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***Export promotion policies: Evidence of export upgrading  
mechanisms***

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**“Políticas de promoción de exportaciones: Evidencia sobre mecanismos de promoción de exportaciones”**

Resumen

Este trabajo analiza la evidencia sobre los mecanismos que explican los cambios en el desempeño exportador. En primer lugar, se analiza la evidencia del impacto de las agencias de promoción de exportaciones (APEs). En segundo lugar, se analiza la evidencia sobre mecanismos de programas de promoción de exportaciones (PPEs). Entre los mecanismos analizados, la evidencia muestra una mejoría en el desempeño exportador para *learning-by-exporting*, los costos de entrada, las certificaciones de calidad y la provisión de servicios de consultoría para exportación, mientras que no es concluyente para la difusión de información sobre exportaciones y el desarrollo de capital de *management*. El primer hallazgo es la escasa evidencia disponible sobre mecanismos que expliquen los cambios en los resultados de exportación de los PPE más frecuentemente por APEs. El segundo hallazgo es la falta de evidencia de mecanismos de mejora de las exportaciones sobre exportadores esporádicos y la poca evidencia sobre no exportadores. Las ganancias de mayor evidencia sobre los mecanismos de las políticas de promoción de exportaciones son prometedoras.

Palabras clave: Exportaciones, promoción de exportaciones, mecanismos, revisión

**“Export promotion policies: Evidence of export upgrading mechanisms”**

Abstract

This paper is focused on evidence of export upgrading mechanisms. In the first place, I review the evidence of export promotion agencies (EPAs). In the second place, I analyze the evidence of export upgrading mechanisms underlying export promotion programs (EPPs). Among the reviewed mechanisms learning-by-exporting, entry costs, quality certifications and marketing service provision present evidence of export performance improvement, whereas export information dissemination and managerial capital development present inconclusive evidence. The first finding is the scarce available evidence of mechanism that explains changes in export performances of most frequent EPPs implemented by EPAs. The second finding is lack of evidence of mechanisms of export upgrading on sporadic exporters (and little evidence for non-exporters). Gains from further research into export promotion policies mechanisms are promising.

Keywords: Export, export promotion, mechanisms, review

Códigos JEL: F13, F14, F19

## **Export promotion policies: evidence of export upgrading mechanisms**

Export promotion policies (EPPs) cover a wide variety of tools and instruments of public policy at governments and non-government disposal. From trade fairs and export oriented credit lines carried out by governments, to in-company training on export procedures and export consortiums carried out by business chambers, export-stakeholders implement a set of different activities with one common aim: to boost firms' exports performance. Even though all EPPs share this goal, they may differ in their levels of effectiveness at tackling barriers to export. Understanding differences among EPPs is key not only for the academic community, but also for policymakers interested in disentangling the mechanisms behind export performance enhancement. Moreover, accounting for EPPs' expected results is fundamental for a proper assignment of scarce public and private resources to export promotion agenda.

Usually, the export promotion literature and programs reviews propose a classification in terms of EPA's impact like Lederman et al. (2010) and Volpe Martincus et al. (2011), market frictions as in Shu & Steinwender (2019) and Atkin & Khandelwal (2019), firms upgrading drivers in Verhoogen et al. (2020), and effects of globalization in De Loecker & Goldberg (2014). However, EPPs can be distinguished by various other dimensions such as aimed export outcomes, institutions in charge of the implementation, specific beneficiaries of public policy, specific market and/or firms/industry frictions, targeted mechanisms accountable for enhancing export performance, among others.

The focus of this review will be on mechanisms of export upgrading, rather than outcomes or institutions of export promotion. While some papers, such as Volpe Martincus et al. (2011), contribute providing evidence of EPAs' impact on export performance, they do so disaggregating the outcome of interest from effects on the aggregate bilateral trade (such as intensive and extensive margin disaggregation). Rather than opposing the "outcome specific" classification, in this paper I propose an alternative and complementary approach to the analysis of EPP impact.

I address the EPPs impact literature dividing it in two groups: mechanism specific EPPs and mechanism non-specific. I define mechanisms specific interventions as those that shed light on the underlying root of the intervention impact. In other words, I define them as those interventions that provide a causal chain that explains intervention's results. For instance, Iacovone et al. (2019) propose business management practices as a mechanism

which might explain potential changes in export performance. Whereas specific mechanisms EPPs are defined as those which propose a specific channel accountable for a causal relation between an intervention and export performance, non-specific mechanisms EPPs are defined by opposition to the aforementioned group. To cite an example, Volpe Martincus et al. (2011) estimate the impact of export promotion agencies (EPAs) policies on the extensive and intensive margin. As I previously stated, EPAs policy agenda is formed by a large number of activities and tools with specific objectives and underlying mechanisms. Hence, interventions which evaluate the impact of export promotion policies from EPAs as a homogeneous set of policies, regardless from the specific implemented tool, fail to identify the channels behind the export behavior.

But first, why is it important to understand firm-level mechanisms that are accountable for EPP impact? From a public policy perspective, the ultimate goal of understanding and collecting evidence of different theories of change is to efficiently allocate scarce resources in the EPP agenda. Properly understanding such mechanisms allows policymakers to make budget allocation decisions based on a cost benefit analysis, maximizing the impact of policies on beneficiaries. Furthermore, since the relevance of mechanisms could be correlated with firm/markets/industries characteristics, evidence could help policy makers to precisely match EPPs with beneficiaries' needs to overcome specific export barriers. In addition, for a given mechanism there could be different policy approaches or tools to exploit it. Hence, once a mechanism is found to be a driver of better export performance, it could trigger innovative approaches to exploit it (because the return of the EPP is less uncertain). For instance, based on an extended literature of business management practices and its impact on productivity upgrading (Bloom & Van Reenen, 2007; Bloom et al., 2013, 2019), Iacovone et al. (2019) provide evidence of group consultancy outperforming individual consultancy in improving firms' managerial capabilities.

A key difficulty of this approach is that it is not totally clear whether an intervention is mechanism-specific or not, since, at the end, the discussion is based on the level of detail of the proposed "story" that explains the causal relation of interest and the available evidence to support it. Even not perfectly conclusive, this classification helps to understand the different tools and available evidence for policymakers on mechanisms (on different levels of aggregation) of export upgrading.

The EPP environment is a vast and diverse system of stakeholders. Export promotion agencies, chancelleries, private export associations, chambers of commerce, professional consulting organizations, multinational organizations, and academic community, among others, invest time, money and efforts developing tools, producing knowledge and enhancing export ecosystem (i.e. national quality system, tariff policies, free trade agreements, export infrastructure, etc.) with the final purpose of integrating the world economy through more trade. Despite considerable evidence of the role of EPA on firms' export performances, little evidence is available of the actual mechanisms that explain changes at the firm level. Gains from properly identifying export upgrading mechanisms not only could be capitalized by governments interested in developing their EPP agenda, but also by the entire system of stakeholders interested in enhancing economies' export performance.

The rest of the paper will be organized as follows: in the first section, I will briefly review the existing evidence on EPA effectiveness on export behavior. The EPAs effectiveness literature will be divided into country-level and firm-level evidence. In the second section, I will review available evidence of mechanism specific EPPs, to point to the underlying mechanism suggested in each paper, identify and summarize the identification strategy, present the main results and make further considerations from each evaluation of EPPs. Finally, in the third section I will end with some concluding remarks.

## **1. Section I: Export promotion agencies**

Economic justification of government involvement in export promotion is usually based on asymmetric information and other market failures hindering firms to enter and survive in export markets. In recent years, several works have shown substantial evidence highlighting the positive impact of EPAs in countries' export performances. The literature of EPAs impact on export performance can be broadly divided between country-level and firm-level evidence.

### **1.1. Country-level EPAs evidence**

Among the former group, Rose (2007) focuses on the role that diplomatic representation in import countries has on export performance. Exploiting a cross-country

database of 22 exporter and 200 importer countries from the 2002-2006 period, they use a gravity model to identify the effect of diplomatic representation on import countries. They found that exports seem to rise between 6% and 10% for each additional consulate. Moreover, they suggest that creation of an embassy has larger effects than additional consulates. Going one step further, Volpe Martincus et al. (2011) analyze the effect of opening EPAs trade offices in import countries on bilateral trade. Using a LATAM firm's dataset of the 1995-2004 period, they estimate a gravity model finding that opening trade organizations offices in importer countries is associated with better outcomes in extensive and intensive margins. However, these effects are not uniform across margins and they seem larger in helping firms export more number of products than increasing average exports. Lederman et al. (2010) explore EPAs budgets impact on bilateral trade flows. Based on a 103 developed and developing countries survey of EPAs they present evidence suggesting that a 10% increase in EPAs budget leads to a .6% to 1% increase in national exports. Furthermore, they present evidence that EPAs board members with a mixed public and private sector composition have better export performances.

Some analyses explore the impact of specific EPAs' on their bilateral trade. Gil-Pareja et al. (2015) use a gravity model to assess the impact of Spanish Regional Export Promotion Office's (REPO) on bilateral exports. Using data over the 1995-2011 period, they find evidence suggesting that REPO effectively impacted on export along the intensive, product-extensive and market-extensive margins. Furthermore, effects are larger for all exporters in the extensive margins and for differentiated products exporters in the three margins.

Other papers analyze EPAs effects and compare them with other trade promotion policies. Hayakawa et al. (2014) examine the effect of EPAs on Japan and Korea exports. Using a gravity model to account for endogeneity, their results indicate that establishing an EPA office in a partner country is equivalent (in terms of export value increase) to signing free trade agreements (FTA) with that country. In addition, they find that EPAs' effects are larger for manufactured products than for non-manufactured products. Finally, the EPAs' effects are larger for low-income trade partners than for high-income ones.

## 1.2. Firm-level EPAs evidence

Firm-level evidence of EPAs impact on exports is also substantial. For developing economies EPAs impact on export has been largely a subject of study. Volpe Martincus & Carballo (2008) apply matching differences-in-differences to identify effects of PROMPEX, Peruvian EPA, export promotion activities. Their evidence suggests that PROMPEX activities were efficient in expanding export's extensive margin. However, they find no evidence of effects on intensive margin. Volpe Martincus & Carballo (2010a) apply a similar non-parametric methodology to assess Uruguay XXI's, Uruguayan EPA, impact on firms export behavior. They find that Uruguay XXI helped firms to reach new markets (especially non-OECD) and export new differentiated products, but no evidence of impact on intensive margins. Volpe Martincus & Carballo (2010b) exploit a Colombian exporter's database over the period 2003-2006 to assess whether PROEXPORT, Colombian EPA, helped improve their beneficiaries export performance. Using a matching differences-in-difference estimator, they show that PROEXPORT helped firms increase their export performances along the intensive and extensive margins. In addition, they find that bundled assistances (e.g. consulting service and trade fair) outperform individual assistances, suggesting gains from EPPs complementarity. Volpe Martincus & Carballo (2010c) use a semiparametric quantile treatment estimator to identify the heterogeneous effects of PROCHILE's, Chile's EPA, services along the distribution of export outcomes using a dataset covering all Chilean exporters over the 2002-2006 period. They show evidence suggesting that effects are stronger in the lower tail of the distribution of total exports and in the upper and lower tail of the distributions of number of countries and number of products. Volpe Martincus et al. (2012) assess the effect of Argentina's EPA, Fundación ExportAR (2007) on firms' export performance. To do so, they apply a matching differences-in-differences estimator over the entire Argentine exporter dataset from the 2002-2006 period. They provide evidence indicating that ExportAR helped Argentine firms to improve their performance along the market-extensive margin. Volpe Martincus & Carballo (2012b) assess the impact of PROCOMER, Costa Rica's EPA, trade promotion activities applying matching difference-in-differences. Using a database covering all Costa Rican exporters from the 2001-2006 period, they show evidence indicating that PROCOMER helped increasing exports along the market-extensive margin of firms which already exported differentiated products. However, there is no evidence of export improvement along product-extensive or intensive margin. Cruz (2014) evaluates the effect

of Brazilian Trade and Investment Promotion Agency (APEX) on the entire manufacturing sector export behavior. Using a matching differences-in-differences estimator they show that APEX helped to promote new exporters. Moreover, the effect is heterogeneous throughout firms' size and sector.

Even though developed economies have better export performance than developing economies, EPAs' impact on former exports has also been a subject of academic and policy concern. Görg et al. (2008) exploit an Irish manufacturing firms' dataset through a matching difference-in-differences finding that, if large enough, government's grants support help already exporting firms to compete more effectively on foreign markets. Nevertheless, they find no evidence of impact on non-exporters to start exporting. Munch & Schaur (2018) exploit a Danish firm-level database and examine if export promotion activities conducted by Denmark's Trade Council (DTC) increase firms export performance. Applying a matching differences-in-differences estimator they show evidence suggesting that DTC helped small firms to increase export performance, export status, raise added value, employment and productivity. Broocks & Van Biesebroeck (2017) evaluate the effect of Flanders Investment & Trade (FIT), one of Belgium's main EPAs, on never exporters' behavior using a database covering almost the entire universe of Belgium firms. Based on the assumption that, after controlling for observables, selection into FIT's assistance is random they identify a higher probability of exporting to extra-EU countries for non-exporter treated firms. Van Biesebroeck et al. (2015) assess the impact of the Canadian Trade Commissioner Service on Canadian beneficiary firms. They also provide evidence of export performance improvement along the extensive and intensive margin, using a matching differences-in-differences estimator. Finally, Van Biesebroeck et al. (2016) study the impact of EPAs support during a great trade collapse. Using a database covering all Belgian and Peruvian firm-level exports from the 2006-2011 period, they exploit the 2008 financial crisis to identify the impact of EPAs assistance on firms survival in export markets. Applying different specifications to account self-selection into treatment their results suggest that, for both countries, supported firms export more because they are more likely to survive in export markets. Being the market extensive margin the main channel for the superior export performance.

The first broad finding is that export promotion impact on never-exporter firms is scarce. Probably due to the fact that most firm-level databases come from customs records

(i.e. databases which only keep track of firms that exported at least once), few works integrate the universe of non-exporters firms to their analysis. For developed countries Grog et al. (2008), Broocks & Van Biesebroeck (2017), and Munch & Schaur (2018) assess EPAs impact on never exporters, providing contradictory evidence of increase in export condition. For developing countries, only Cruz (2014) assesses EPAs impact on never-exporting firms. The second finding is that, although most papers examine heterogeneity of impacts on firms of different size and different product differentiation, the heterogeneity of impact between sporadic and consistent exporters is not addressed. The third finding is that for exporters, most evidence shows that the impact is stronger along the extensive margins than along the intensive ones, especially for the case of developing economies. Finally, the fourth finding is that along the extensive margin, most evidence shows that the impact is larger in the market than in the product-extensive margin.

## **2. Section II: Mechanisms specific EPPs**

In the previous section I briefly reviewed the literature of EPAs impact on export performance. In doing so, EPAs' activities were considered as a whole, regardless of their particularity. However, services provided by EPAs are diverse and each one of them has a particular underlying mechanism accountable for firm's performance improvement. Lederman et al. (2010) describe EPAs services into four broad categories: 1) country image building (advertising, promotional events, advocacy, etc.), 2) export support services (exporter training, technical assistance, capacity building, etc.), 3) marketing (trade fairs, exporter and importer missions, etc.) and 4) market research and publications (general, sector and firm level information of export markets, etc.). Moreover, Lederman et al. (2010) highlight that the largest share of EPAs budget is generally spent on marketing and market research and publications. As previously stated, unveiling specific mechanisms operating behind EPPs is an important task to maximize the impact of EPAs budget.

In this section I will present the evidence of different works that suggest an explicit mechanism underlying export behavior changes. Behind the empirical identification of mechanisms there is usually a theory that provides (or models) the economic phenomena that leads to export constraints and/or market failures and that justifies government intervention. If possible, EPPs' mechanisms will be classified under Lederman's et al. (2010) taxonomy of EPAs services. Those mechanisms that do not classify under

Lederman's taxonomy will be analyzed under new categories. A brief review of the theoretical framework in which EPPs mechanisms rely will introduce the following subsections. When possible, a detailed description of the programs layout will be developed to understand the internal logic underlying the export upgrading mechanisms. Nevertheless, in some cases the information to precisely describe programs' layout is limited by the detail given in the reviewed paper.

One particularly important and transversal issue in the mechanisms' evidence discussion is the identification strategy in which different pieces of evidence base their findings. If the treatment status (eg. being beneficiary of an EPP) correlates with the outcome of interest, the difference between treated and untreated firms could be explained by the selection bias and the treatment status. The impossibility to isolate treatment status' effect in this context is what Angrist & Pischke (2008) described as the selection problem. The causal inference discussion revolves around the impossibility of observing at the same time the outcome with and without treatment of the treated group. Hence, the goal of EPPs' impact evaluations (and more generally, causal inference research) is how to create a counterfactual of the treated group that is free of the selection problem. In other words, how to create a control group that allows identifying the effect of the treatment. The proposed approach to construct this counterfactual is what the causal inference literature calls the identification strategy. At the end, the validity of the causal relationship between the treated status and firms' behavior depends on the necessary assumptions that make the counterfactual an unbiased comparison group.

Some of the evidence I will review relies on the impact evaluation golden standard: the randomized controlled trial (RCT). As Angrist & Pischke (2008) suggest, random assignment into treatment status solves the selection problem since treatment status becomes independent of potential outcomes. However, generating experimental data implies not only certain efforts and constraints in the design of EPPs, but also an *ex-ante* interest in properly identifying causal effects. Hence, when such interest comes *ex-post* implementation of EPPs, or when RCT is not viable, other non-experimental alternatives, such as differences-in-differences (DID) and matching DID, appear as suitable identification strategies. All non-experimental identification strategies differ in that they propose different methodologies to control for covariates that correlate with treatment status and potential outcomes. However, none of them can totally rule out the presence of unobservable selection bias. Having said that, evidence provided by different works should

be properly and carefully analyzed taking into consideration the necessary assumptions to infer causality.

## **2.1. Learning by exporting**

The trade literature has documented several differences between exporters and non-exporters. For example, exporting firms are characterized as larger, more productive, more capital and skilled intensive, and for paying higher wages (Bernard et al., 1995, 2007, Bernard & Jensen, 1999; Bustos, 2011; Hallak & Sivadasan, 2013; Van Biesebroeck, 2005). Furthermore, exporting firms are characterized by paying higher prices for inputs, and for selling products at higher prices (Hallak & Sivadasan, 2013; Kugler & Verhoogen, 2012) and of higher quality (Hallak & Sivadasan, 2013).

Nonetheless, there is still some discussion on whether exporting makes firms more productive, as in Van Biesebroeck (2005) and De Loecker (2007), or if instead more productive firms self-select into export markets, as in Melitz (2003). This discussion is fundamental for the design of export promotion policies. Suppose that the best performing firms (ie. most productive) self-select as exporters, but there are no productivity gains once firms export, then export promotion policies aimed at exporting companies would be misdirected. In such a scenario, EPPs aimed at non-exporting companies with the objective of increasing their performance would be the appropriate response to increase productivity (and enter export markets). On the other hand, if there are productivity gains for firms after they become exporters, EPPs aimed at increasing intensive margin of exports would be appropriate, since one would expect to see improvements in productivity due to exporting. However, since the two explanations are not mutually exclusive, both mechanisms could be operating at the same time.

One of the most influential works, if not the most, regarding improvements of firms' efficiency parameters induced by exporting (learning-by-exporting) is Atkin et al. (2017). In their work they show how such improvements arise in terms of quality-efficiency (higher quality conditional on specifications) or product-efficiency (more output per input conditional on specifications). They suggest that these improvements might be triggered by knowledge transmission from foreign buyers to firms and/or by a learning-by-doing process.

Atkin et al. (2017) conducted the first learning-by-exporting RCT by randomly assigning export orders to a set of rug producers from Fowa, Egypt (main Egypt's rug producer district). In general terms, their treatment induced exporting by reducing matching frictions between firms and sophisticated foreign buyers. Before analyzing the experiment results and its implications I will briefly go through the mechanics of the intervention.

To carry out the experiment, they made an association with two partners: Aids to Artisans<sup>1</sup> (ATA), an international marketing expert, and Hamis Carpets<sup>2</sup>, a local intermediary. Hamis Carpets was in charge of securing export orders with ATA's marketing assistance. In particular, they discussed with potential foreign buyers pricing, delivery time, and product specifications (design, colors, and materials, among others). In June 2012, Hamis Carpets and ATA secured a large enough<sup>3</sup> export order from a German buyer. Treatment firms were then visited by a representative of Hamis Carpets and were provided the opportunity to fill an initial export order. More precisely, Hamis Carpets showed them the rug design, explained that the carpet would be exported to a high-income country, and offered them an order of 110 m<sup>2</sup>, which translates to about 11 weeks of work. As in any typical buyer-producer relationship, firms could make inquiries about specific details from the export order.

Matching local producers with foreign buyers requires a large number of capabilities and knowledge of export markets and investment that usually non-exporter firms do not possess (later in this review we will focus on programs aiming at specific frictions). Hence, the treatment mainly relaxed all these matching frictions (or requirements of necessary assets) at once, in order to assure an initial export order to firms.

Results came up in two different dimensions: profitability and product quality. On the one hand, results indicate that the treatment causally increased firms profit somewhere between 19% and 37% (depending on profits measure). Even though they are not able to distinguish foreign from sophisticated domestic buyers, high-quality demanding buyers are scarce in developing countries. When they disaggregate profits between rug price, quantity produced, wage per hour, rental rate of capital and fixed costs of production, they find that treatment increases rug prices between 43% and 78% whereas rug output falls between -

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<sup>1</sup> A US based NGO with the objective of creating economic opportunities for producers of handmade products in developing countries.

<sup>2</sup> The largest intermediary in Fowa (around 20% of the market). At the time, Hamis earned 70% of its sales in the domestic market, mostly selling to distributors and retailers in Cairo, Alexandria, and Luxor.

<sup>3</sup> Large enough to secure a minimum number of participating firms.

26% and -47%. Regarding costs, they find that no employees were hired due to treatment. Nonetheless, impact in labor comes on the total hours worked by employee, with a 5% to 8% increase. Finally, the number of looms (rental rate of capital) shows no variation between groups, and fixed costs decreases significantly for treatment firms.

On the other hand, they find substantial evidence of product quality increase. They measure 11 dimensions of rug quality on a 1-5 scale. From all measures, only one didn't show a significant increase for the treated firms while, on average, the treatment group significantly outperformed the control firms by .79 to 1.35<sup>4</sup>.

Atkin et al. (2017) suggest two possible mechanisms operating behind these results, emphasizing that they are not mutually exclusive. The first one suggests that firms always knew how to produce high-quality products demanded from high-income markets. If that is the case, when foreign buyers offer higher prices for higher quality products, firms will optimize and upgrade quality with their given technical production parameters. Hence, in this scenario export opportunities induce a movement along the production possibility frontier (PPF). In the second scenario firms lacked knowledge of how to produce high-quality products demanded from high-income markets. This is the so called learning-by-exporting scenario, where export opportunity generates a shift in the PPF induced by knowledge transfers and/or learning-by-doing (that would not have happened in absence of exporting).

Empirically detecting learning-by-exporting is challenging due to self-selection of efficient firms into export markets. However, exploiting the exogenous variation or market-access (in particular orthogonal to firms' efficiency parameters) they suggest 5 arguments in favor of the presence of learning-by-exporting.

Firstly, they present evidence of significant increases in specification-adjusted parameters of productivity and quality, consistent with a shift of the PPF rather than movements along the curve. Secondly, they asked all firms to produce an identical specification (with the exact same loom and inputs) rug in a 'quality lab', and treated firms produced higher quality rugs with the same inputs. This finding is also consistent with changes in efficiency parameters. In third place, they present time-series data showing how quality and productivity smoothly increase with export production. Rather than a discontinuous adjustment (consistent with the preexistence of the production knowledge),

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<sup>4</sup> This is a considerable increase given that the standard deviation at baseline was .55.

this suggests a learning process. In fourth place, they analyze records of correspondence between foreign buyers, Hamis and firms, and find that treated firms improve quality mostly along the particular dimensions discussed with Hamis. This evidence not only implies the existence of learning-by-exporting, but also suggests that knowledge transfer plays an important role. Finally, they show that firms made no monetary or time investment on upgrading (to raise output or quality) since they did not find any that was not captured by labor or capital measures.

These findings are of the utmost importance when it comes to the export promotion policy agenda. First and foremost, when compared with supply-side interventions the impact on profitability is bigger. As suggested by Atkin et al. (2017), one possible interpretation of these findings is that supply side interventions might have considerable effects in absence of binding constraints on demand. Conditional on this interpretation, bundled interventions might achieve better results, where more standard supply-side complements with a demand-side component. Secondly, they shed light into an alternative channel of knowledge transmission from export markets. Traditionally, knowledge transmission EPP interventions focus on different schemes (in-company, on class, individual, group, etc.) of firm consultancy, in which experts in different subjects teach firms. Demand-side type of programs might favor a more direct channel of knowledge transmission.

However, some important considerations regarding the reach of this evidence should be made. Only 12% of the sample's firms had knowingly produced for export markets at baseline and the average sample firm had 1 employee. Hence, it remains unclear if the learning-by-exporting mechanisms could be extended to already exporting or bigger firms (ie. higher efficiency parameters and larger firms).

In addition, when trying to exploit this export upgrading mechanisms in other contexts, one should be aware of other dimensions that might arise as important in the learning-by-exporting process. In the first place, the preexistence of a product's specific foreign demand plays an important role. Not only was the intervention focused on a specific product (rugs), but a specific type of it (duble rugs). They intended to generate export opportunities for four different types of rugs, but this was only successfully achieved for one type (duble rugs). When trying to extend these findings to a potential export-access-market program these implications should be properly taken into consideration. One of the mechanisms that explain learning-by-exporting is knowledge transfers from export markets.

Hence, learning-by-exporting could be limited to products with preexistent demand in export markets.

Secondly, product differentiability could play a significant role in learning-by-exporting gains. On one extreme, since profit increase is mainly triggered by quality upgrading, if the product is a perfect commodity there is no space for quality-differentiation and quality-upgrading. On the opposite, in a differentiable product case -such as rugs- there is quality-differentiation space and potential gains from quality upgrading.

In third place, learning-by-exporting could be extended not only to other quality parameters, but also to other efficiency parameters of production functions. As every industry, the rug industry has its own specificity of product quality. It may be the case that other products and other industries value other dimensions, such as traceability for agro-industry products.

If exporting generates more profits and increases quality performances of firms, why do firms not willingly export? As stated by the authors, it took both partners more than two years of work to generate sustained export orders from clients in high-income countries. And even then, success was not guaranteed. Behind these facts there are two possible explanations to our question. First, uncertainty about profitability of incurring in investments and the cost required for export business might deter firms from exporting. The other explanation is that there is a foreign buyer-matching cost that firms might not be able to pay upfront. Credit market failures combined with lack of knowledge of foreign markets (how to systematically obtain, analyze and process export market data), difficulties to adapt products or production processes to foreign requirements, and problems to comply with regulatory requirements, might also deter firms from making suitable matches with foreign buyers. Understanding these matching costs is of the utmost importance for both policymakers and academics.

In a nutshell, there is robust evidence suggesting that learning-by-exporting is a relevant mechanism of firms' profitability and efficiency enhancement. Although Atkin et al. (2017) cannot distinguish between foreign buyers and high-quality demanding domestic buyers, evidence indicates that profitability is increasing due to buyers paying higher prices for higher quality products in export markets. Hence, market-access export promotion policies based on a learning-by-exporting mechanism might be a relevant mechanism of firms upgrading to achieve better export performances.

Since the objective of this intervention was to understand if exporting improves firms' productivity, whether this intervention was cost effective remains unclear and leaves space for future work.

## **2.2. Export support services**

### **2.2.1. International quality standard certifications**

One of the most documented differences between exporters and non-exporters is product quality. Since Linder (1961) first introduced the role of quality as a driver of bilateral trade several empirical works have contributed to that literature. Schott (2004) and Hummels & Klenow (2005) present evidence supporting supply-side relationships between income per-capita and quality production. Hallak (2006) provides demand-side evidence of quality as a bilateral trade driver and a relationship between income per capita and quality choice.

There is consistent evidence suggesting that developed markets have stronger preferences for higher quality products. Hallak & Sivadasan (2013) develop a theoretical model which introduces product productivity dimension, allowing to model firms' ability to develop high-quality products. Their theoretical predictions suggest that, conditional on firm size, exporters sell higher quality products, charge higher prices, pay higher input prices and higher wages, and use capital more intensively. They test the models' predictions using plant-level data from India, the United States, Chile, and Colombia. In doing so, they find that exporters are more likely to obtain ISO 9000 certification conditional on firm size (probability premium is at least 7.5% higher for exporters). In addition, Buttle (1997), Brown et al. (1998) and Withers & Ebrahimpour (2001) find positive correlation between direct measures of product quality and ISO 9000 certifications, and Verhoogen (2004; 2008) also uses ISO 9000 as a proxy of product quality.

Quality upgrading policies are frequently implemented by governments and EPAs. For instance, Alfaro-Serrano (2019) explores the effects of *Innovate Perú*, a Peruvian program that granted firms with a subsidy to certify process standards, such as ISO 9000. However, there is little firm level evidence available of the impact of quality certifications on firm export behavior. Volpe Martincus et al. (2010c), Masakure et al. (2009), and Sun & Ouyang (2014) suggest that ISO 9000 certification has positive effects on exports. From a public policy perspective it is essential to understand the mechanisms through which

quality certifications impact export behavior to properly design policies and target firms which benefit the most from them. Mechanisms and heterogeneities of impact of quality certifications can take several expressions. Asymmetric information between exporters and importers regarding production and product quality are usually described as a non-monetary trade barrier. Hence, quality certifications could help signaling exporters' quality and reduce related information costs. Alternatively, since compliance with quality standards requires in most cases organizing production processes in a more efficient way, keeping track of process' steps, generating records of failures, and monitoring performance, such changes may lead to an increase in productivity. In that case, quality certifications could help firms overcome fixed costs to penetrate export markets and/or gain share in markets with previous presence, resulting in a potential increase in export performance on extensive and/or intensive margins.

Volpe Martincus et al. (2010c), assess the impact of ISO 9001:2000 certifications on export using firm-level data from the whole Argentine export population during 1998 - 2006 period. To do so, they consider ISO 9001:2000 certified firms as beneficiaries of the certification treatment. However, since ISO 9001:2000 certifications are not randomly assigned among firms and certification status is correlated with other determinants of export behavior, the authors adopted a non-experimental identification strategy to deal with selection bias. They estimate matching differences in differences, which controls for time invariant (observable and unobservable) firm characteristics, as well as common to all firms' time variant characteristics that might be correlated with certification and export behavior. Therefore, the causal identification of the ISO 9001 certification effect on export behavior relies on the non-existence of time-varying unobserved effects, correlated with certification status and export behavior. It is worth noting that, as previously mentioned, in non-random settings selection bias into treatment status cannot be totally accounted for, hence strong assumptions should be made to assign treatment causality of results.

Compliance with ISO 9001:2000 standards means that the firms have and are systematically using a well-documented quality management system. The ISO 9000 series specify a set of standardized requirements covering several areas such as product design, manufacture, delivery, service, customer support, among others. Not only firms must have verifiable production routines and procedures that allow monitoring the firms' sequential steps, but also establish measurable objectives and indicators at every procedure step (and

along all firm procedures) in order to collect data and monitor the quality system performance.

As regards results, they find evidence of an overall increase in total exports, number export destinations and number of products due to ISO 9001 certification. In particular, total exports are 15.2% higher for certified firms, the number of export destinations are 7.4% higher and the number of products 3.8% higher. In other words, evidence shows that certifications favor firms export performance in product-extensive, market-extensive and intensive margins.

As the importance of having ISO 9001 might vary across countries depending on their quality demand, impact on export behavior is also likely to vary across countries. Volpe Martincus et al. (2010c) find evidence suggesting that effects on export behavior are greater in firms exporting to higher income countries (demanding higher quality). Total export increase for certified firms exporting to OECD is 14%, while for firms exporting to non-OECD is 11.6%. The same pattern is present in the extensive margin. With a 4.8% and 4% increase in the number of countries and number of products exported to OECD countries, and a 3.7% and non-significant effect to non-OECD countries, respectively.

The heterogeneous impact of ISO 9001 can vary across product differentiability. For instance, in differentiated products where product specificities are relatively more important than in commodities, information asymmetries regarding quality could be larger and have more importance. Volpe Martincus et al. (2010c) show evidence that certification effect on export performance is higher for differentiated products using Rauch product classification. In particular, the export values and number of markets increase 12.2% and 5.8% for differentiated products (for number of products they find no significant effect), while for homogeneous products they find no significant impact in any of the three dimensions.

To sum up, evidence shown by Volpe Martincus et al. (2010c) suggest that ISO 9001 certification helped Argentine firms to boost their export performance on the intensive margin, product-extensive and market-extensive margins. Furthermore, effects are larger for firms exporting to high income countries and for firms exporting differentiated products.

These findings are consistent with both aforementioned underlying mechanisms. On the one hand, correcting product quality information asymmetries might have greater

benefits when demand for quality is higher. On the other hand, certification compliance could improve firms' productivity, hence making them more competitive in more profitable markets. Once again, these findings are consistent with both underlying mechanisms. When product quality specifications are an important product characteristic, asymmetric information dimensions could be larger; therefore closing information asymmetry gaps could explain greater gains. Alternatively, productivity increments due to certifications could help firms exploit differentiation margins of their products, in order to enter and compete in export markets. Hence, there is not enough evidence to support or disregard any of the two possible underlying mechanisms.

### **2.2.2. Managerial capital**

Previously, we analyzed evidence of the impact of exporting on efficiency parameters, in particular in production and product quality efficiency. Differences in productivity between exporters and non-exporters are consistently documented in the literature, and as other drivers of firm productivity, there is a strong correlation for managerial practices. Hence, export promotion programs aimed at boosting productivity and export performance through managerial quality improvement arise as an important approach in the EPP agenda.

Bloom & Van Reenen (2007) describe two groups of management practices models that account for differences in firms' good management practices. The first group of models is the optimal choice of management practices. In these models, since improving management practices is a costly activity, firms will compare expected benefits against these costs and choose an optimal level of management adoption. In other words, differences in management practices arise from efficient decisions of heterogeneous firms facing different trade-offs. The second group is the managerial inefficiency models. These models suggest that management practices reflect differences in firms' efficiency, hence leading to exogenous differences in management practices. Bloom & Van Reenen (2007) suggest that if poor management were entirely an optimal choice with no exogenous efficiency differences, then badly managed firms should be no less profitable than well-managed ones. However, they find that management practices positively correlate with firms' profitability. Bloom et al. (2013) suggest that although they find a causal relationship

between better management practices and higher productivity, firms do not previously adopt them mainly because of informational barriers.

Inspired by Bloom et al. (2013), Iacovone et al. (2019) conduct a managerial capital development RCT in the Colombian autoparts sector. To do so, they test two alternative approaches: individual-based consultancy and group-based consultancy. They randomly assigned firms into three groups: one received individual-based consultancy, another group-based consultancy, and the last one (control) did not receive treatment at all. As in the previous section, I will briefly describe the intervention before going through the results. Although not explicitly aimed at export performance outcomes, authors wonder whether changes in sales are being triggered by domestic or foreign buyers, hence providing evidence on export promotion effects.

To conduct the experiment they partnered with the Colombian government and the Colombian National Productivity Center (CNP by its' initials in Spanish), a non-profit institution with the mandate to contribute to the increase of Colombian business productivity, competitiveness and innovation. The CNP, responsible for the development of the measures of business practices, classified management practices along five core areas: financial (made up of 29 individual practices), human resources (20), logistic (31), marketing (22), and production (39). All 141 practices were scored on a 1-5 scale.

The intervention consisted of two phases: diagnostic and treatment. During the first phase, all firms (control and both treatment groups) received a diagnostic of the development state of their management practices. This phase had two fundamental objectives: the first one was to survey the samples' baseline of management practices, and the second one was to identify priority practices to tackle during the next phase. To carry out this phase each firm received a consultant team formed by five specialists (one per practices area) and one lead consultant. The diagnostic phase dynamics was intensive and succinct. Over a two weeks period, each consultant held five meetings with responsible managers of their specialty to evaluate the practices of each area.

The treatment phase consisted of two different branches. The individual-based consultancy branch provided in-company technical assistance to a sample's sub-group of firms over a 6-month period. Each firm had a team of five specialist consultants (one per practice area) and one lead consultant assigned. The individual treatment began with a 100 hours (20 hours per area) training stage, where firms were familiarized with the theoretical

framework and concepts of modern management business practices, accompanied with a set of practical exercises to apply to their firm. Once this stage was over, firms received 100 4-hours sessions to implement improvement plans developed during the diagnostic phase. Overall, individual consulting treatment consisted in 500 hours in-company consultant time where heterogeneous plans and schedules were implemented.

The group-based consultancy branch provided technical assistance in a classroom setting to a samples' sub-group of firms, over a 6-month period. Like individual-based consultancy, each firm had a team assigned of one lead consultant and a consultant per area. Treatment started with a 40-hours training stage in a classroom setting where groups of 3 to 8 firms (of non-competitors producers) send the firms' employees responsible for treated areas, followed by 92 4-hours group consulting sessions. Overall, the group-based branch firms received 408 hours of consultancy each. Unlike individual treatment, consultants had difficulties to directly assess implementation changes in logistics and production areas. Therefore these differences were alleviated with a monthly visit to plants from the consultants, and by asking firms to provide documental evidence of the implemented changes.

It is clearly evident that management practices are not a firm performance indicator per se. However, as we previously stated, better management practices are strongly associated with better productivity performance. The hypothesis being tested in this experiment responds to two fundamental questions. The first one asks: does individual and/or group consultancy improve management practices? While the second one is: does individual and/or group consultancy improve firms' sales or employment? Hence, the first question's fundamental reason is to shed light into the suggested mechanism behind changes in performance.

Regarding individual and group treatment impact on practices adoption, they find an 8 to 10% increase for both treatment groups on the overall practices index. When disaggregated into areas they show that all practices significantly increase for both groups as well. Moreover, they present evidence suggesting that this effect persists at least one year after the implementation. Between 48% (individual branch) and 52% (group branch) of the 141 practices showed statistically significant improvements. Among the most improved practices they find those related to defining strategic goals and objectives, setting up master budgets, and monitoring key performance indicators (KPI), whereas the smallest numbers of improvements were seen in human resources and logistic practices.

Regarding impact on firms' outcomes they explore two dimensions: employment and sales. They show evidence indicating that group-based treatment induced an increase of 6 to 7 employees (around 12% increase), while individual-based treatment induced no change in employment.

Results on sales show no evidence of a significant difference between treatment and control groups, but there is a statistically significant difference between impacts of the two treatment branches (individual treatment showed no variation in percentage points, whereas group treatment increased from 9 to 10% although not statistically significant). Here the main concern arises when they wonder if these outcome variations are being triggered by export sales or domestic sales. They analyze whether treatment branches induced more firms to export (extensive margin) and the exported amount conditional on exporting (intensive margin). None of the margins shows a significant variation in comparison with the control group, which suggests that all variations from sales might be being triggered by domestic buyers.

Despite not finding conclusive causal evidence of managerial capabilities upgrading on export performance, the results shown by Iacovone et al. (2019) are of significant importance for EPP policy agenda. In the first place, one of their most conclusive evidence suggests equal practices adoption gains from individual and group consultancy. Hence, from a cost benefit analysis perspective, the group-based approach performs better than individual-based consultancy. This finding is vital when considering scaling up EPP programs that often rely on a consultancy based approach. Secondly, authors provide qualitative evidence from consultants' surveys on possible explanations of a low or partial effect on management practices. Consultants agreed that nearly 60% of the firms mistakenly consider changes in actual practices not to be profitable. Consistent with this observation, they also found extra barriers when getting family-run businesses to focus on improvements. Simultaneously, the lack of data culture prevented firms from recognizing their own flaws, hence investing consultancy time in defining and implementing KPI at the expense of dealing with "quick wins" in specific practices that might result in better business performance.

Finally, the absence of export behavior changes might suggest that, in order to achieve export performance improvements in firms, changes in the consultancy's content or intensity should be considered. One possible explanation might be that management practices introduced during consultancy were not export oriented. Artopoulos, Friel &

Hallak (2011) show case evidence from Argentina suggesting that firms that consistently export to developing countries base their business management on a completely different system of business practices that differ drastically from those prevailing in domestically-oriented firms. Hence, there is not enough evidence on the impact of the causal relationship between management capabilities upgrading and export performance.

### **2.2.3. Other export support services**

Atkin & Khandelwal (2019) suggest that one of the most plausible reasons why information frictions persist to be a binding barrier to trade is the high cost of search and matching. In particular, market credit failures and the absence of low-cost export consulting providers may be leaving SMEs with tight financial budgets out of the export consulting service market. Hence, EPPs that alleviate financial constraints to enter export consulting service markets might help firms improve their export performance.

Cadot et al. (2011) and Figal Garone et al. (2017) analyze two EPPs that implement different approaches of subsidies to access the export consulting market. Cadot et al. (2011) assess the effect of a matching grant that co-funded up to 50% of (outsourced) consultancies to improve export business plans, whereas Figal Garone et al. (2017) assess the impact of totally funded (and centralized) consultancies to improve export business plans.

As previously stated, one of the key issues to precisely identify specific mechanisms is the level of disaggregation of the analysis proposed in each work. Although being more focused than general grants for export investment such as analyzed by Görg et al. (2008), Cadot et al. (2011) analysis of matching grant provision is less restrictive than other specific EPPs such as Iacovone et al. (2019). In the same way, Figal Garone et al. (2017) analyze the provision of a heterogeneous technical assistance. In both cases, technical assistance varies across firms' experience in export business and particular needs. Technical assistances consisted of training in market research, product's packaging redesign, production of advertising material, training for trade fairs, among others. Due to this diversity, one would expect these EPPs to have impacts triggered by a variety of underlying mechanisms.

Cadot et al. (2011) analyze the impact of FAMEX, a matching grant program that formed part of a World Bank loan to the Tunisian government. The program's rationale

was that Tunisian firms were scarcely informed about foreign markets and lacked resources to gather and analyze it, therefore faced numerous difficulties identifying appropriate target markets, market segments, and sales channels.

The program provided firms with a matching grant, co-financing up to 50% of the cost of export business plans improvements. Firms interested in applying to a FAMEX grant had to submit an export business plan focused on one of three possible objectives: i) become a substantive exporter, ii) diversify exports destination markets, or iii) develop new export products. Once submitted, export business plans were reviewed by a panel of local and international experts, who accepted or rejected the FAMEX application. Accepted export business plans received technical assistance from the FAMEX team (outsourced to specialized consulting firms) to help them improve their plans. The vast majority of grants were used to finance: i) market prospections (e.g. market studies, trade fairs, visits to prospective buyers), ii) promotion (e.g. production of information and marketing, advertising, mailings, stands in trade fairs and exhibitions), iii) product development (e.g. product design modifications, package design modifications, trademark registration), iv) firm development (e.g. training on organizational issues such as setting up an export oriented business plan), and v) foreign subsidiary creation (e.g. assistance for the establishment of a facility abroad). All accepted firms had at least one previous export experience, hence there were no non-exporters on the program firms' sample.

Since participation in the program was not randomly assigned as in a RCT context, the proposed causal identification strategy and its assumptions are essential for the internal validity of the results. The main difficulty of properly identifying the causal effect of the FAMEX treatment is to eliminate the selection bias that makes firms receive treatment and may be correlated with potential outcomes. In case of failing to do so, estimations could be tampered by selection bias.

Cadot et al. (2011) deal with selection bias by using two approaches: propensity-score matching difference-in-differences (PSM-DID) and propensity-score matching weighted least squares. PSM (partially) controls selection bias by comparing differences on post-treatment outcomes and pre-treatment of treated firm outcomes and “observationally similar” control firms. Causal identification in this context requires assuming that treatment status is independent of potential outcomes, conditional on pre-treatment covariates. However, not every potential biasing pre-treatment covariate can be controlled. Bias

induced by time varying unobservable variables cannot be controlled on non-random experiments. If this is the case, estimation could be biased and causality wrongly identified.

Results are measured considering three export outcomes: i) total exports in Tunisian dinars, ii) number of export destinations, and iii) number of export products. In the short term (i.e. the year of the intervention), treatment effect estimations suggest a significant increase of 50% of total exports, 15% of number of export markets, and 14% of number of products. The effect remains persistent only for the two latter variables in the year after treatment (but smaller, 9% and 7% respectively), and only for the number of destinations two years later (5%). Hence, results suggest a strong but short effect on intensive margin and moderate but persistent effects on extensive margin.

When disaggregating effects by usage of the grant, results show that market prospection and promotion activities had the biggest impact with a significant effect on all three variables up to four years after treatment. Firm development had a significant positive effect only four or five years after treatment (presumably due to the gestation period required to see benefits on export returns from management investment). On the contrary, product development and foreign subsidiary creation had no significant returns in any dimension.

FAMEX's sample of firms plays an important role regarding external validity of results. Firstly, since no non-exporting firms received treatment, particular barriers to trade of non-exporting firms are not captured in their results. Secondly, only firms with approved export business plans received treatment. Although there is not enough detail on the approval procedure, weaker business plans which might not be approved are those which a priori need more assistance to reach a better performance in export markets. Despite considerable efforts to eliminate selection bias, results should be interpreted within its own limitations. These results may have planted the seed of further academic research.

It should be noticed that since the treatment only provides co-financing for technical assistances (and for instance no assistance to find a suitable partner to carry the technical assistance), it only shed light on the financial constraint mechanism that could be limiting firms from better export performances. Some other barriers regarding access to the export consultancy service market might be still binding. For instance, firms might lack information to find the suitable match to improve their export business plan, hence contracting a suboptimal service.

Another approach to instrument technical assistance and marketing services is through centralized provision. Figal Garone et al. (2017) analyzed the impact of Diverpymex, an EPP implemented by the Credicoop Bank Foundation (CBF) in Argentina from 2002 to 2013. Briefly, Diverpymex provided free of cost technical assistance to help Argentine SMEs to export by assigning them consultants that supported and accompanied firms in different export business development stages.

As in Cadot et al. (2011), the rationale proposed by Figal Garone et al. (2017) suggest that credit constraints and information frictions (e.g. difficulties in designing and implementing successful export strategies, obtaining valid and reliable information on external markets, correctly matching products with markets, complying with international quality norms and standards, among others) limit firms' entry to and/or expansion of export markets. With these barriers in mind, Diverpymex aims to help firms accessing information, gaining knowledge and accumulating experience to deal with the diverse complexities of export business.

The main difference with FAMEX is that the provision of technical assistance is centralized in CBF, therefore if difficulties to find a suitable consulting match in the consulting services market present as a binding constraint (as suggested by Figal Garone et al. (2017)), *ceteris paribus* (and assuming that CBF had better knowledge of export consulting services markets in order to achieve a better matching), this type of implementation should outperform a decentralized one, such as FAMEX. Differences in consulting intensity, quality and content might also be fundamental differences among programs. However there is not enough detail to compare both programs in those dimensions.

Diverpymex consisted of three stages: i) firm assessment, ii) elaboration of export market diversification plan (EMDP), and iii) execution of the plan. During the first stage, a program coordinator and a consultant visited each participant SME to gather information about its organization, operations and product offering. Once information was collected a CBF committee evaluated firms' export potential and decided if they received technical assistance. At the second stage, the consultant assisted the firm to develop an export market diversification plan where they did research and chose potential export markets, contact potential clients, and decided which products are suitable matches with selected markets. They also established objectives, budgets and plan activities, and analyzed financial, facilities and staff requirements to fulfill the plan goals. Finally, at the third stage the

EMDP was implemented through training in specific export related activities, such as delivery and insurance, quality and environmental standards, design and packaging, marketing channels and tax legislation, among others.

Due to non-random assignment of technical assistance Figal Garone et al. (2017) adopts a lagged dependent variable model which allows them to compare firms with similar evolution in the outcome of interest before they receive program treatment. The casual identification assumption behind this model is that there are no other sources of endogeneity between program participation and outcomes of interests, once controlled by lagged outcomes and other observable covariates. As in Cadot et al. (2011), in these non-random settings strong assumptions are necessary to infer causality from treatment and in most cases selection bias due to unobservable characteristics cannot be totally ruled out.

Results are reported in three dimensions: i) export behavior, ii) firm growth and survival, and iii) productivity. Regarding firms export behavior they find that treatment significantly increased likelihood of exporting by 5.5% and the total value of exports by 10.6%. Export behavior impact evidence shows that they are not constant over time. Impact on the extensive margin appears only in the first two years after treatment, while increase in the intensive margin appears only between the 3rd and 5th year after treatment.

As regards firm growth they show evidence of an increase in beneficiary firms' size of 3.6% more employees and an increase of survival rate 1.4%. These effects are bigger in the short term (5.6% and 2.2%, respectively) and began to disappear in the medium and long term.

Finally, they explore whether beneficiary firms outperformed control firms in productivity measures. The authors present evidence suggesting that the treatment increases beneficiaries' likelihood of hiring skilled workers by 3.6% and, in the long term (more than five years after treatment), increases wages by 1.8%. Due to lack of detailed information the analysis of heterogeneous effects of specific technical assistance cannot be performed for Figal Garone et al. (2017).

There are, however, some considerations that should be taken into account from the implication of Figal Garone et al. (2017) results. First, Diverpymex firms are on average larger, older, paid higher wages, and had higher probability of exporting than the rest of firms in Argentina. Each of these differences should be properly taken into consideration if these mechanisms are to be exploited in a sample of firms with other characteristics. As I

already stated, firms going through different stages of the export business process may be facing different constraints and benefits from technical assistance may differ. Secondly, as in Cadot et al. (2011), non-experimental causal inference should at least be a warning sign over the internal validity of the results. Despite efforts to eliminate selection bias, strong assumptions are necessary in this context to imply causality from treatment on firms' outcomes.

To sum up, facilitating access to export consulting markets seems to help firms achieve a better performance in export markets. However, there is no available evidence for non-exporting firms or sporadic exporters. Furthermore, since export consulting services could be heterogeneous and be aimed to improve specific assets of firms, a deeper understanding of the different mechanisms that are operating across the heterogeneity of export consulting services could enrich the evidence at policymakers' disposal.

### **2.3. Entry costs to export markets**

Export business is a complex process which implies a vast array of different associated costs. While some of them are strictly monetary (input costs, tariffs, shipping cost, taxes, etc.), some of them take non-monetary forms. Among non-monetary costs, entry costs might be binding barriers for SME's to enter the export business. In contrast with domestic sales, selling internationally for the first time requires paying (sunk) entry costs, which implies gathering, understanding, and handling the administrative requisites from different customs and export markets. The importance of entry costs on export dynamics has been a long dated studied subject.

Baldwin (1988), Baldwin & Krugman (1989), and Dixit (1989) introduced the relevance of sunk and fixed costs in the entry and exit on export markets' decisions. Since then, sunk and fixed costs have been a deeply studied subject in export dynamics. Roberts & Tybout (1997) use a Colombian manufacturing firms' database and find that prior export experience increases the probability of exporting in 60%. Das, Roberts & Tybout (2007) estimate that for small Colombian manufacturer producers the average entry cost is between \$412,000 and \$430,000 USD, while for large producers it ranges from \$344,000 to \$402,000 USD. Morales, Sheu & Zahler (2019) present evidence that firms sharing border, language, continent, and similar income per capita with their export counterparts face sunk costs 69% to 90% smaller than those faced by firms that do not share any of that

characteristics with those markets. It is evident that entry costs to export markets are a relevant issue in export dynamics, and therefore should have a special treatment in export promotion and market access policy agenda.

Hui (2016) assesses the distributional impact of reduction in export entry costs through an EPP in eBay. In short, in 2013 eBay launched a special program for sellers in their marketplace which freely removed hassle costs of understanding export procedures. Their evidence suggests that increase in export performance is being triggered by entry cost reduction rather than variable cost reduction or a demand mechanism.

Like in previous sections, I will describe the EPP before addressing this intervention's results and discussing further considerations. As mentioned in 2013 eBay introduced Global Shipping Program (GSP) aimed at eliminating hassle export entry costs for international sellers on their marketplace. To do so, they contracted Pitney Bowes, an experienced worldwide e-commerce firm, to handle customs clearance and international shipping for enrolled sellers, hence homogenizing domestic and international selling procedure for the sellers. Five months before the full launch of GSP, eBay randomly offered the chance to early enroll in GSP free of charge to 20% of all users interacting with eBay. Once sellers enrolled in GSP, buyers paid the same importing and shipping charges to Pitney Bowes that they would have paid if they had independently hired Pitney Bowes services. Enrolled sellers had to choose for each listing whether the item was available only domestically or also internationally. In this last case, when international buyers place a purchase GSP sellers are only required to ship the sold item to a domestic shipping center - certainly a known and usually dealt with process-, and from that point onwards Pitney Bowes handles all the export process. It is worth noting that in economic terms, GSP is a subsidy to foreign market entry costs rather than to variable cost of production.

Results show that having been offered early enrollment to GSP increases export sales between 2.9% and 3.2%. Furthermore, when disaggregating export sales variation (3.2% estimation) between extensive margin (sales to new markets) and intensive margin (sales to previously exported countries) they suggest that almost all the variation in export sales originates from the extensive margin, which significantly changed 3.19%, and not from the intensive margin, which did not significantly change. Furthermore, when analyzing heterogeneous effects on export sales by firm size they suggest that small and medium sellers are accountable for 71% and 28% of export sales increase, respectively. Also, estimations of treatment effect on small and medium firms on export sales evidence a

significant 2.8% and 3.8% increase, respectively, while for large sellers it is of a non-significant .3% change. Results are consistent with a reduction of entry costs to export markets. First, while larger firms are on average more productive and export more (and to more markets) they have already paid the entry cost to export markets; thereby they had no gains from GSP. Secondly, for small and medium firms (which could actually benefit from reductions from entry costs) most of the gains from GSP came from exports to new markets where entry cost was not yet faced.

To properly attribute GSP impact to the entry cost mechanism, one should recognize that sales increase is an equilibrium outcome. Hence, it comes naturally questioning if new equilibrium is being triggered by a demand mechanism or a supply side mechanism and in the latter case if this is a change in marginal cost or an entry cost reduction. Hui (2016) actually observes all international listings, regardless of being eventually sold or not, hence he can actually estimate the impact of GSP on the export supply. Results indicate that export available listings increased 4% due to GSP and the share of international available listings over total listings increased 2.9%. This result suggests a shift in the supply curve, consistent with a reduction in export costs.

Since economic theory implies that changes in fixed costs do not affect sellers' optimal supply output (but rather determines the entry or not to the market), reductions in entry costs can only increase the extensive margin of exports. Therefore, previous results showing change only in extensive margin consistently suggest a shift in the supply curve due to an entry cost reduction.

Hui (2016) analyzes the full launch of the program. Although not based on an experimental identification strategy, he finds that for the overall U.S. eBay firms' sales, quantity, number of firms, and product variety significantly increased 1.27%, 1.34%, 1.12%, and 1% respectively. This smaller effect might be explained by a higher competition within GSP enrolled firms since when the program was fully launched more firms entered the GSP program. Despite the fact that the later findings are weaker in terms of the (stronger) assumptions needed to assign causality to the EPP impact, they show important potential gains derived from EPP aimed at lowering entry costs to export markets.

However, some consideration should be made regarding external validity of this evidence. One significant point to address is that eBay is a particular marketplace. In the

first place, this platform works as a trust system market where matching between sellers and buyers is being facilitated. Hence, some entry costs to export markets are already being alleviated. Secondly, as stated by Hortascu et al. (2009), most goods sold on eBay are home durable goods. This implication is important to the extent that entry costs to export markets might be product specific if customs and import regulations and consumer preferences in foreign countries are so (which much certainly are). Hence, when extending results, product specificity considerations should be an important consideration. In the same way, entry cost's subsidy benefits might be market and industry dependent, both domestic and export market. In this study, evidence showed benefits for one exporting country (United States) and 18 importing countries.<sup>5</sup>

The first step to analyze why firms are not willingly facing entry costs to export markets would be to properly estimate (at least in a partial equilibrium analysis) the net benefits of entry cost's subsidy on export performance results. Unfortunately, Hui et al. (2016) did not perform such analysis. However, since entry costs are usually characterized as sunk costs (only paid once), in the medium or long term export benefits should compensate entry costs.

To conclude, although eBay's market place export rates are significantly higher than other traditional offline markets (partially because eBay sellers face smaller entry costs than in traditional offline markets) an entry cost's subsidy seems to be lifting a persistent binding barrier to export. In this particular context, information asymmetries regarding international selling procedures might be arising as a binding barrier to export. This finding might suggest that some firms are not aware of the actual profitability of exporting through eBay, or that they may believe export is not suitable for them.

## **2.4. Market research and publications**

### **2.4.1. Export information dissemination**

One possible reason preventing non-exporting firms to invest time and financial resources to enter the export markets could be a lack of complete information regarding export costs, benefits, procedures, foreign markets demand, government tools at disposal, etc. Therefore, firms could be not engaging into export business due to information barriers.

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<sup>5</sup> The 18 countries are Australia, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Spain, Finland, United Kingdom, Greece, Hungary, Lithuania, Latvia, Malta, Portugal, Romania, Slovakia, and Slovenia.

As Breinlich et al. (2017) suggest most trade literature (theoretical and empirical) describing differences between exporters and non-exporters usually assume full information and absence of uncertainty. An alternative approach includes uncertainty and information barriers in the firm's exporting decision. One way to include uncertainty in firms' export decisions is to assume that they cannot perfectly map their own capabilities with exporting profitability, leaving productive but pessimistic firms out of export markets. If this is the case, EPPs that transfer information to properly match firms' productivity with export profitability could significantly help firms to export.

Kim et al. (2018) and Breinlich et al. (2017) explore the effects of information dissemination in specific contexts through RCT. The former study analyses export related information during one-day seminars, while the latter evaluates the impact of targeted information through emailed cover letters.

Kim et al. (2018) examine the impact of export promotion seminars on SMEs from the apparel and textile industry in the Red River Delta surrounding Hanoi, the capital city of Vietnam. Since large firms presumably have enough resources to invest in information-seeking activities on their own, they choose the apparel and textile industry mainly composed of SMEs.

In March 2016, they held three one-day seminars, which main objective was to motivate and provide export related information to participant managers. Invitations to seminars were randomly assigned to the sample of firms. All three seminars slightly differ in its content, but participants were not previously informed of their difference. The first seminar consisted of four expositions. First, a business school professor gave a lecture explaining Vietnamese firms' challenges and opportunities in the context of an overall picture of the global economy. In addition, he introduced the basic concepts and methods of firm management. Second, an official of the EPA of Vietnam introduced the basics of an export plan, how to prepare export activity, access to foreign markets information and prepare meetings with business counterparts (partners, customers, traders, buyers, etc.). Third, an official of a Hanoi's non-governmental trade organization and an official of a public Japanese institution talked about how to enter the Japanese market and find Japanese buyers through their online system. Finally, exporter firms from textile industry shared their experiences, how to work with foreign importers, how to overcome potential obstacles and how to gain trust in oversea markets. The second day seminar had the same activities as

day one, plus an e-customs module. Finally, day three included the same activities as day two plus an informal dinner between participants.

The authors analyze the results in terms of three dimensions: whether firms were prepared (and how much) to export, how firms subjectively perceived difficulties in export activity, and whether firms export or not. To do so, they surveyed firms before and after (only once, three month after) the seminars took place. They find no evidence on significantly different outcomes in any of the three dimensions.

However, this work presents one flaw that may be accountable for the non-conclusive evidence: low take up of random assignment. From the 151 firms assigned to the treatment group only 38 participated in seminars (a 25.1% of take up rate). Non-compliance in their experiment was one way, namely randomly assigned firms to the treatment group did not attend the seminars. Hence, the random assignment is not a strong instrument of firms' participation in seminars. There are two possible explanations behind the absence of a significant impact on export behavior. One is that low take up, in addition to a small sample (248 firms) and an *a priori* small treatment effect, might be the key issues behind not finding the treatment effect. Whereas the second explanation is that the real treatment effect is indeed zero. To discard the first explanation (evidence in favor of the second one) a power sample analysis should be made, in order to assure that the probability of finding the minimum detectable size effect conditional on the sample size is near the literature's standard (usually 80%). Since Kim et al. (2018) did not perform the power sample analysis their evidence is neither conclusive of a positive nor a zero treatment effect.

From a policy point of view, although the resulting treatment effect on export performance could be small, it is important to find conclusive evidence since this EPPs approach has in general low implementation costs and is very common in EPP agenda.

As Kim et al. (2018), Breinlich et al. (2017) wonder whether lack of full information regarding export costs and benefits, and related uncertainty could be drivers of differences in exporting behavior. They analyze the impact providing export related information in firms' perception towards export costs and benefits and export behavior for a representative sample of the UK manufacturing firms through a randomized controlled trial.

In July 2013 they selected a sample of firms from the FAMA dataset (which contains information about almost 3.8 million firms from UK and Ireland) of manufacturing firms with between 2 and 250 employees. The selected sample resulted in a total of 37,922 British manufacturing firms. From this population of firms they randomly selected a sample of 6,015 to conduct the RCT. From the selected firms, half were selected to be recipients of the baseline survey and an export promotion brochure and the other half only of the baseline survey.

The export promotion brochure had three main sections. The first section included reported benefits of exporting firms. In addition, case studies of successful exporting firms describing their experiences exporting new products and/or expanding new markets were included. The second section consisted in a discussion of potential barriers to exporting, and each one of them matched with UKTI (UK Export Agency) tools at disposal (if any) to overcome those barriers. Finally, the third section consisted in a description of UKTI programs available for firms aimed at export promotion.

Breinlich et al. (2017) present evidence of results in three dimensions. First and foremost, from their baseline survey they document differences in perceptions of costs and benefits of exporting between exporters and non-exporters. As expected, exporters report a significantly higher perception of export benefits than non-exporters, and consider export barriers to be easier to overcome than for non-exporters. Hence, the relevant question is if lack of information plays a role in this difference, and therefore if providing complete information to non-exporters can help closing the gap, or instead it is only driven by other well-known fundamentals (such as productivity, firm size, quality, etc.).

Secondly, they find changes in perceptions due to being randomly selected to receive the brochure. They present evidence indicating that while exporters increase their perceptions of benefits and decrease their perceived barriers, non-exporters increased their perceived barriers and decreased their perceived benefits.

Last but not least, they find little evidence of changes in export behavior. First they analyze the impact of being selected to receive the brochure on export status, export value, number of transactions, and number of exported products finding no evidence in any of the export behavior measures for the whole sample. However, when analyzing heterogeneous effects for exporters and non-exporters they find evidence suggesting that cumulative

export values of treated exporters (at baseline) are significantly higher for the first 7 months, while for non-exporters monthly cumulative impact is not different from zero.

Breinlich et al. (2017) suggest two possible explanations regarding changes in perception. One is that non-exporters were underestimating costs and overestimating benefits, and the information helped them reassess their beliefs (and vice versa for exporters). While another consistent explanation is that results are being triggered by a confirmation bias of their actual export condition which increases perceptions reinforcing actual export status. There is not enough evidence to discard or support any of those explanations of results in firms' perceptions.

While information dissemination does not seem to be helping non-exporters to enter the export business, it might be helping exporters find new export opportunities. These findings seem consistent with non-exporters dealing with more binding constraints (eg. entry costs) to enter and survive in export markets, where the simple alleviation of the incomplete information barriers has no significant impact on its export behavior. However, exporting firms which had already exporting capacity might be finding export opportunities or "quick wins" from the received brochure.

To sum up, evidence of export information dissemination impact on export behavior appears to be yet not that conclusive. Kim et al. (2018) find no evidence of impact on export performance, but low statistical power due to small samples cannot be ruled out. While in contrast, Breinlich et al. (2017) find little evidence of export improvement in the following month to treatment only for previously exporting firms. Hence, there is still space for further research to provide better understanding of dissemination of information on export behavior.

Since these types of interventions are extremely common on EPA agenda, gains from properly identifying benefits (or no benefits) are extremely important for export promotion policies' discussions.

## **2.5. Lessons on export upgrading mechanisms**

The first finding is the little available evidence of mechanisms' underlying export behavior changes of most frequently implemented EPPs by EPAs. Participation in trade fairs, commercial missions to export markets, business rounds, pre and post exporting

credits, technical assistances (in product design, marketing, production processes, regulation compliance, etc.), training in strategic planning of export business, distribution channels' information and export market analysis are some of the most common ways in which EPAs help firms to export. Even more, according to Lederman et al. (2010) the largest share of EPAs budget is spent on marketing and market research and publications. Despite considering those activities as essential in the export promotion agenda, little evidence of mechanisms of specific export policies is available.

Secondly, available evidence of mechanisms does not generally account for beneficiaries' export experience. Lederman et al. (2010) suggest that EPAs spend relatively more budget on established exporters. It is surprising that non-exporters and sporadic exporters occupy a secondary place in the targeted beneficiaries of EPAs. A priori sporadic exporters and non-exporters could be prone to face tighter barriers to export, and therefore benefit more from EPAs assistance. Evidence regarding specific mechanisms explaining export upgrading follows a similar rule. Almost all the studies of evidence on mechanisms analyze impact on exporters, with the exception of Atkin et al. (2017), while little evidence analyzes impact on non-exporters (mostly due to EEPs were not aimed at non-exporters). But the most surprising fact is that there is no evidence of mechanisms of export upgrading on sporadic exporters.

In the third place, evidence regarding specific mechanisms clearly focuses on SMEs. Almost 38% of the reviewed papers are exclusively evaluating SMEs export behavior, while the rest account for heterogeneities of firm size identifying impacts in SMEs. This is result is an a priori expected outcome since, according to Lederman et al. (2010), the budgets of EPAs focuses on small and medium firms, being the latter the EPAs' most frequent client.

In the fourth place, there is more evidence of EPPs accounting for mechanisms of export upgrading implemented in underdeveloped economies than implemented in developed economies. In particular, 75% of the reviewed papers describe evaluations of EPPs implemented in underdeveloped economies. This finding might also be an expected result, since underdeveloped economies are outperformed by developed in terms of export performance probably due to tighter export barriers in the formers.

In the fifth place, 38% of the reviewed papers are sector specific (eg. autoparts, carpets) EPPs evaluations. As stated in the previous section, sector specificity might be an important

issue to consider when identifying mechanisms of export upgrading and understanding their relevance since firms might be facing sector specific barriers to trade. Hence, identifying particularly relevant mechanisms in sectors where economies show competitive advantages might help design precise policies to improve export performance in a more efficient way.

Finally, it is worth noting that mechanisms could be connected with each other throughout spillover effects. For instance, a beneficiary firm of a managerial capital export promotion program focused on production practices improvement could end up obtaining a quality certification, such as ISO 9001 (the same way compliance with ISO 9001 could imply developing better production practices). Furthermore, entering more export markets due to an entry cost's subsidy could lead to a learning-by-exporting process due to higher information flow between foreign buyers and exporters. However, there is incipient evidence of how different mechanisms interact with each other or their complementarity. Alfaro-Serrano (2019) finds evidence of complementarity between the standards' requirements and modern managerial practices (beyond the scope of those linked with the standards' requirements).

### **3. Concluding remarks**

This paper suggests an alternative approach to analyzing the export promotion programs' literature. As aforementioned, export promotion policies and literature reviews usually propose classifications in terms of stakeholders in charge of implementation (Lederman et al., 2010; Volpe Martincus et al., 2011), market frictions (Shu & Steinwender, 2019; Atkin & Khandelwal, 2019), firms upgrading drivers (Verhoogen et al., 2020), and effects of globalization (De Loecker & Goldberg, 2014). However, EPPs differ in various other dimensions such as aimed export outcomes, institutions in charge of the implementation, specific beneficiaries of public policy, specific market and/or firms/industry frictions, targeted mechanisms underlying export performance, among others.

In this review, the focus was set on mechanisms rather than outcomes or institutions of export promotion. Among the reviewed mechanisms, learning-by-exporting, entry costs, quality certifications and financial support for marketing service provision present evidence of export improvement, whereas information dissemination and managerial capital present inconclusive evidence.

Gains from further research into export promotion policies mechanisms are promising. As I previously mentioned, understanding mechanisms allows policymakers to make budget allocation decisions based on a cost benefit analysis that maximizes the impact of policies on beneficiaries.

Notwithstanding the extensive review of evidence accounting for export upgrading mechanisms, this literature review is limited in that mainly assess experimental evaluations of EPPs. Even though RCTs internal validity is fundamental to properly identify casual relationships and their underlying mechanisms, the samples selected in them are both specific and small relative to the entire population of interest. Hence, their external validity is not clear in most cases and the extrapolation of their findings to the population of interest for national policies is at least questionable. Consequently, given the limitations derived from RCTs external validity issues and internal validity of quasi-experimental evaluations, national policies design should feed from experimental and quasi-experimental evidence.

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