboration. They find that targeted R&D subsidies increase private R&D spending, particularly among internationally collaborating small and medium-sized enterprises (SMEs). Furthermore, publicly induced R&D investments result in marketable product innovations. Both publicly induced and privately financed R&D significantly affect innovation output. However, the public co-financing of projects appears to stimulate R&D that is more fundamental in its nature, resulting in higher sales from market novelties. Such effects appear to be highest for internationally collaborating firms and SMEs.

There remains a question of how policies, such as R&D subsidies, affect firms' ability to compete in international markets and the ultimate goals of these poli-

cies – economic welfare. Akcigit, Ates, and Impullitti (2018) analyze the effects of innovation and trade policies on economic growth and welfare in a globalized world. According to their analysis, the effect of globalization – which takes the form of reduced trade barriers – is ambiguously related to welfare in a static analysis. However, the dynamic analysis of the study indicates that globalization increases innovation through international competition. For policy measures, the analysis suggests that R&D subsidies are an efficient policy response to international competition, and they generate positive welfare effects in the long run. However, there is less need for government intervention in a more globalized world because intensive international competition itself stimulates innovation.

2.2 THE EFFECTS OF EXPORT PROMOTION

2.2.1 COUNTRY- AND REGIONAL-LEVEL STUDIES

Lederman, Olarreaga, and Payton (2010) study the impact of export promotion agencies (EPAs) at the country level, analyzing both developed and developing markets. Their findings suggest that EPA budgets have a positive and significant association with exports, on average, accounting for endogeneity issues and selection bias. However, the study also cautions that the positive association between EPA budgets and exports as such does not provide a justification for the budgets in welfare terms. Overall, export promotion agencies could help overcome trade barriers and solve the problems of asymmetric information in the export of heterogeneous goods. The findings also suggest that export promotion agencies with a larger share of executive board members from the private sector and a larger share of funding from the public sector are associated with higher national exports. The number of decentralized agents dedicated to exports is negatively correlated with exports, suggesting that a single strong agency is preferable to several lesser ones. However, there are decreasing returns to scale in resources allocated to export promotion. Furthermore, caution is warranted when interpreting the evidence from cross-country studies given the heterogeneity in agencies and environments across countries.

Olarreaga, Sperlich, and Trachsel (2019) study the heterogeneous effects of export promotion across countries. The study addresses the effect of export promotion not only on exports but also on the fundamental objective of these programs: social and economic welfare, proxied by GDP per capita. The results suggest that export promotion is positively associated with exports and ultimately with GDP per capita. However, the returns to export promotion vary across countries, and this heterogeneity is driven by differences in the characteristics of export promotion agencies. Furthermore, the authors note that characteristics that are relevant for export growth are not

necessarily associated with GDP per capita growth, suggesting that caution is warranted in evaluations of export promotion agencies.

Rose (2007) suggests that the role of foreign embassies and consulates in decision-making and information collection has diminished due to falling communication costs. Consequently, foreign services have increasingly emphasized their focus on export promotion. The study analyzes whether exports are affected by diplomatic representation abroad. The findings indicate that bilateral exports are positively associated with each additional foreign mission. The effects vary between exporters, and the effects of embassies are larger than those of consulates. In addition to country-level studies, the effects of export promotion have been studied using regional-level data. Gil, Llorca, and Serrano (2008) study the effects of Spanish regional trade agencies on exports and suggest that such agencies help increase trade – more so than embassies and consulates do.

2.2.2 FIRM-LEVEL EVIDENCE FROM DEVELOPED COUNTRIES

Do export promotion activities improve firm performance? The analysis of such treatment effects is complicated by selection problems. First, the positive association between exporting and firm efficiency could be related to self-selection: more productive firms become exporters (Bernard & Jensen, 1999; Clerides, Lach, & Tybout, 1998; Melitz, 2003). Second, firms self-select into export promotion services: the decision to utilize export promotion services is likely correlated with the unobserved ability to export (Munch & Schaur, 2018). Consequently, a correlation observed between export promotion and firm performance could simply imply such selection rather than treatment effects. In an ideal scenario, the selection problems could be overcome by the gold standard of treatment evaluation: randomized experiments. However, while there are some examples of randomized experiments in the context of export promotion (Atkin, Khandelwal, & Osman, 2017; Breinlich, Donaldson, Nolen, & Wright, 2017; Kim, Todo, Shimamoto, & Matous, 2018), most of the studies in the existing literature rely on more traditional evaluation methods, such as difference-in-differences, matching, and instrumental variables analysis.

Despite the more advanced evaluation methods and the microlevel data used by microeconometric studies, the comparison of findings from a wide spectrum of countries and institutional frameworks is not a straightforward task. As noted earlier, there is heterogeneity in the returns to export promotion programs across countries driven by differences in the characteristics of agencies themselves as well as in their policy objectives (Olarreaga et al., 2019). Furthermore, the effects of export promotion could differ between firms, complicating the

attempts to analyze the average effects of the policies. Indeed, information problems appear to have particularly detrimental effects on small firms, firms exporting sophisticated and differentiated goods, and less well-known firms attempting to enter or expand their operations in new markets (Volpe Martincus, 2010). Consequently, care is necessary when attempting to draw lessons from studies analyzing different target groups and institutional environments.

Munch and Schaur (2018) analyze whether export promotion policies improve firm performance – and whether the benefits of the programs outweigh the costs – using a sample of small Danish firms. They document that export promotion improves sales, value added, employment, and labor productivity. Export promotion activities help firms of all sizes enter export markets. However, the positive effects on employment, value added, and labor productivity are only observed among the smallest firms. The authors suggest that export promotion programs should therefore target small firms when attempting to promote value added and employment. The findings of the study also suggest that the gains from the program outweigh the costs; in the case of small firms, the estimated increase in value added is approximately three times higher than the direct program costs and tax distortions associated with the program.

Broocks and Van Biesebroeck (2017) evaluate the effects of export promotion activities in Belgium. They document that export promotion activities increase firms' propensities to begin exporting outside the European Single Markets. Their empirical approach relies on selection-on-observables. To control for the selection problem, they use a couple of approaches. First, they focus on subsamples where they suggest that this issue is less likely to be a problem – samples consisting of larger firms and firms with previous EU-level export experience. Second, they exploit the different levels of support and compare firms receiving more generous support to those receiving more limited support. Their results survive these checks, albeit the estimates decrease and, in the latter case, are less precisely estimated.

Van Biesebroeck, Yu, and Chen (2015) find that export promotion services boost the exports of Canadian firms. They find that the intensive-margin effects dominate: trade promotion services boost exports to existing product-destination markets. The extensive-margin effects – exports to new markets – are smaller and less robust. There is also evidence that the effects are stronger when firms receive continued support, suggesting that the main effects do not originate from lower fixed costs of market entry. Furthermore, the effects appeared to be larger for older and more experienced firms, suggesting that extending the program to other firm types might lower its effectiveness. In another study from Canada, Head and Ries (2010) study the effects of trade missions on trade. They utilize bilateral trade data to analyze the

effects of such policies. Their findings indicate that Canadian exports and imports are larger among the target countries of trade missions. However, the trade amounts with such target countries are found to be larger *prior* to the missions. Trade missions do not appear to increase trade.

Bernard and Jensen (2004) analyze the export decisions of U.S. manufacturing plants. According to their findings, there are significant entry costs to exporting. Plant heterogeneity is an important factor in the decision to export. Spillovers from other plants turn out to be negligible. Furthermore, the results suggest that export promotion subsidies do not have a significant effect on the probability of exporting. However, the sample was limited to large plants, which casts doubt on whether the estimates on spillover and subsidies would differ among smaller plants. Görg et al. (2008) analyze the effects of government grants on the exporting activity of Irish manufacturing plants. They suggest that sufficiently large grants help promote the exports of existing exporters. However, they find no evidence that grants help nonexporting firms become exporters. However, the analyses were limited to generic subsidies – subsidies attempting to induce investments in the areas of technology, training, or physical capital – rather than export subsidies per se.

Breinlich et al. (2017) study the role of information in the perception of the costs and benefits of exporting and actual export behavior by conducting a randomized controlled trial for manufacturing firms from the United Kingdom. First, they document that nonexporters hold more negative views of exporting than exporters. In their experiment, the researchers provide targeted information about the costs and benefits of exporting for a randomized subset of firms based on the information obtained from the export promotion agency. There is an asymmetric response to the information: nonexporters become even more negative in their perceptions, while the perceptions of exporters improve. The study also suggests that there are similar, albeit less pronounced, effects on firms' actual export behavior.

Ferguson and Forslid (2019) evaluate the effects of trade promotion provided by embassies using firm-level data from Sweden and Norway. Building on the theory of trade with heterogeneous firms (Melitz, 2003), they predict that foreign services likely diminish informational problems and promote the exports of marginal firms, particularly those of medium size and productivity. The study analyzes the effects of the openings and closures of embassies abroad for similar neighboring countries: Sweden and Norway. In the difference-in-difference analysis, firms from Norway are used as controls for firms from Sweden. According to the findings, foreign services promote the exports of medium-sized and large firms. Consequently, other policy instruments might be called for to promote the exports of small firms.

2.2.3 FIRM-LEVEL EVIDENCE FROM DEVELOPING COUNTRIES

There is extensive literature analyzing the effects of export promotion activities in developing countries. While implications from such studies may not be directly comparable to more developed institutional environments, they nevertheless help draw a clearer picture of the nature of the potential market failure in exporting activities – and the role of government in overcoming such obstacles.

Lederman et al. (2016) analyze the effects of export promotion agencies facilitating firms' entry into export markets using a sample of Latin American firms. The findings of the study suggest that export promotion facilitates firms' entry into new markets and improves firm survival. The study finds no evidence that export promotion affects firms' level of exports. These observations therefore suggest that export promotion operates through the extensive margin rather than the intensive margin. These findings appear consistent with the view that export promotion helps reduce the fixed rather than variable costs of exporting and that the agencies remedy market failures related to informational externalities. However, the question remains to what degree these results can be generalized to other countries – and whether selection issues are driven by unobserved factors that remain difficult to control in such research designs.

In a seminal study, Atkin et al. (2017) conducted a randomized experiment that resulted in exogenous variation in access to foreign markets for Egyptian rug manufacturers. The findings of the study indicate that exporters show improvements in profits and quality as well as reductions in output per hour in comparison to control firms. Exporting improves the technical efficiency of firms; the treated firms show productivity and quality improvements. The findings also point towards learning-by-exporting that occurs through the information flows induced by demand from sophisticated buyers in developed countries. Such effects likely would not have materialized in the domestic markets in the absence of exporting.

Kim et al. (2018) study the effects of informational and motivational seminars on export promotion by conducting a randomized controlled trial for Vietnamese small and medium-sized firms from textile clusters. The seminar participants were less likely to start exporting in the short run given their increased awareness of difficulties related to exporting. In contrast, seminar participation encouraged larger firms to start exporting shortly afterwards, but this effect was transitory in the absence of additional intervention. There were also spillovers present from participants to nonparticipants within the cluster through informal networks. Overall, the findings of the study indicate that information provision is beneficial mainly for relatively larger and more productive

firms that have the capability to absorb such information.

Cadot, Fernandes, Gourdon, and Mattoo (2015) analyze the effects of an export promotion program in Tunisia. They find that the program resulted in positive short-term effects, as the supported firms exhibited higher export levels and a wider range of export destinations and products. The effects were heterogeneous and observed only for medium-sized firms. However, the impact appeared to be transitory: after three years from the intervention, the estimates did not significantly differ between the treatment and control groups. The transient impact appeared to be related to the fact that the intervention did not result in the increased quality or sophistication that would have increased the firms' competitiveness in the longer term. The estimates nevertheless suggest that the program managed to break even in financial terms when the private profits were compared to the cost of the public program.

Volpe Martincus and Carballo (2008) analyze the effects of export promotion on Peruvian firms. The results of the study suggest that export promotion activities had a positive impact on exports mainly at the extensive margin, at the levels of new markets and products. The results suggest that the intensive-margin effects were not significant. Volpe Martincus and Carballo (2010b) study the effects of export promotion activities on export decision outcomes using data from Uruguay. Their findings suggest that export promotion increases the probability of reaching new destination countries and introducing new differentiated products. Volpe Martincus and Carballo (2010c) analyze the effects of export promotion programs using a sample of Colombian exporters. They suggest that export promotion programs that combine bundled services – ranging from counseling and meetings to participation in international events – are associated with better export performance than those that offer individual services alone. The effect is largest when the information asymmetry is more severe – at the extensive margin, particularly when exporting to new destination countries and to some degree when introducing new products.

Volpe Martincus and Carballo (2012) suggest that informational asymmetries are more acute when trading differentiated goods rather than homogeneous goods. Consequently, export promotion activities that attempt to address information problems could differ depending on the level of differentiation. The study analyzes Costa Rican exporters and finds that export promotion activities increase exports at the extensive margin in terms of destination countries for firms that are already trading differentiated goods. However, export promotion activities do not appear to encourage firms to begin exporting such goods. Finally, there is no evidence of significant effects among firms that trade reference-priced and homogeneous goods.

Volpe Martincus and Carballo (2010a) analyze whether the effects of export promotion programs differ between firms using data on Chilean exporters. While studies have mostly focused on analyzing the average effects of export promotion, little is known about the impact over the whole distribution of export outcomes. The study suggests that the effects of export promotion are heterogeneous. This effect is found at both the extensive and intensive margins. The results indicate that smaller firms, as defined by total exports, show a larger impact from export promotion activities. Indeed, smaller and less-experienced firms might be more likely to suffer from obstacles hindering their internationalization. Volpe Martincus, Carballo, and Garcia (2012) study the effects of trade promotion programs using data from Argentina. The analysis focuses on different size segments of firms, as the programs analyzed in the study are primarily targeted to benefit smaller firms. Consequently, the effects of the programs could be potentially heterogeneous when evaluated over the different size categories of firms. The results of the study suggest that the effects of the programs are indeed heterogeneous; the estimates are larger for smaller firms.

2.2.4 EXPORTS AND FINANCIAL SECTOR SHOCKS

During financial crises, exports have a tendency to collapse relative to output. Amiti and Weinstein (2011) analyze Japanese firms and address the link between the growth of firms' exports relative to their domestic sales and the health of banks that provide trade finance. The study finds that the health of banks is an important factor for firm-level exports during financial crises. Notably, the health of banks has a considerably larger effect on exports than on domestic sales, suggesting that financial shocks affect exports in a different way than they affect domestic sales. The findings of the study appear consistent with the existence of a trade finance channel. According to that channel, international trade is more sensitive to financial factors than domestic trade because of the higher default risk and working capital requirements.

Ahn, Amiti, and Weinstein (2011) evaluate the argument that financial factors resulted in a more significant decline in exports during the financial crisis than predicted by the models of frictionless financial markets. The findings of the study provide evidence in favor of the existence of a trade finance channel. First, there is evidence that export prices increased in comparison to domestic manufacturing prices. Second, they document that the import and export prices of goods that are particularly sensitive to contractions in trade finance – goods shipped by sea – increased more than those of goods shipped by air or land. Feenstra, Zhiyuan, and Miaojie (2014) provide evidence that exporters suffer more from credit constraints than nonexporters do. According to their findings, credit constraints are more binding for firms

when their export share increases, when shipping time becomes longer, and when the productivity dispersion is larger, indicating that firms face financial frictions due to incomplete information.

The Great Recession that followed the global financial crisis resulted in sharp contractions in exports. Van Biesebroeck, Konings, and Martincus (2016) analyze the effects of export promotion on firms from Belgium and Peru during the crisis. For export promotion activities, the study focuses on information brokering and facilitation rather than direct subsidies. The study suggests that the firms who obtained support from export promotion programs during the crisis performed better. Indeed, the supported firms were more likely to remain active in export markets and exported higher volumes than the control firms.

2.2.5 EARLIER EVALUATIONS AND IMPACT STUDIES FROM FINLAND

In the following, we review the findings from earlier evaluations and impact studies analyzing the effects of Team Finland and the predecessors of Business Finland – Tekes and Finpro – in promoting the internationalization activities of Finnish firms.

Salminen et al. (2016) evaluated Team Finland growth programs, focusing on Finpro's Export Finland programs. The evaluation utilized a firm survey and interviews with people from ministries, agencies and other interest groups. The findings of the evaluation suggest that the growth programs are a functional and welcome tool for promoting the internationalization of SMEs; however, it was too early to draw conclusions about the longer-term effects of the programs at the time of the study. In the best scenario, the programs provide broader visibility, information about target markets and contacts and facilitate information exchange and collaboration with other companies. However, there are large differences in the success of the programs and criticisms concerning their implementation. The evaluation provides the following implications. The financing and governing model should be revised to suit the financing of larger, more flexible, and more experimental programs. The efficiency of resource utilization could be improved. The cooperation and resource utilization between service providers as well as the focus of operations should be improved. The evaluation also advises that the availability of the best possible expertise be ensured.

Halme et al. (2018) provide an impact study of Team Finland and its key individual members: Finnvera, Finpro, and Tekes. This study, based on quantitative and qualitative analyses, suggests several conclusions and recommendations. First, because innovation, internationalization, and growth are interrelated, Team Finland activities should be enhanced rather than abandoned. Second, in comparison to similar organizations in other countries,

Team Finland could have a more strategic focus and tighter coordination. Third, given the fast expansion of Team Finland coverage, there is a need for coordinated customer management. Fourth, based on econometric analyses, the key Team Finland actors – Finnvera, Finpro, and Tekes – have positive and significant effects in some but not all dimensions. While the organizations seem to have good operational efficiency, the total system needs optimization. Fifth, Team Finland improves firms' international networks. Finally, Team Finland needs a clearer vision – its overall concept appears unclear, as are the responsibilities, goals, and services of its individual members.

Reid et al. (2016) study the role of Tekes in promoting the global competitiveness of the Finnish economy. The findings of the study indicate that Tekes has a positive role in fostering new business ecosystems. However, the findings also indicate that long-term effects call for better synergies between Team Finland members. Furthermore, the study notes that business ecosystems need tailored and diverse support beyond the activities provided by Tekes alone. The role of Tekes in promoting internationalization through R&D and innovation activities has also been addressed in an earlier evaluation of the company (van der Veen et al., 2012). According to the evaluation, Tekes has interpreted its key mission in terms of promoting companies' entry into and expansion in international markets. This objective has resulted in the segmentation of companies and an increased focus on growth companies with the capability to export. Cross-border R&D collaboration has been given a lower degree of priority and resources. The expertise in EU-level R&D activities does not reach the companies. The evaluation also suggests that a more active matchmaking function proposed for Tekes abroad would not fall within the scope of the company.

Hyytinen, Pajarinen, and Ylä-Anttila (2011) provide an econometric analysis studying the effects of Finpro customership on the internationalization and performance of client firms. The results indicate that Finpro customership is positively associated with internationalization, measured in terms of new subsidiaries abroad or the geographical expansion of foreign operations. Customership is positively associated with the indicator for exports, even though the results vary between methods. The association between customership and the share of foreign personnel seems to be statistically nonsignificant. In most cases, customership is not significantly associated with economic performance. However, the results are somewhat inconsistent and vary depending on methods and data. There is no evidence of synergy effects between Finpro services and the funding obtained from other government sources, including Finnvera, Tekes or the Ministry of Economic Affairs and Employment.

2.2.6 CONCLUSIONS

The previous econometric literature provides several implications for government efforts to promote economic growth through innovation and internationalization. First, because internationalization is driven by innovation, the coordination and integration of internationalization and innovation policies should be under the same roof (Altomonte et al., 2013). Second, the existing empirical evidence indeed suggests that export promotion programs are positively associated with firm performance despite the challenges in the identification of the effects (Broocks & Van Biesebroeck, 2017; Munch & Schaur, 2018; Van Biesebroeck et al., 2015). Third, the economic rationale for export promotion is based on information asymmetries and externalities, providing some indications about the nature of the potential market failure. Theories of trade with heterogeneous firms indicate that export promotion policies would induce marginal firms – particularly those with medium productivity – to enter export markets by lowering the fixed costs of exporting (Ferguson & Forslid, 2019; Melitz, 2003). In principle, such policies would be expected to operate mainly through the *extensive* margin (Lederman et al., 2016). However, there remains an empirical controversy on whether such policies indeed operate through the extensive or intensive margin (Görg et al., 2008; Van Biesebroeck et al., 2015). Fourth, there is much heterogeneity in the effects of export promotion programs across studies. However, it remains difficult to draw universal conclusions on the effects of such policies due to the heterogeneous nature of export promotion agencies and their policies as well as the target firms themselves. Overall, there is a call for further in-depth studies analyzing the rationales and effects of the programs with state-of-the-art empirical methods. Finally, bank health and financial shocks have been documented to have a greater effect on exports than on domestic sales (Amiti & Weinstein, 2011), suggesting that exporters could be particularly vulnerable during periods of financial turbulence.

3 DATA AND ECONOMETRIC MODELING

3.1 DATA

In the analysis, we used the following databases of Statistics Finland: the business register of firms operating in Finland, the FLEED (Finnish Longitudinal Employer–Employee Data) dataset and the databases on firms' financial information, export and other international operations as well as R&D activities. These data were further merged with the data available from Business Finland (i.e., innovation and business subsidy funding decisions in 2008-2016, export data to Europe and the rest of the world in 2008-2017). Given that Business Finland has offered services for internationalization to companies only since the beginning of 2018, the data do not allow us to make statistical inferences on the impacts of these activities on firm growth. Therefore, we further merged the dataset of SMEs that used Finpro's – the predecessor of BF as the Finnish export promotion agency – internationalization support services in 2008-2016 to empirically evaluate the impact of export promotion on firm growth.

Finpro's data for the years 2008–2013 are based on annual billing information. In this period, our data concerning Finpro service users cover the internationally oriented SMEs that bought Finpro's services for at least 2000 euros per annum. In 2014, commercial consulting services were sold to Soprano Oyj. Until 2014, Finpro's services were funded partly by state subsidies and partly by customer invoicing. Since then, Finpro's (and subsequently Business Finland's) export promotion services have been available for firms free of charge; i.e., they are fully government funded. The data for the years 2014-2016 comprise primarily information on firms that were active in Finpro's various nonprofit programs. In the analysis, we also refer to export promotion services if a firm has received support from the following Tekes/Business Finland programs intended for internationalization: Tempo, Kiito, Into, Exhibition Explorer, Market Explorer, Talent Explorer and Vientirengas. As the Finpro service concept changed in 2014 and as the data collection for 2014-2016 covered all Finpro customers (without the lower limit of service purchase as before 2014), the data for the years 2008-2013 and 2014-2016 are not fully comparable.

Our analysis focuses on the new customers of Finpro during 2011-2014 to capture a sufficient number of pre- and post-treatment observation years. The data used in the empirical analysis comprises 315 Finpro's customer companies, of which 88 firms used both Finpro's services and Tekes R&D support at the same time. Our analysis focuses on small and medium-sized firms, measured in the year of treatment (i.e., the year a firm used Finpro services or obtained R&D subsidies). The SME criterion is based on the Eurostat/Statistics Finland definition, according to which a firm is defined as an SME if it has fewer than 250 workers and has either turnover not exceeding 50 million euros or total assets not exceeding 43 million euros. Moreover, it has to conform to the independence criterion. The independence criterion refers to firms that do not have 25 percent or more of their capital or voting rights owned by one firm or jointly by several firms and that thus fall outside the definition of an SME. However, due to the data issues and the nature of the phenomenon, we exclude microsized firms (i.e., firms employing less than 10 workers and having turnover or total assets of less than 2 million euros in the year of treatment). In addition, we restrict our sample of firms to those whose financial information indicates that they were engaged in international business activities at least during one of the sample years. This data boundary was set to form a group of internationally oriented counterparts to the "treated" firms that used Finpro's internationalization services. We define a firm as having international business activities if it

- exports goods or services from Finland,
- has foreign turnover, or
- has workers abroad.

Table 1 describes the dependent and control variables used in the analysis. We have deflated all variables measured in euros by a 2-digit industry level GDP deflator (2010=100).

In the analysis, we measure the performance of firms in terms of net sales, value added, employment, exports, and productivity. Each of these variables are measured in log-form. Thus, the coefficients of these dependent variables in the panel data estimations can be interpreted as percentages, and they imply the differences in relative growth patterns of treated and non-treated firms. Our primary treatment variable is EXPORT_SERV, which indicates whether a firm has used export promotion services provided by either Finpro, Tekes, or Business Finland. We also control for repetitive use of export promotion services. Furthermore, R&D subsidies are usually targeted to facilitate the development of new products and services, and thus to promote firms' growth. That is why we control for firm's cumulative amount of granted R&D subsidies in the estimation period.

TABLE 1. Description of variables.

VARIABLE	DESCRIPTION
SALES	Net sales in 2010 prices, million euros, in log form in the estimations
VALUE ADDED	Value added in 2010 prices, million euros, in log form in the estimations
LABOR	The number of workers, full-time eq., in log form in the estimations
EXPORTS	Exports of goods in 2010 prices, million euros, in log form in the estimations
PRODUCTIVITY	Value added in 2010 prices per the number of workers, thd. euros, in log form in the estimations
EXPORT_SERV	1 if a firm has used Finpro's services or has received support from Tekes/BF programs: Tempo, Kiito, Into, Exhibition Explorer, Market Explorer, Talent Explorer, Vientirengas
CUM.COUNT OF EXPORT SERV.	Cumulative count of EXPORT_SERV during the estimation period after the first treatment
CUM. SUM OF R&D SUBS.	Cumulative amount of granted R&D subsides in the estimation period at the 2010 price level, 1000 euros, in log form in the estimations
CAP_TO_LAB	The ratio of fixed assets to employment, thd. euros in 2010 prices, in log form in the estimations
ACADEMIC	The share of workers having university-level education
COLLEGE	The share of workers having college-level education
AGE_EMP25_34	The share of workers aged 25-34 years
AGE_EMP35_44	The share of workers aged 35-44 years
AGE_EMP45_54	The share of workers aged 45-54 years
AGE_EMP55_70	The share of workers aged 55-70 years
R&D_EMP	The share of R&D workers
AGE	Firm age, years, in log form in the estimations
FOREIGN_OWNED	1 if foreign-owned firm, 0 otherwise
GOV_OWNED	1 if government-owned firm, 0 otherwise
GROUP	1 if firm is a part of the group, 0 otherwise
INDUSTRY DUMMIES	29 industry dummies
REGION DUMMIES	15 regional dummies based on ELY-centers

The rest of the control variable vector in the analysis consists of an extensive set of firm level background characteristics. We control for firm's capital intensity by the ratio of fixed assets to employment. We account for the heterogeneity of the labor force by two sets of variables: quality of human capital and age structure. The quality of human capital is captured by the share of college-educated (COLLEGE) and academically educated (ACADEMIC) employees of a firm's total number of employees (employees having less than college-level education form a control group), and by the share of R&D employees of the total employment (R&D_EMP). The firm's employees' age structure is measured by the shares of employees in five different age groups in relation to a firm's total number of employees (i.e., the variables AGE_EMP18-24 (control group), AGE_EMP25-34, AGE_EMP35-44, AGE_EMP45-54, and AGE_EMP55-70). Other controls include firm age and the dummy variables for foreign ownership, government ownership, and companies' group structure. Furthermore, we control a firm's industry by 29 dummy variables and location by 15 regional dummy variables based on ELY-centers.

The "treated" columns in Table 2 report the unconditional (without considering, e.g., the effects of firms' industries) and unweighted (i.e., without using the CEM weights) descriptive statistics in the first of the export promotion service years for the firms using Finpro's services during the sample years. The "nontreated" columns include the same statistics for the control group used in the empirical analysis. The data illustrate that the treated firms have been larger in terms of net sales, value added, employment and exports than the control firms, on average. Furthermore, their productivity level at the time of treatment has been higher. They also received a substantially higher cumulative sum of R&D subsidies during the sample years. In addition, they have been more capital-intensive, measured by the ratio of fixed assets to employment. Moreover, they seem to have accumulated more human capital in terms of both the share of R&D workers and the share of workers having a university-level degree. The age distribution of workers has been slightly more mature in the treated firms than in the control group. The mean age of firms is also higher in the treated group than in the control group. The treated firms have been less likely to be foreign-owned, more likely to be state-owned and more likely to have a group structure than control firms.

Assessing the impacts of interventions requires a counterfactual of what the observed outcome would have been in the absence of the intervention. The impacts of the intervention of export promotion agencies cannot be rigorously and reliably analyzed without a carefully selected control group that is (sufficiently) similar to the companies that experienced intervention by the export promotion agency. The key benefit of Statistics Finland's business register data is that they cover practically all

TABLE 2. Unconditional and unweighted descriptive statistics of the estimation sample firms in the treatment year.

	TREATED (315 FIRMS)		NONTREATED (8732 FIRMS)	
	MEAN	S.D.	MEAN	S:D.
SALES	7.360	10.722	4.002	7.178
VALUE ADDED	2.150	2.093	1.061	1.048
LABOR	35.073	31.300	19.416	15.076
EXPORT	1.791	5.184	0.202	1.619
PRODUCTIVITY	76.216	174.356	57.763	44.382
CUM. SUM OF R&D SUBS.	137.929	294.341	9.710	83.015
CAP_TO_LAB	54.631	135.513	38.901	101.210
ACADEMIC	0.136	0.199	0.052	0.121
COLLEGE	0.738	0.193	0.748	0.184
AGE_EMP25_34	0.279	0.161	0.256	0.164
AGE_EMP35_44	0.251	0.126	0.231	0.147
AGE_EMP45_54	0.234	0.129	0.229	0.154
AGE_EMP55_70	0.159	0.144	0.149	0.141
R&D_EMP	0.098	0.142	0.022	0.057
AGE	21.106	15.523	17.337	10.950
FOREIGN_OWNED	0.035	0.184	0.059	0.235
GOV_OWNED	0.016	0.125	0.003	0.055
GROUP	0.343	0.475	0.142	0.349

companies operating in Finland and are the only data that enable us to find a relevant control group for the companies undergoing intervention by Finpro/Business Finland.

3.2 ECONOMETRIC MODELING

Descriptive statistical measures cannot be used for making conclusions on how the companies intervened in or "treated" by Business Finland (or previously, by Finpro and Tekes) perform compared to the companies that were not treated by Business Finland. Because the interventions of export promotion agencies or providers of R&D subsidies are not randomly distributed among companies, and since we never observe the treated firm's performance without the treatment, we need to form a statistical model to find an answer to a counterfactual question: what would have happened to the treated firms without the public sector agency's intervention? In addition, we need the statistical model to tackle a potential selection bias. It is possible that the treated firms would perform differently from the nontreated firms even without the intervention or treatment of the public sector agency.

We used state-of-the-art impact assessment methods in our empirical analysis. We employed the two-stage conditional difference-in-differences (CDID) model to evaluate the performance of firms that experienced intervention by the export promotion agency compared to the performance of the firms that did not use pub-

lic internationalization services. In the first stage of the analysis, we composed a control group for that experienced intervention by Finpro via the matching analysis. The control group for the firms using Finpro's export or internationalization services was obtained from all the internationally oriented Finnish firms.

We used the Coarsened Exact Matching (CEM) method originating from the work of Iacus et al. (2011, 2012) to obtain matches for each Finpro-treated firm without replacement.[2] The data were temporarily coarsened to discrete strata within which exact matching was performed. The variables used in the matching analysis to form strata comprise the firm size measured by the number of employees, firm age, capital intensity (i.e., fixed assets in relation to firm size), R&D intensity (i.e., the share of R&D employees of the total number of employees) and industry (29 dummy variables).[3] This approach enabled us to find a control group of firms similar to the firms that used Finpro's export services in terms of the selected background characteristics. The CEM stage produces weights that always have a value of 1 for treated firms. The weight for each nontreated firm is calculated as the product of the total number of nontreated firms in relation to the total number of treated firms in the sample and the number of the treated firms in relation to the number of nontreated firms in the firm's stratum (i.e., group in which the firms are similar with respect to the selected coarsened observable characteristics).

The CEM weights were utilized in the second stage, in which we applied a difference-in-differences analysis to the outcome variables.[4] The second-stage difference-in-differences estimation eliminates the potential bias arising from the permanent (or nontime-varying) differences between firms that used the services of Finpro and nontreated firms and aggregate factors that would affect the performance measure in question even in the absence of Finpro's intervention. This part of the analysis enables us to assess not only the direct growth effects of Finpro's intervention but also its wider societal impacts measured by growth-generating spillovers via the employees moving from the treated companies to the nontreated companies.

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2 As Iacus et al. (2011, 2012) argue, the CEM method reduces the degree of model dependence and causal-effect estimation error resulting from ex ante user choice. The nonparametric CEM procedure has monotonic imbalance bounding, so that reducing the maximum imbalance on one variable has no effect on the other variables. It does not require a separate procedure to restrict the data to a common subsidy, is approximately invariant to measurement error, and balances nonlinearities and interactions in the data.

3 Initially, we aimed to use each equation's explanatory variables for the matching, but this approach produced too few matched observations. Consequently, we settled for this restricted set of background variables in the matching stage.

4 The CEM matching stage produces weights that value 1 for subsidized firms. The weight for each nonsubsidized firm is calculated as the product of the total number of control group firms in relation to the total number of BF treated firms in the sample and the number of the BF treated firms in relation to the number of control group firms in the firm's stratum (i.e., a group in which the firms are similar with respect to selected coarsened observable characteristics).

Our estimations focus on the economic impacts and effectiveness of Finpro's export promotion services for firms' growth concerning sales, value added, productivity, exports and employment. We also control for the R&D subsidies firms obtained from Business Finland. We estimated the following difference-in-differences model using the approach suggested by Aghion et al. (2018):

$$\ln\left(Y_{it}\right) = \alpha_i + \sum_{\tau=-3,\ldots,6} \delta_\tau \, treated_i \, x \, 1\left[\tau = t\right] + \sum_{\tau=-3,\ldots,6} \alpha_\tau 1\left[\tau = t\right] + \sum_{y=2009,\ldots,2017} \alpha_{year} 1\left[y = year\right] + \sum_{s=-3,\ldots,6} \alpha_{treat\_year} 1\left[s = treat\_year\right] + \sum_j \beta_j C_{it} + \varepsilon_{it}$$

where $treated_i$ is a dummy variable that is given the value of 1 if a firm has used Finpro's export promotion services during 2009-2016. The year of a firm's export promotion service usage is denoted by t, and y is the calendar year. Coefficients α_τ and α_{year} capture the treatment time fixed effects and calendar year fixed effects, respectively. We constrained the treatment effect to be constant before (i.e., $\delta_\tau = \delta_{pre}$, for t=-3,..., -1) and after (i.e., $\delta_\tau = \delta_{post}$, for t=0,...,6) the year the firm used Finpro's export promotion services. The estimated coefficients δ_{pre} and δ_{post} indicate the average difference in the dependent variable of treated and non-treated firms the years prior to and after, respectively, the treated firms used Finpro's services. In other words, the estimated model comprises up to six years lag structure in the impact of Finpro service usage (i.e., the impacts of Finpro service usage on firm growth is assessed up to six years after the firm used export promotion services).

The vector C captures a set of control variables. It includes a wide set of variables capturing heterogeneity in firm characteristics (see Table 1 and discussion related to it for the description of the variables). These variables are included to account for the consideration that CEM matching rarely identifies perfectly identical counterparts to the treated firms and to control for the remaining heterogeneity in the sample firms' background characteristics. Furthermore, given that the substantial number of firms that used Finpro's export promotion services were Finpro customers during the subsequent years and further obtained R&D subsidies, we controlled for the cumulative count of years during which the firm reused Finpro's export promotion services after the first year as well as the cumulative sum of R&D subsidies (in euros).

In addition, we further estimated modified models taking into account a firm's simultaneous use of export promotion services and R&D subsidies, analyzing spillovers from export support services and tackling the impact of export support services on exceptional growth success and failure cases. The difference between these models and the basic model is explained in Section 4 in the context of the estimation results.

4 EMPIRICAL RESULTS

4.1 DIRECT EFFECTS OF EXPORT SUPPORT SERVICES

Table 3 presents the estimation results of the direct effects of the firms' usage of Finpro's export promotion services. We have more than 9000 Finnish companies and over 76,000 observations in the estimation sample. The dummy variables PRE_EXPORT_SERV and POST_EXPORT_SERV are the key explanatory variables of the estimated models. The variable PRE_EXPORT_SERV (POST_EXPORT_SERV) receives the value 1 if the firm used Finpro's export promotion services, and 0 otherwise, and the year in question is the one before (after) the firm used export promotion services. The estimated coefficient of the former (latter) variable tells, given that the dependent variables are in log format, the average percentage difference of the dependent variable between the firms that used Finpro's export promotion services and those that did not three years prior to the "treatment" (up to six years after the "treatment"), the treated firms' export promotion service usage. We further estimated a standard differences-in-differences model without the pretreatment effects (see Annex Table 1 for the estimation results).

The estimated coefficient of the PRE_EXPORT_SERV variable clearly obtains a positive and statistically significant coefficient only in the labor productivity equation. This hints that the firms using Finpro's export promotion services tended to be more productive *prior to* contacting Finpro's international office. The Wald test indicates that there is no statistically significant difference in the estimated coefficients of PRE_EXPORT_SERV and POST_EXPORT_SERV in the labor productivity equation. This means that the labor productivity of Finpro customers did not change significantly after they used export promotion services compared to that of their counterparts.

The positive and significant coefficient of the POST_EXPORT_SERV variable in the sales equation indicates that the firms that used Finpro's export promotion services grew more than their counterparts in terms of their turnover after they became customers of Finpro's international service offices. In the years following Finpro service usage, the estimated average annual sales were approximately 12% higher among the firms using export

TABLE 3. Direct effects of the firms' usage of Finpro's export promotion services, fixed-effects difference-in-differences estimation results.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E	COEF./S.E	COEF./S.E	COEF./S.E	COEF./S.E
PRE_EXPORT_SERV	0.075	0.081 *	-0.007	0.631	0.098 **
	(0.050)	(0.049)	(0.045)	(0.450)	(0.044)
POST_EXPORT_SERV	0.118 **	0.069	-0.066	0.768	0.091 *
	(0.060)	(0.057)	(0.053)	(0.522)	(0.048)
CUM. COUNT OF EXPORT SERV.	0.018	0.000	0.052 ***	-0.044	-0.011
	(0.016)	(0.020)	(0.016)	(0.162)	(0.019)
Test: PRE_EXPORT_SERV = POST_EXPORT_SERV	2.647	0.188	5.279	0.272	0.091
Test: p-value	0.104	0.664	0.022	0.602	0.763
Observations	76038	75474	76038	76039	75363
Firms	9047	9047	9047	9047	9047
Wald(Model)	50.877 ***	54.789 ***	14.836 ***	4.626 ***	6.158 ***
R2(between)	0.241	0.346	0.173	0.002	0.021
R2(within)	0.200	0.220	0.273	0.032	0.044
R2(overall)	0.197	0.243	0.182	0.002	0.021

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, and CUM. SUM OF R&D SUBS., firm-level fixed effects, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

promotion services than among the control firms. The 95% confidence interval of the estimate ranged from 0.07% to 26.58%. The Wald test suggests that the difference in the sales of Finpro customers before and after internationalization service use is only weakly statistically significant.

The coefficient of the variable CUM_COUNT_EXPORT_SERV has a positive and significant coefficient in the employment equation. This means that the firms that used Finpro's export promotion services during the sample years and further had more contact with Finpro's offices promoting internationalization during the subsequent years also had higher employment growth than other companies. The estimation results of a standard difference-in-difference model provide similar evidence but suggest that only one-time Finpro service use, instead, was followed by a decrease in the firms' employment (see Annex Table 1).

We also estimated an alternative model to consider the impact of the simultaneous use of export promotion services and R&D subsidies. In the estimations reported in Table 4, the variable PRE_BOTH (POST_BOTH) receives a value of 1 for the years prior (after) the firm used export promotion services and obtained R&D subsidies simultaneously and 0 otherwise. In these estimations, the control group comprises the firms that neither obtained R&D subsidies nor used Finpro's export promotion services. The sample size is substantially reduced compared

TABLE 4. Direct effects of the firms' use of both Finpro's export promotion services and R&D subsidies at the same time, fixed-effects difference-in-differences estimation results.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E	COEF./S.E	COEF./S.E	COEF./S.E	COEF./S.E
PRE_BOTH	0.076	0.120	0.097	-0.052	0.135
	(0.152)	(0.126)	(0.086)	(0.824)	(0.109)
POST_BOTH	-0.026	0.144	0.211*	0.105	0.066
	(0.277)	(0.165)	(0.109)	(1.098)	(0.131)
CUM. COUNT OF EXPORT SUBS.	0.082	-0.001	-0.010	0.386	-0.015
	(0.071)	(0.052)	(0.032)	(0.295)	(0.044)
	(0.010)	(0.006)	(0.004)	(0.031)	(0.004)
Test:PRE_BOTH= POST_BOTH	0.254	0.038	3.905	0.089	0.879
Test: p-value	0.615	0.846	0.048	0.766	0.349
Observations	18555	18421	18555	18555	18391
Firms	2235	2235	2235	2235	2235
Wald(Model)	29.584 ***	35.866 ***	22.047 ***	4.301 ***	7.375 ***
R2(between)	0.098	0.052	0.038	0.056	0.005
R2(within)	0.207	0.176	0.317	0.110	0.144
R2(overall)	0.077	0.042	0.047	0.051	0.007

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, and CUM. SUM OF R&D SUBS., firm-level fixed effects, treatment year dummies, calendar year dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

to the estimated basic model, from over 9000 companies (76,000 observations) to approximately 2200 companies (18,000 observations). The estimation results of a standard differences-in-differences model without the pretreatment effects are reported in Annex Table 2.

The variables PRE_BOTH and POST_BOTH do not obtain strongly significant coefficients in any of the estimated equations. The estimated coefficient of the variable POST_BOTH is positive and marginally significant in the employment equation, providing weak evidence that the firms that simultaneously obtained R&D subsidies and used Finpro's internationalization services subsequently had higher employment growth than other companies. This finding may relate to the impacts of R&D subsidies, as previous studies find empirical evidence on the positive, though rather short-term, employment effect of R&D subsidies (see, e.g., Koski and Pajarinen, 2011, 2013).

In summary, we find that export promotion services tend to increase firm sales but not the export of goods. This could hint that it is rather the service-oriented companies that grow internationally due to the use of export promotion services. The firms obtaining R&D subsidies seem to grow more than other firms in terms of the number of employees.

4.2 SPILLOVERS FROM EXPORT SUPPORT SERVICES

In addition to observing the direct effects of export support services, we explored whether and how the growth of firms that hired new employees from Finpro's customer firms – but that were not directly involved with Finpro intervention themselves – differs from the growth of companies that did not hire new employees from the Finpro customer companies. The treated variable SPILLOVER in these estimations receives a value of 1 if the firm had hired at least one person who had a previous affiliation in managing, planning or research activities **and** the firm had used Finpro's internationalization support services during the past two years. We estimated merely a standard difference-in-differences model for the indirect effects (i.e., the estimations were undertaken without a constant pre-treatment effect), as anticipation effects are not of great interest in this context.

Table 5 presents the estimation results concerning the spillover effects from the companies that used Finpro's export promotion services to the firms that did not use such services but that hired a person from a "Finpro treated company". We can see that the coefficients of the SPILLOVER variable are not significant in any of the estimated equations.

TABLE 5. Spillover effects of Finpro's export promotion services, fixed-effects difference-in-differences estimation results.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
SPILLOVER	-0.009	-0.021	0.061	0.525	-0.003
	(0.071)	(0.067)	(0.044)	(0.342)	(0.028)
Observations	51150	50749	51150	51151	50657
Firms	5490	5490	5490	5490	5490
Wald(Model)	21.205***	34.403***	43.057***	12.420***	6.384***
R2(between)	0.231	0.379	0.077	0.017	0.025
R2(within)	0.155	0.173	0.252	0.032	0.057
R2(overall)	0.181	0.259	0.109	0.014	0.025

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, and CUM. SUM OF R&D SUBS., firm-level fixed effects, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

4.3 EXCEPTIONALLY STRONGLY AND WEAKLY GROWING FIRMS

We complemented the statistical analysis by exploring more in detail whether exceptional success and failure in terms of growth was more likely among the companies experiencing intervention by the export promotion agency than among the other companies. Here, the dependent variable of the estimated equation for the exceptionally high (low) growth, for instance, for sales, was coded 1 if the firm was in the top (lowest) 10% sales growth quantile before/after the treatment year. A significant positive (negative) coefficient of the variable POST_EXPORT_SERV (POST_BOTH) indicates that Finpro service usage (simultaneous use of Finpro services and reception of R&D subsidies) makes it more likely for a firm to subsequently switch to the exceptional growth quantile of firms.

Tables 6A1 and 6B1 report the estimation results of the logit models predicting the probability that the firms that used Finpro's internationalization services end up, respectively, in the groups of firms with exceptionally strong or weak growth (measured by the highest and lowest 10% quantiles of growth). Tables 6A2 and 6B2 show the corresponding estimation results for the simultaneous use of Finpro's services and the reception of R&D subsidies.

TABLE 6A1. Logit estimations on the probability of switching to the group of firms with exceptionally weak growth after treatment, marginal effects.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
POST_EXPORT_SERV	-0.065***	-0.032	-0.058***	-0.040	-0.010
	(0.025)	(0.022)	(0.024)	(0.029)	(0.025)
Observations	85502	85502	85501	85502	85502
Firms	9105	9105	9105	9105	9105
Wald(Model)	593.361 ***	711-564 ***	543.617 ***	514.402 ***	578.970 ***
Log likelihood	-22383.412	-22831.161	-22888.202	-29697.593	-23167.716
Pseudo R2	0.113	0.091	0.096	0.167	0.090

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

In Table 6A1, the variable POST_EXPORT_SERV has a negative and significant coefficient in the sales and labor equations. These empirical findings suggest that Finpro service use positively affects firm performance in the sense that it reduces a firm's likelihood of switching to the lowest growth quantile in terms of turnover and employment. The estimated coefficients of the POST_BOTH variables are not significant in any of the estimations (see Table 6A2). This means that the simultaneous use of Finpro services and reception of R&D subsidies do not affect a firm's probability of switching to the lowest growth quantile.

TABLE 6A2. Logit estimations on the probability of switching to the group of firms with exceptionally weak growth after treatment, marginal effects.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
POST_BOTH	-0.042	0.015	-0.046	0.053	0.012
	(0.060)	(0.059)	(0.048)	(0.060)	(0.057)
Observations	20957	20931	21080	20304	21102
Firms	2231	2229	2244	2170	2244
Wald(Model)	612.101 ***	428.321 ***	558.672 ***	234.582 ***	551.633 ***
Log likelihood	-5950.143	-5994.229	-5471.271	-7046.281	-5802.685
Pseudo R2	0.154	0.161	0.159	0.118	0.187

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

The coefficients of the variable POST_EXPORT_SERV in Table 6B1 are not significant in any of the equations. This empirical finding hints that the sample SMEs that used Finpro services are not more likely than other companies to switch to the exceptionally high growth quantiles.

TABLE 6B1. Logit estimations on the probability of switching to the group of firms with exceptionally strong growth after treatment, marginal effects.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
POST_EXPORT_SERV	0.013	0.007	0.007	0.042	-0.030
	(0.022)	(0.023)	(0.023)	(0.026)	(0.025)
Observations	84877	85502	85501	85502	85502
Firms	9043	9105	9105	9105	9105
Wald(Model)	837.969 ***	875.063 ***	863.353 ***	534.956 ***	524.660 ***
Log likelihood	-21500.274	-21722.834	-20499.636	-30067.886	-24342.516
Pseudo R2	0.175	0.154	0.171	0.130	0.095

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

In Table 6B2, the variable POST_BOTH has a positive and strongly significant coefficient in the sales equation. This hints that the simultaneous use of internationalization services and reception of R&D subsidies increase a firm's likelihood to end up in the highest sales growth quantile.

TABLE 6B2. Logit estimations on the probability of switching to the group of firms with exceptionally strong growth after treatment, marginal effects.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
POST_BOTH	0.090**	0.066*	-0.032	0.004	0.065*
	(0.034)	(0.037)	(0.039)	(0.040)	(0.039)
Observations	20797	20786	20786	20588	21058
Firms	2213	2215	2215	2196	2240
Wald(Model)	583.702***	569.282***	712.955***	251.775***	309.591***
Log likelihood	-4582.828	-4710.700	-4219.548	-5627.486	-5677.593
Pseudo R2	0.219	0.165	0.235	0.138	0.109

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

5 BUSINESS FINLAND'S INTERNATIONALIZATION PROMOTION IN PRACTICE

5.1 ORGANIZATION AND MEANS TO SUPPORT EXPORT AND INTERNATIONALIZATION

5.1.1 BRIEF HISTORY OF INTERNATIONALIZATION SERVICES IN FINLAND

Finpro's first predecessor, Finnish Export Council (Suomen vientiyhdistys) was founded in 1919. Initially, it focused on exporting Finnish industrial and agricultural products, later it started to expand its activities for other industries. Finnish Export Council built international networks of representatives and correspondents worldwide and placed contact persons in key strategic locations. Markets in Eastern Europe were the primary target. In 1938, the organization was renamed as *Finnish Foreign Trade Association (Suomen ulkomaankauppaliitto)*. Its primary activities involved participating in the international fairs, similarly to many other European associations. When international barriers of exports were removed from Western Europe and the rest of the world, the Finnish Foreign Trade Association broadened its activities in various new countries. In 1999, the name Finpro was introduced, and in 2015 the registered association was transformed into a wholly state-owned limited company.

In the 21st century, globalization shaped the playing field, and Finpro's role change to be one of the many organizations in the innovation system promoting Finnish growth-oriented companies' internationalization (Hyytinen et al., 2011). Finpro had three main functions. *Export Finland* helped firms find and recognize business opportunities, provided advisory services, networks, and contacts for client companies in international markets. It aimed at helping firms to do profitable business by exploiting business opportunities in foreign markets. *Invest Finland's* goal was to promote employment and acquire foreign investments in Finland. It networked with domestic and foreign companies in Finland to grow and

develop national foreign investment. *Visit Finland* collaborated with ministries, transport companies, travel businesses, and regions in research, product development, and marketing. It also promoted tourism in Finland in order to increase the flow of foreign tourists. (Halme et al., 2018)

The Ministry of Economic Affairs and Employment was responsible for directing Finpro's operations and its goals consistent with the government's business community development objectives. In addition to the Ministry of Economic Affairs and Employment, Finpro's main stakeholders were Tekes, Finnvera, ELY Centers, and Ministry of Foreign Affairs and delegations in different countries.

In 2018 Finpro and Tekes, which provided government funding to firms' innovative activities, merged into Business Finland. The merger's primary objective was to offer a smooth, common service path to Finnish companies at the beginning of their internationalization.

5.1.2 BUSINESS FINLAND'S INTERNATIONALIZATION SERVICES

Business Finland's export and internationalization services are targeted to companies seeking rapid growth in international markets. It helps to get experts, new partners and networks worldwide, and it coaches companies to embrace international opportunities. The customers of international offices planning to enter new markets or aiming at improving their competitiveness in their current foreign markets are primarily SMEs. Business Finland's export promotion services are available free of charge. However, there is also funding available for Finnish SMEs for internationalization purposes, such as hiring an expert with competence in the firm's new export market. Additionally, SMEs may apply for funding from Business Finland to participate in international accelerator programs on the condition that they have a product ready to be launched, they seek private investments, they aim at rapidly scaling up internationally and at least two of the company founders work full-time.

International offices are typically small, employing only a few people.In 2019, there were 41 offices in Business Finland's international network. In 2020, Business Finland changed its focus to strengthen its existing export promotion services and further to create new operation models of export promotion. This shift towards stronger internationalization and export promotion demanded 5 million euros and the hiring of 20-23 new persons to the international network. Currently, BF's global network comprises close to 150 experts working in 35 different countries.

Business Finland offers various services that aim at helping companies to promote their internationalization efforts. Market information service enables Finnish companies to learn from market opportunities and to have

quick sales leads from target countries. The best opportunities are investigated and provided in *Marketopportunities.fi* webpage. Business Finland provides *advice and coaching* that supports customer's internationalization during the entry into a new market and when the customer is looking for competitiveness in the existing market. It offers companies advice on the right services and funding and finds experts and external consultants to have market-specific information (e.g., local customs, business culture). It also trains management during the internationalization or when the company is entering a new market.

International accelerator programs aim at validating the product-market-fit of foreign market entrants, and they further offer companies contacts of potential investors, customers, and partners. Accelerator programs are located in North America, East Asia, Latin America, Eastern Europe, India APAC, and Western Europe. Small and medium-sized companies can apply for this program. Also, a company aiming at rapidly scaling up to an international business seeking private investments has products ready for launch, and at least two of the founders work full-time is the applicable company to this program.

Business Finland's *Soft Landing* -service promotes the Finnish growth companies' easy access to Asia or USA business markets without setting up a local company, as the company can explore a new market without investing in its own office and staff. Examples of services are operations support, such as HR and legal help, office space with internet access, network, and Business Finland's local support. Locations are Shanghai, Hong Kong, Singapore, Tokyo, Silicon Valley, and New York. This service is targeted to growth companies seeking to expand their operations to Soft Landing locations or nearby markets.

With the *Market access* -program, the company can test the potential business idea in the United States or China. A company or a large business unit can apply for this program if it fulfills the following requirements: it has a paying customer base, an English website, positive cash flow or funding for the next 1-2 years, and innovative service or product with an international competitive advantage.

Business Finland further coordinates the activities of *Enterprise Europe Network (EEN)* in Finland. EEN operates in over 60 countries and has more than 3000 experts. The network offers advice on internationalization and legal matters for SMEs and organizes seminars and offers support for finding a suitable EU funding program. It also helps companies find international partners and provides a feedback channel to the European Commission for companies facing difficulties in the internal market. It is partly funded by the European Commission (COSME program). The network is nationally funded by the Ministry of Employment and the Economy and network partners.

Team Finland services aim to promote Finnish companies' exports and internationalization, get more visitors to Finland, and promote foreign direct investments. Team Finland organizes foreign visits for companies that are planning to enter or are already in international markets. Such visits provide information and understanding of a country's business environment, future, and potential markets that could open new opportunities for Business Finland's customers. Visits also establish contacts with local authorities, customers, decision-makers, potential partners, and networking opportunities for contacts that might be difficult to reach otherwise.

Business Finland further provides four different types of funding for the Finnish companies' internationalization activities. With *Tempo* funding service, a company can improve its international growth capabilities, get product or service idea feedback from potential customers, and map demand in new international markets. A company can apply for *Explorer* funding to hire an external expert to do a market survey to assess the export opportunities of the company›s existing products, services, business models, or participating in a trade fair. With *Group Explorer* funding, at least four SME companies may construct a group that researches joint business opportunities in the international markets. *Talent Explorer* funding offers companies an opportunity to hire an expert in the company›s new market area to assist during internationalization. Business Finland also provides product development funding, and it offers companies the possibility to pilot new services and products with real client markets. Piloting can also be undertaken in foreign markets where the company may get feedback from clients and valuable information about its future business opportunities.

5.2 STAKEHOLDER VIEWS: SELF-ASSESSED IMPACT OF BF INTERNATIONAL OFFICERS

We undertook stakeholder surveys and interviews targeted to Business Finland's international officers to extract additional information on the role and best practices of Business Finland in promoting companies' global growth as well as in addressing critical obstacles and bottlenecks. The role and self-assessed impacts of Business Finland in advising, sparring and providing expert services as well as undertaking growth program actions targeting America and Europe were evaluated via surveys and interviews of BF officers in Nordic Innovation House in Silicon Valley as well as various European BF officers. In total, ten internationally located BF officers were interviewed (by telephone or face-to-face) or responded to the survey sent to them in November-December 2019. This section's analysis of Business Finland's export promotion activities in its international offices is primarily based on the subjective views of BF international officers.

PRIMARY MEANS/TOOLS BF OFFICERS USE FOR PROMOTING THE EXPORT ACTIVITIES OF FINNISH COMPANIES

Before 2014, the officers of Finpro's "Export Finland" services offered consulting services that were partly subsidized by the state and partly paid for by the Finnish customer companies. Since 2014, Finpro's (and subsequently Business Finland's) export promotion services have been completely publicly funded and provided free of charge. Business Finland's international offices provide advisory services, sparring and light coaching to the Finnish firms that aim at entering foreign markets. The areas of advisory concern, for instance, business culture, decision-making culture, insurance, and visas, required in the new target country/market of a firm. An important part of the BF officers' work is finding the right or relevant local stakeholders and contacts for the Finnish market entrants and further connecting them with the appropriate local service providers, experts and consultants (such as lawyers, insurance brokers, media and PR offices) as well as potential investors. Business Finland's export promotion offices follow, by and large, the prior work of Finpro. The longer-term work on innovation support and foresight activities is reduced or nonexistent.

The internationally located BF officers emphasized that firms contacting BF export promotion offices tend to be very heterogeneous in their needs. The means and tools to help companies are chosen case by case. Many firms that have already entered other foreign geographic market areas or countries need country-specific coaching when they enter new geographical markets. The differences in the regional markets are substantial, and prior international market experiences, e.g., when the firm moves from the European or Asian markets to the US markets, are not adequate: entry involves substantial fixed costs. For instance, in the United States, it is of utmost importance for firms to have product liability insurance – a fact that many potential market entrants are not aware of, according to one of the interviewed BF officers. BF officers also disseminate information concerning relevant local events, activities and networks that might help a firm engage in the new country (e.g., seminars or meetings targeting start-ups and events connecting academic research and enterprises, such as Media X in Stanford).

One practical problem the BF officers expressed relates to the small scale of their international offices. There are typically only a few employees per BF international office, and they have to be able to respond to the needs of companies coming from a wide variety of business areas. Generally, there are market-specific local contacts and networks, and the BF officers do not have existing networks for all business areas. The creation of business area-specific networks requires a plenty of time - *"lots of invisible work beyond services offered to the companies, not recorded anywhere"* as one of the BF officers described it. There are some emerging market areas in which Finnish firms might have great potential (e.g., re-

newable energy, clean tech), but certain BF international offices do not have any experts or officers working in these market areas, making it difficult to provide guidance to Finnish market entrants.

Prior customers of BF's export promotion services may also be of help in BF's information dissemination activities. BF officers sometimes contact Finnish firms that have successfully entered foreign markets, e.g., when they need speakers for events to disseminate knowledge or share incumbents' experiences in local markets.

FOLLOW-UP INFORMATION OR IMPACT ASSESSMENT OF COMPANIES THAT HAVE USED BF EXPORT OR INTERNATIONALIZATION SERVICES

There are generally no systematic impact assessments of the firms that have used Business Finland's export and internationalization services. This is primarily due to a lack of resources in BF's international offices.

Some BF officers reported that they follow up with their customers to obtain feedback on service impact and to inquire whether there is a need for further guidance or help. Even if BF officers find time to inquire about company feedback, the sparsity of responses from companies may hamper efforts to assess service impacts. One of the respondents formulated the problem as follows: *"Yes, I try to follow up on companies' progress in my country and their use of BF's services. However, it is sometimes challenging to make an impact assessment based on the feedback from companies as the companies do not always get back and reply to the queries."*

Business Finland's headquarters asks for feedback from the customers regarding their export and internationalization services, e.g., concerning the firms' subjective views on whether and how the export promotion services they used have influenced their business activities.

THE MOST SUCCESSFUL TOOLS AND BEST PRACTICES PROMOTING FIRM GROWTH AND EXPORT ACTIVITIES

Some of the respondents emphasized the importance of collaboration with the officers of other countries' export promotion offices. There were only three BF officers in the Nordic Innovation House of Palo Alto (California), but the community of workers providing export and internationalization support for Nordic companies amounted to approximately 50 people (of which approximately 40 were Danish). According to the experiences of Silicon Valley BF officers, Nordic collaboration has turned out to be an extremely fruitful way to promote Finnish firms' internationalization activities. The joint Nordic network organizes, for instance, accelerator programs for the start-ups, a joint program for projects aimed at transforming research into business opportunities as well as for various shorter training programs (e.g., in health tech). The Nordic Innovation platform is a collaboration platform for parties involved in innovation activities, and it has proven to be a good service platform for BF cus-

tomers. Joint Nordic collaboration has not taken place to the same extent in the other Nordic Innovation Houses abroad as in California.

One of the means that the BF officers mentioned as a successful in facilitating the Finnish firms' internationalization is the market-specific sparring of the firms entering the new geographical markets.

Both the reactive responses to the firms contacting the BF officers and various proactive means (e.g., BF program and actions targeted to certain markets) were regarded as important for facilitating the Finnish companies' internationalization and entry into the new markets. Additionally, individual advising, B2B workshops, networks, and funding tools that encourage companies to explore new markets were mentioned as important means to promote firms' internationalization.

NORDIC INNOVATION HOUSE

Nordic Innovation and Nordic government agencies co-founded Nordic Innovation House in 2014. There are currently five Nordic Innovation Houses worldwide: three in Asia and two in the United States. Their purpose is to promote innovation and cross-border co-operation and trade between Nordic companies. They provide global innovation hubs and a strong community with local connections for firms that are starting to export overseas. The purpose of the Nordic collaboration in internationalization is to bring Nordic entrepreneurship, values, and the Nordic way of doing business to the global innovation ecosystem. Nordic Innovation House provides services for helping companies to adapt to local business ecosystems such as local co-working places and connections, mentors, and new inspiration and innovation programs.

The first Nordic Innovation House was established in Palo Alto, Silicon Valley (California) in 2014. The primary aim was to build the Nordic community and network to support startups with high-quality mentors, investors, and funding opportunities. To become a member, a company must be from a Nordic country, operate in the tech industry and have a plan to enter the US market. Typically, members are high-quality tech startups, scaleups, or growth companies.

Map of the Nordic Innovation House locations

Nordic Innovation House – Silicon Valley with about 50 workers provides a co-working space and resource center for the Nordic community, and export and internationalization services for Nordic companies from startups to corporations. The members of Nordic Innovation House benefit from its strong local community, connections, and programs to scale and refine business ideas. The main purpose is to provide Nordic companies with radical acceleration, scale, and speed for the new and current business ideas. Also, Nordic Business House offers for their members meeting rooms and office spaces. They host a series of events and have a research frontier for Nordic companies to collaboratively tackle future challenges. Nordic Innovation House offers a series of panel discussions and blog posts for interested companies that want to be a part of the Silicon Valley Nordic Innovation cluster. ■

GREATEST OBSTACLES TO FINNISH COMPANIES' INTERNATIONAL GROWTH

According to the BF officers, many Finnish firms aiming to enter new markets abroad do not have a realistic picture of how fierce competition is in foreign markets, such as in the United States. The BF officers also mentioned inadequate know-how and competence as substantial obstacles to Finnish firms' growth in international markets. Potential Finnish market entrants often lack understanding of the functioning of their new target markets, do not know the local regulation or legal requirements for the products or services (e.g., what information is required on the product packages), do not recognize the main competitors of the firms' own products and have a poor understanding of their potential customers. One of the BF officers expressed the greatest bottlenecks or obstacles to the growth of Finnish companies abroad as follows: *"Importance of local market knowledge; i.e., companies are not client/market oriented enough. One-size does not always fit all, and companies often underestimate the importance of understanding the foreign clients and their needs and lack the ability to adapt products/services according to the foreign clients' needs and preferences."*

A common problem for the Finnish companies aiming at entering the US markets is, according to the local BF experts, the companies' lack of understanding of the scale of investments, effort and time needed to successfully enter the markets. Finnish companies' failure to successfully enter foreign markets and grow internationally is often the consequence of insufficient investments in planning, know-how and competence and inadequate focus on the firm's key product or service area in the new markets. The BF officers also perceived that the Finnish firms' investments in marketing are often inadequate: *"The Finnish companies have very small or almost nonexisting marketing and sales promotion budgets. In a large market such as the USA, marketing and sales promotion activities are crucial to attract the attention of potential target groups."* The BF officers further mentioned that the firms' insufficient focus on their core competences and own specific market areas is characteristic of many Finnish companies contacting them. In their experience, firms' efforts to enter various new markets in terms of geography or products in a large country, such as the United States, tend to fail.

Market entry requires substantial funding, as it often takes one to two years before firms generate any income flows. In the United States, it is challenging for foreign firms to obtain access to local venture capital funding, as the majority of local venture capital firms require that the firm they fund be registered or have headquarters in the United States.

Internationally located BF officers viewed the negative selection of companies contacting them as one of the obstacles in their own work to promote the international growth of Finnish companies. The group of companies contacting the BF officers comprises a substantial number of firms whose foreign market success seems highly unlikely. The BF officers cannot introduce or recommend such companies to their own local networks, such as venture capital investors. This would damage the BF offices' own reputation and subsequently impede their efforts to help potentially successful companies enter the foreign market. Resources are wasted, as some companies that have already been refused BF internationalization support services sometimes persistently contact different BF officers within the same office and even in different countries.

The fact that BF's internationalization and export support services are available to all Finnish companies free of charge is interpreted as a right to obtain BF's export promotion services. However, due to limited resources, the BF officers are compelled to choose from among the contacting firms those whose internationalization activities to promote.

6 CONCLUSIONS

Our study focused on the question of whether the Finnish small and medium-sized enterprises' use of publicly funded services for internationalization impacts their growth in terms of turnover, value added, employment, exports and labor productivity. Business Finland has offered services promoting Finnish firms' internationalization only since the beginning of 2018. Therefore, the available statistical data did not allow us to conduct any analysis on the influences of the new Business Finland-led activities on firm growth. Instead, we assessed the effects of Finpro's (i.e., the predecessor of Business Finland in export promotion) services on firm growth using data from 2009 to 2017. The estimated models comprise up to six years lag structure in the impact of Finpro service usage (i.e., the impacts of Finpro service usage on firm growth is assessed up to six years after the firm used export promotion services).

Our empirical work provides some evidence on the growth impacts of firms' use of Finpro's export promotion services. The sales of the companies that used Finpro's internationalization services grew more than the sales of their counterparts. We also explored whether the use of Finpro's export promotion services had impacts on the tails of the firms' growth distribution rather than the firms' growth performance, on average. Our estimation results indicate that Finpro service use decreases a firm's likelihood of switching to the lowest 10% sales and employment growth quantile. Furthermore, the simultaneous use of Finpro services and the reception of R&D subsidies increase the probability that a firm switches to the highest 10% sales growth quantile. These findings of the sales boosting effect are consistent with those of various previous empirical studies that identify positive impacts of export promotion programs on firm performance (Broocks & Van Biesebroeck, 2017; Munch & Schaur, 2018; Van Biesebroeck et al., 2015).

We did not find any impact of Finpro's internationalization services on the export of goods. One potential explanation for the higher performance of Finpro's customers in terms of sales but not the export of goods is that it is rather the service-oriented companies that grew internationally due to the use of export promotion services. We did not, however, have comprehensive data on service exports to empirically explore this question.

The major economic justification for using public resources for export promotion activities arises from information asymmetries and externalities. Private aggregate investments in searching for information and exploring foreign business opportunities may be lower than would be optimal from the perspective of society as whole. The divergence between private and social investment incentives arises from the positive spillover effects generated for third parties or competing firms (i.e., leaked information benefiting other companies). Our study empirically assessed the presence of information spillovers via the employees working in the management, R&D activities or planning moving from the companies that were Finpro customers to those that were not. The idea was that the internationalization information and know-how obtained via Finpro's export promotion services might have spilled from hired employees to companies that were not using Finpro's services and further promoted their growth. We did not find any clear spillover effects materializing as a higher growth of companies that had hired employees from the firms using Finpro's internationalization services.

The survey and interviews of Business Finland officers located in the United States and Europe note the heterogeneity of the service needs of potential Finnish market entrant companies contacting BF offices. There are certain country-specific factors (e.g., concerning visas and insurance) that all firms should be aware of before entering new markets. To reduce their own workload and to more widely disseminate such information and knowledge, Business Finland officers could formulate country-specific advice packages for Finnish companies planning market entry. Given the need to keep such information up-to-date, easily discoverable online information (platform) directing companies to the relevant information sources might serve this purpose. However, BF officers emphasize the importance of market or business area-specific knowledge (e.g., local regulation) for companies entering a specific country's markets as well as the market specificity of local service providers, consultants and potential investors. Such information is best disseminated via personal contacts with BF officers.

Our data do not allow us to identify whether the Finnish export promotion policies have facilitated firm sales growth through the extensive margin (i.e., by increasing sales growth in new markets) or intensive margin (i.e., by increasing the sales of already exported products). The export data were available only at the aggregate level – we would have needed country-specific (and optimally, product-level) export and Finpro's service usage data to tackle that question. The international empirical evidence on the question of whether export promotion policies operate through the extensive or intensive margin is mixed (Görg et al., 2008; Van Biesebroeck et al., 2015). Furthermore, the operating models, policies and resources of export promotion agencies vary across countries.

It is uncertain whether and to what extent the heterogeneous nature of export promotion agencies is the underlying reason for the mixed international empirical results and how applicable and useful the findings are for the Finnish innovation policy.

Our empirical analysis employs a rather rough indicator for export promotion service usage. The employed measure reveals merely whether a company used Business Finland's export promotion services; it hides a multitude of different means and practices promoting firms' internationalization. To provide better guidelines for Finnish export promotion policies, it would be necessary to begin to collect more detailed information concerning the forms and types of export promotion services offered to companies. The first step would be to formulate a uniform data collection form with well-organized classifications for the different types of services and actions (e.g., advice services, contact provided to venture capital investor) as well as customer contacts (e.g., one-time, count of times contacted) provided by BF's international offices. The next steps towards a more precise impact assessment of BF activities, including both internationalization services and R&D subsidies, would require information on all applicants or all firms contacting Business Finland to either obtain R&D funding or export promotion services. To assess the impacts of R&D subsidies, the objectives or uses of subsidies should be recorded more precisely. The total amount of R&D subsidies granted and applied for as well as the total size of the subsidized R&D project would be useful information for future impact evaluations.

The development of state subsidy data collection along these lines would enable empirical research providing information on the efficiency of different forms and types of export promotion services. It would further provide answers to a broader question regarding to what extent and by what means Business Finland's interventions are reaching the objectives of the subsidies and subsidized services.

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ANNEX TABLES

TABLE 1. Direct effects of the firms' use of Finpro's export promotion services: a standard fixed-effects difference-in-differences estimation results.

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
POST_EXPORT_SERV	0.046	0.004	-0.068**	0.268	0.011
	(0.029)	(0.031)	(0.028)	(0.266)	(0.025)
CUM. COUNT OF EXPORT SERV.	0.020	-0.002	0.050***	0.054	-0.014
	(0.016)	(0.020)	(0.016)	(0.164)	(0.019)
Observations	76038	75474	76038	76039	75363
Firms	9047	9047	9047	9047	9047
Wald(Model)	52.682***	55.134***	19.558***	11.209***	6.947***
R2(between)	0.343	0.446	0.215	0.014	0.022
R2(within)	0.235	0.269	0.323	0.030	0.043
R2(overall)	0.046	0.317	0.229	0.013	0.022

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, and CUM. SUM OF R&D SUBS., firm-level fixed effects, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE 2. Direct effects of the firms' use of Finpro's export promotion services and R&D subsidies at the same time: a standard fixed-effects difference-in-differences estimation results

	SALES	VALUE ADDED	LABOR	EXPORTS	PRODUCTIVITY
	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.	COEF./S.E.
POST_BOTH	-0.186	0.024	0.131*	0.261	-0.032
	(0.198)	(0.113)	(0.069)	(0.525)	(0.070)
CUM. COUNT OF EXPORT SUBS.	0.108*	0.013	-0.017	0.374	-0.022
	(0.060)	(0.044)	(0.033)	(0.267)	(0.039)
Observations	18555	18421	18555	18555	18391
Firms	2235	2235	2235	2235	2235
R2(between)	0.156	0.064	0.052	0.058	0.003
R2(within)	0.262	0.209	0.352	0.096	0.119
R2(overall)	0.121	0.053	0.064	0.051	0.005

Notes: Other control variables in the estimations were LABOR, SALES, CAP_TO_LAB, ACADEMIC, COLLEGE, AGE_EMP25_34, AGE_EMP35_44, AGE_EMP45_54, AGE_EMP55_70, R&D_EMP, AGE, FOREIGN_OWNED, GOV_OWNED, GROUP, and CUM. SUM OF R&D SUBS., firm-level fixed effects, treatment years' dummies, calendar years' dummies, 29 industry dummies and ELY-region dummies. Reported standard errors are based on a clustered sandwich estimator. Statistical significance: *** p<0.01, ** p<0.05, * p<0.10.

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