 WP-02-2018.E

ITC Working Paper Series

WHAT BANG FOR THE BUCK? EXPORT PROMOTION AND THE EXTENSIVE MARGIN OF TRADE

Version: April 2021

Eleonora De Falcis, Valentina Rollo, and Olga Solleder
International Trade Centre, Switzerland

WHAT BANG FOR THE BUCK? EXPORT PROMOTION AND THE EXTENSIVE MARGIN OF TRADE

Eleonora De Falcis[1]
Alliance of Bioversity International and CIAT

Valentina Rollo[2]
International Trade Centre

Olga Solleder[3]
International Trade Centre

April 2021[4]

Abstract

Export promotion agencies (EPAs) provide support to firms that are willing to expand their operations across borders. This paper assesses whether allocating larger amount of an EPA's budget to new exporters effectively increases the number of exporters. We test this by combining information on EPA's budget allocation with country level indicators of exporters' performance in 27 countries. Our results confirm that allocating more support to new exporters raises the number of exporters. This result is led by budget allocated to small firms, while the number of exporters declines when more budget is allocated to large firms. Our findings reinforce the heterogeneous firms' theory: trade costs affect firms differently, and smaller firms are the ones which could potentially benefit more from targeted support. EPAs can use these results to allocate their budget in a way that is most effective given their policy objectives.

JEL Classification: F13, F14, O24

Keywords: Export promotion; impact evaluation; heterogeneous trade theory; international trade; small firms; the extensive margin of trade.

[1] Eleonora De Falcis, Associate Scientist, Alliance of Bioversity International and CIAT, Via Dei Tre Denari 472/a, 00057, Maccarese, Rome, Italy, e-mail: eleonora.defalcis@gmail.com

[2] Valentina Rollo, Economist, Research and Strategies for Exports, International Trade Centre, Palais des Nations, 1211 Geneva 10, Switzerland; e-mail: rollo@intracen.org

[3] Olga Solleder, Economist, Research and Strategies for Exports, International Trade Centre, Palais des Nations, 1211 Geneva 10, Switzerland; e-mail: solleder@intracen.org

[4] Authors appreciate a significant research contribution by Eric Carlson and Rohit Ticku, and the data from the Export Promotion Agencies Surveys provided by Marcelo Olarreaga. We thank Mauro Boffa, Adam Jakubik, Marion Jansen, Marcelo Olarreaga, Gianluca Orefice, Jasmeer Virdee and participants of the 2019 Annual Meeting of the Swiss Society of Economics and Statistics for helpful comments and suggestions.

1. Introduction

The past few decades have seen a rapid growth in the number of export promotion agencies (EPAs) around the world (Lederman, Olarreaga, and Payton 2006). Now, these agencies have become a nearly ubiquitous feature of the economic policy environment (Volpe Martincus and Carballo 2010). In order to evaluate the efficacy of such agencies, a growing literature has developed that focuses on the impact of EPAs on trade. This research has found positive effects of export promotion for a number of outcomes such as growth in the number of partner countries and growth in total exports (Álvarez E and Crespi T 2000; Lederman, Olarreaga, and Payton 2006; Volpe Martincus and Carballo 2010).

However, while much of the cross-country literature has focused on EPAs' effects on the intensive margin of trade and much of the literature on EPAs' effects on the extensive margin focuses on firms within a single country[5] , there is little cross-country evidence about the effects of EPAs on the extensive margin of trade. A key challenge is endogeneity. For example, countries in which a plurality of firms already export may be more inclined to establish EPAs. Furthermore, export destination performance may encourage EPAs to increase their support for that particular destination, thus creating a problem of reverse causality (Hayakawa, Lee, and Park 2014).

In this paper, we address the issue of endogeneity by using an instrumental variable approach that exploits, for the first time, the information on trade strategies from ITC data. Trade strategies are correlated with EPA support strategies but have the advantage that, being designed in advance by institutions, they are not correlated with the number of exporters[6]. We investigate the impact of an EPA's budget allocation on both the intensive and extensive export margins and assess the efficacy of funds targeted at firms of different sizes. We find that allocating larger EPA budgets to new exporters raises the number of exporters per destination. In addition, we show that this effect is led by an increase in incumbent exporters and surviving entrants. This suggests that export support to new exporters has a stabilizing effect on the export base. Second, we find that budgets allocated to small firms are more effective in raising the number of exporters compared to budgets aimed at larger firms. This result confirm that trade costs are particularly burdensome for small firms (Melitz 2003) and that institutional support can help alleviate them.

Our paper extends the work of Lederman et al. (2016) on the effect of EPA's budget allocation on the extensive margin. Our analysis also considers different budget allocations by beneficiary firm size. Our paper is therefore related to a growing literature offering empirical evidence that firms may not be equally affected by EPA support as they are not equally affected by trade costs (Volpe Martincus and Carballo 2010; 2012; Cruz 2014; Munch and Schaur 2018). In particular, smaller firms face relatively large barriers to participating in international markets (Bernard and Jensen 1999). For example, regardless of size, firms may face similar costs of acquiring information about foreign markets. These costs are more difficult to overcome for small firms which have smaller revenue streams.

This paper makes three main contributions to the literature. First, we provide new cross-country evidence about the effect of EPAs on the entrants of new exporters. Second, we use a novel instrumental variable to generate exogeneous variation in EPA activity across countries. Third, we disaggregate EPA budget data into funds directed at firms of different sizes to uncover the distributional impact of EPA spending.

The remainder of the paper is organized as follows. Section 2 lays out the conceptual framework. Sections 3 and 4 describe the dataset and the empirical strategy, respectively. Section 5 presents the results and section 6 shows additional robustness checks: IV estimation and alternative model specifications. Section 7 concludes.

[5] See Lederman et al. (2010) for a cross-country study on the effect of EPAs on the intensive margin of trade. See Álvarez and Crespi, (2000), Hayakawa et al. (2014), Cadot et al. (2015), and Munch and Shaur (2018), for case studies of the effect of EPAs in Chile, Japan and Korea, Tunisia, and Denmark, respectively.

[6] Moreover, we conduct a sub-sample analysis by progressively dropping the most important destinations ordered by export size in order to further control for endogeneity.

2. Conceptual framework

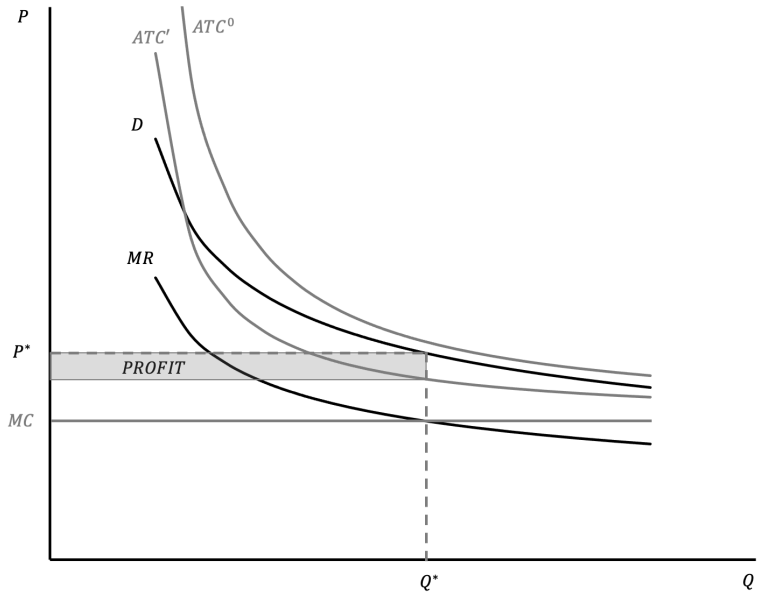
Participation in export markets can enhance the productivity of firms and is therefore important for economic development. Exporting increases firm productivity and stimulates innovation, quality and profitability (Verhoogen 2008; Atkin, Khandelwal, and Osman 2017; Lin 2015; Dai and Yu 2013; Yang and Mallick 2010; Manjón et al. 2013; De Loecker 2013). In addition, exporting encourages firms to diversify their knowledge base through participation in international markets can increase the economic complexity, and overall development of a country (Hidalgo et al. 2007; Hidalgo and Hausmann 2009).

However, firms that want to engage in international trade, generally face more uncertainty about their success compared to domestic firms (Hausmann and Rodrik 2003). Prices and competitors are indeed less predictable to firms that trade internationally. As a result, firms must engage in a number of costly activities when they decide to start exporting, such as acquiring information on market conditions, regulations and possible distribution networks (Allen 2014; Rangan and Lawrence 1999; Volpe Martincus et al. 2010) (Allen 2014; Rangan and Lawrence 1999). The information gathered from these operations can spillover to competing firms (Volpe Martincus et al. 2010). As a result, there tends to be underinvestment in information. Export promotion agencies, which are active in all trade-oriented countries, are aimed at addressing market failures like information externalities.

Because the activities of EPAs are often geared at alleviating these fixed costs of exporting, we expect to see a significant effect of EPA spending on the extensive margin of trade. To see why, consider a monopolistically competitive market with differentiated goods and firms with heterogeneous productivity. The production decision by a firm operating in such a market is shown in Figure 1.

Because products are differentiated, the firm faces a residual demand curve D and associated marginal revenue curve MR. The firm has constant marginal costs of production MC and faces fixed production costs. Hence, the average total cost curve is monotonically downward sloping. The firm produces a quantity that equates marginal costs with marginal revenues. However, average total costs determine whether the firm should be active in the market or not.

Figure 1. Production decision in a monopolistically competitive market



Note: Black lines D and MR represent demand and marginal revenue, respectively. The grey line MC represents constant marginal costs. The grey lines ATC^0 and ATC' represent average total costs before and after assistance from EPAs, respectively. Profits after EPA assistance are shown in the light grey box.

Without the help of EPAs, the average total cost is represented by the curve ATC^0. In this case, the firm would operate at a loss were it active in the market. But when EPAs offset some of the fixed production cost, the average total cost curve shifts down to ATC', leaving marginal costs unchanged. Now, the firm can operate profitably even though the optimal quantity remains the same. As a result, EPA spending, when it

offsets fixed costs, is more likely to encourage new firms to enter the market than to encourage incumbent firms to produce more. This is consistent with the framework set forth in Chaney (2008), which shows that changes in the fixed costs of exporting effect only the extensive margin of trade and have no effect on the intensive margin.

Empirical evidence from individual countries corroborates the theoretical predictions (Volpe Martincus and Carballo 2010; 2012; 2008). For example, Cruz (2014) examines manufacturing firms in Brazil and finds a positive relationship between EPA activity and the entrance of new exporters. In addition, Broocks and Van Biesebroeck (2017), focusing on firms in Flanders, the largest region in Belgium, also find that export promotion assistance tends to increase firms' propensity to start exporting outside the EU.

However, this tendancy is not universal (Cadot et al. 2015). For example, Bernard and Jensen (2004) find no impact of export promotion on the probability of exporting for firms in the United States. Görg et al. (2008) find similar results for Irish firms. In addition, Girma et al. (2009), studying firms in Germany, finds no impact of subsidies on the probability that a non exporting firm becomes exporter.

However, cross-country evidence of the role of EPA spending on the extensive margin of trade is scarce.. A notable exception is Lederman et al. (2016) who pioneered this area using a firm level panel of seven Latin American countries to investigate the effects of using EPA services on entries and exits of firm from international markets. They show that the impact of EPA budget allocation is significant not only on raising export values but also on increasing the number of exporters.

3. Data

To establish the impact of budget allocation on firm's participation in international markets, we rely on combining data from two main sources.

First, we use the Exporters Dynamics Database (EDD henceforth) from the World Bank for aggregated measures on country export characteristics and dynamics.[7] The EDD provides export performance measures using exporter-level customs data as input and covers the universe of annual exporter transactions. From this dataset, we use a few indicators disaggregated at the exporting country-year-destination level.[8]

Second, we draw information on actual expenditure and allocation from the two rounds of the Export Promotion Agencies (EPA) surveys, conducted in the fall of 2005 and 2010 by the World Bank. In particular, we rely on the clean and assembled version of this data, employed and detailed in Olarreaga et al. (2017). The dataset we use is an unbalanced panel across developed and developing countries with information on agencies budget, sources of funding and activities. From this dataset, we use information on EPAs' budget in USD and types of expenditures, namely budget allocated to new exporters and budget allocated to firms of different size.

The budget allocation is not provided in USD, but as a categorical variable. Budget expenditure takes values from 1 to 6, corresponding to the following 6 steps: 0%, <10%, 10-25%, 25-50%, 50-75%, and 75-100% of the total budget. From this information, we build a continuous variable by multiplying EPA's total budget in USD to the upper bound of each step (*i.e.*, 25% in case the expenditure ranges from 10% to 25%). The budget allocations used in this analysis are: budget allocated to new exporters, budget allocated to large firms and budget allocated to small and medium-sized enterprises (SMEs).

[7] Exporter Dynamics Database of the World Bank, is publicly available. It was downloaded from: https://datacatalog.worldbank.org/dataset/exporter-dynamics-database

[8] We use the CYD dataset which provides measures at the exporting country-year-destination country level. This dataset includes measures calculated using only firms that always export a total of more than 1,000 USD.

We also use control variables from other datasets. Information on geographical distance and regional trade agreements (RTA) come from the French Centre for Prospective Studies and International Information (CEPII).[9] Data on GDP per capita are drawn from the IMF World Economic Outlook.[10]

We complement the baseline specification with an IV regression based on data from the Trade Strategies Database of the International Trade Centre (ITC).[11] This database contains export promotion and poverty alleviation plans for more than 150 countries (more information is available in ITC (2017)). From this dataset we use information on the availability and duration of trade strategies upon which more information are provided in Section 4.

We provide a list of all the variables used in this paper (Table A2), as well as summary statistics (Table A1) in the Appendix. After merging the data sources, we are left with a dataset containing information on 27 countries for two years, 2005 and 2010. Countries included belong to different economic groups and income level, specifically this analysis includes as exporting countries: Brazil, Albania, Bangladesh, Botswana, Burkina Faso, Chile, Costa Rica, Denmark, Dominican Republic, Ecuador, Estonia, Guatemala, Jordan, Macedonia, FYR Mauritius, Mexico, Nicaragua, Norway, Peru, Portugal, Senegal, Spain, Tanzania, Turkey, Uganda, Uruguay and Zambia.

Figure 1 shows the average budget allocated to new exporters and the average number of exporters by country for the period 2005 and 2010 for. Some interesting cross-country patterns already emerge. First, the data exhibit high cross-country variation in the number of exporters per firm. Among developing countries, the largest numbers of exporters are found in Turkey and Mexico whereas the smallest pools of exporters are found in African countries. This pattern seems to mirror the countries' size and level of development (Fernandez et al 2015).

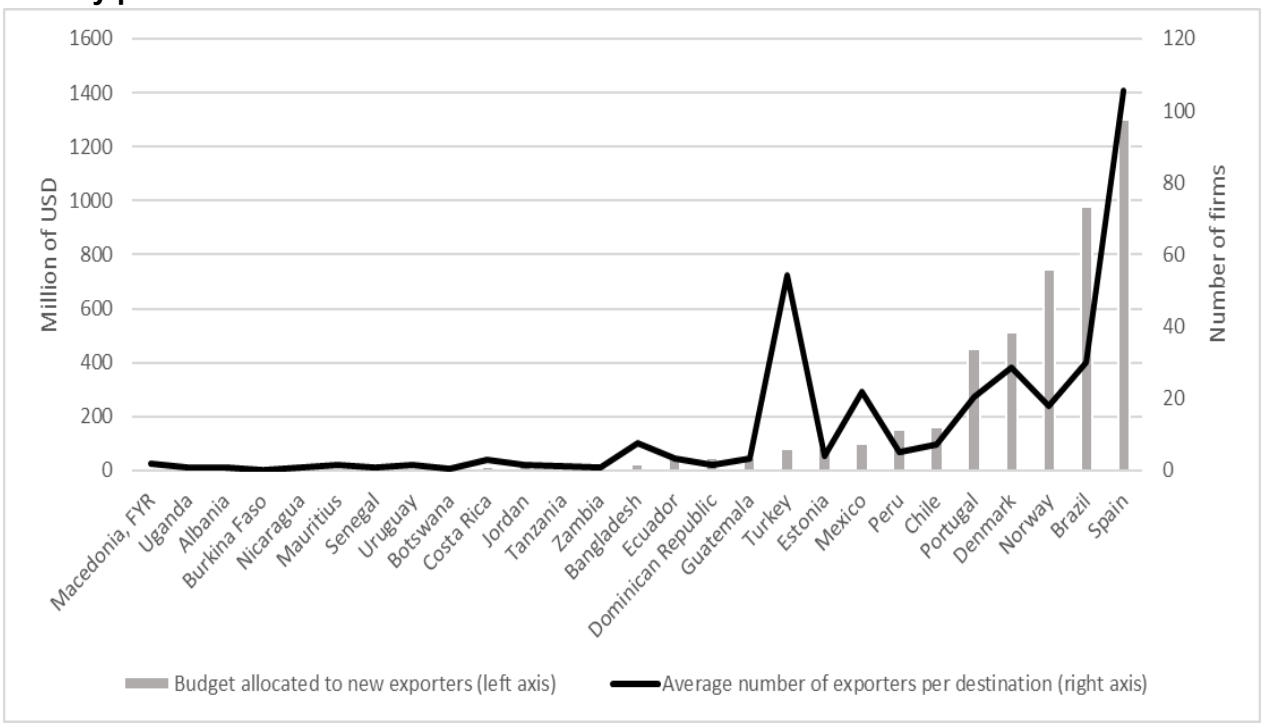
The data also show a positive relationship between the number of exporters and the amount of export promotion activity. The vast majority of countries do not allocate any budget to support new exporters and have a low number of exporters. Few countries only allocate a low budget to new exporters even if they have many exporters. Finally, for a group of seven countries, namely Spain, Brazil, Norway, Denmark, Portugal, Chile and Peru, we can observe a good proportion between allocation of resources and number of exporters.

[9] CEPII databases are publicly available. They were downloaded from http://www.cepii.fr/cepii/en/bdd_modele/bdd.asp

[10] The IMF World Economic Outlook is publicly available. It was downloaded from https://www.imf.org/en/publications/weo

[11] ITC Export Strategy Map is publicly available. The dataset was downloaded from: http://www.intracen.org/export-strategy-map/

Figure 1. Average value of budget for new exporters and average number of exporters, by country per destination.



Source: Author's calculations based on EPA and World Bank data.

4. Econometric specification

We exploit the panel framework of our data to quantify the impact of EPA budget allocation on the number of exporters. To test this relationship we estimate a gravity model of trade. As previously mentioned, our policy variable, EPA budget allocation, is disaggregated at the country-year level, while our output variable – the number of exporters – is available at different levels of aggregation.

Our baseline model is specified as follows:

$$\ln(Y_{ijt}) = \alpha + \beta_1 \ln(Budget\ Targeted_{it}) + \beta_2 \ln(Budget\ Total_{it}) + \beta_3 ln(Distance_{ij}) + \beta_4(RTA_{ijt}) + \beta_5 \ln(GDPpc_{it}) + \beta_6 \ln(Dest\ GDPpc_{jt}) + \gamma_7 Year_t + \gamma_8 Destination_j + \varepsilon_{ijt} \quad (1)$$

In our preferred specification the dependent variable Y_{ijt} measures the number of exporters in year *t* (2005 or 2010), exporting from country *i* to destination *j.*[12] Moreover, our dependent variables also include the number of entrants, the number of exiters, the number of surviving firms among entrants, the number of incumbents and the exporting market concentration as measured by the Herfindahl index (HI). All variables are measured at year *t* (2005 or 2010) from the perspective of the exporting country *i* to destination *j.*

Our covariate of interest is the institutional variable $Budget\ Targeted_{it}$ that indicates spending from the EPA budget targeted a specific segment of firms. We estimate equation (1) using different independent variables of interest. First we use the EPA's budget allocated to new exporters. This is our baseline specification to test the relationship between the budget spent on new exporters and the number of exporters per destination.

Second, we identify channels through which EPA spending increases the number of exporters. Our dataset allows us to test if the effect is heterogeneous across the budget allocated to firms of different size. As such we substitute the budget allocated to new exporters with the budget allocated to SMEs as well as with the budget allocated to large firms. Of note is that we also control for the total budget ($Budget\ Total_{it}$), to avoid any bias due to higher level of resources available to EPA.

[12] Note that in the sample we have only one EPA per country per year.

In line with traditional gravity models, we account for the economic indicators usually correlated with trade, in particular we control for GDP, expressed in per capita terms, of both the exporting and importing country. In addition, at the dyadic level, we control for the logarithm of geographical distance $(Distance_{ij})$ between markets, expected to have a strong negative relationship with trade, and regional trade agreements (RTA_{ijt}), expected to increase trade. The latter terms account for the multilateral resistance terms that are a key feature of general and structural gravity (Head and Mayer 2014).

Our econometric specification controls also for time invariant characteristics that affect the number of exporters to specific countries. In particular, we use year fixed effects to control for year specific economic shocks that might have affected all countries equally, as well as destinations fixed-effects, to control for time-invariant destination specific characteristics that affect exporting countries equally.[13] Further, we cluster standard errors at the country pair level to control for the possibility that disturbances are correlated at the bilateral level. Finally, the notation ε_{ijt} capture the normally distributed error term.

We estimate Equation (1) using ordinary least squares (OLS). Moreover, as a robustness check, we also estimate the Equation (1) as a Poisson pseudo-maximum likelihood model[14] (PPML), a Tobit left censored model and we use an inverse hyperbolic sine transformation in place of the logarithmic transformation in order to avoid omitting the observed zeros.

5. Results

We present two sets of results. First, we show the result of the baseline regression where we analyse the effectiveness of budget spent to support new exporters on the number of exporters. Second, we analyse the effectiveness of EPA budgets allocated to small, medium-sized and large firms. Both sets of results use the gravity framework outlined in the section above.

5.1. Budget allocated to new exporters

The results of our baseline specification are presented in Table 1. We find a positive relationship between budget spent on new exporters and the number of exporters (Column 1). Controlling for distance, trade agreements, GDP per capita, destination, and year fixed effects does not change results, it simply improves the goodness of fit. The estimated elasticities are similar across specifications but, lower when exporters and importers characteristics are accounted for, an impact in line with other trade models.

Overall, the budget allocated to new exporters is effective at increasing the extensive margin of trade, a finding in line with prior research (Cruz 2014; Lederman et al. 2016; Munch et al. 2018; Broocks and Van Biesebroeck 2017). Since EPAs provide services to exporters, our findings suggest that these services would lower the trade costs and increase participation to trade. In fact, being costs lower for all firms, this finding suggests that exporting activity would be relatively more affordable and therefore more firms would participate to trade.

All the control variables have the expected sign and show high significance across models. Interestingly, EPA's total budget has a positive but smaller impact on the number of exporters compared to the budget allocated to new exporters. This suggests that it is not the budget *per se* but rather is its allocation that impacts the number of exporters. In other words, an EPA would need to target its budget, possibly through providing dedicated services, if its objective is to increase the number of exporters.

Our complete baseline model (Column 6) predicts that a 1% increase in the budget allocated to new exporters increases the number of exporters by 0.46%. This result falls within the same order of magnitude as findings in prior literature. For instance, in a sample of firms in Latin American countries Lederman et al. (2016) find that the use of export promotion services increases the relative risk of entering rather than exiting

[13] In our specification we follow the approach of Fernandez et al. (2016). Using our same dataset they use only destination and year fixed effects.

[14] Fernández-Val and Weidner (2016) show that a Poisson model with two fixed effects does not suffer from the incidental parameter problem as long as the regressors are strictly exogenous. Therefore, under very general conditions, inference based on the estimation by ppml including both partner and year fixed effects will not be affected by an incidental parameter problem. We test our specification under strategies that confirm the analysis to be consistent.

an export market by 1.85. However, they use an indicator representing any use of EPA services, while we use a continuous measure of budget spending.

Table 1. Baseline results: spending on new exporters

Dep var: ln (Number of Exporters)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln (Budget Allocated to New Exporters)	0.585***	0.509***	0.455***	0.461***	0.478***	0.460***	0.411***
	(0.011)	(0.035)	(0.028)	(0.027)	(0.029)	(0.029)	(0.038)
ln (Budget Total)		0.091**	0.180***	0.157***	0.152***	0.110***	0.095**
		(0.041)	(0.032)	(0.032)	(0.034)	(0.035)	(0.046)
ln (Distance)			-1.214***	-1.118***	-1.140***	-1.140***	-0.895***
			(0.029)	(0.032)	(0.034)	(0.034)	(0.041)
RTA				0.411***	0.376***	0.332***	0.658***
				(0.063)	(0.067)	(0.068)	(0.088)
ln (Dest GDPpc)					0.322***	0.319***	0.451***
					(0.085)	(0.084)	(0.018)
ln (GDPpc)						0.117***	0.091***
						(0.021)	(0.029)
Destination fixed effects	YES	YES	YES	YES	YES	YES	NO
Year fixed effects	YES	YES	YES	YES	YES	YES	NO
Observations	6,822	6,822	6,585	6,585	5,990	5,990	5,990
R-squared	0.557	0.558	0.709	0.711	0.711	0.714	0.486

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country-pair level. Note: dependent variable is defined at bilateral level (country-pair). The estimating sample for the regressions excludes observations whose corresponding number of exporters is equal to 1.

Lederman et al. (2016) also investigate the effects of the use of EPA services on the probability of surviving in export markets, relative to exiting these markets. To compare our results to these findings, we repeat the estimation of equation (1) using the following dependent variables: the number of entries, exits, incumbents, surviving entrants and HI.

The results from these regressions are presented in Table 2. They show that allocating more budget to new exporters increases “churning”. That is, increasing the budget allocated to new exporters increases both entries and exits per destination. The coefficients for entries and exits are similar, indicating that the two outcomes offset each other. This is not surprising, as new exporters are often small firms, which struggle to survive. Spending on new exporters is also positively affects the number of incumbents. This effect is positive and bigger in magnitude for surviving entrants. This indicates that focusing on new entrants helps them survive. These results are in line with Lederman et al. (2016), and emphasize that services given to entrants are of help not only for the entry of firms into a market but also for their survival.

Finally, we see that when EPAs allocate more of their budget to new exporters, market concentration decreases. This result emphasizes how allocating more resources to new exporters contributes to increasing competition in each destination. This effect stabilizes incumbents and reinforces the strongest among the entrants by allowing them to survive.

Table 2. Baseline results: channels

Dep. var.:	ln (Number of Entrants)	ln (Number of Exiters)	ln (Number of Incumbents)	ln (Number of Surviving Entrants)	ln (Market Concentration)
ln (Budget Allocated to New Exporters)	0.477***	0.492***	0.501***	0.508***	-0.259***
	(0.030)	(0.029)	(0.037)	(0.036)	(0.021)
ln (Budget Total)	-0.001	-0.001	0.030	-0.051	-0.023
	(0.037)	(0.035)	(0.043)	(0.043)	(0.026)
ln (Distance)	-1.033***	-1.026***	-1.088***	-0.946***	0.587***
	(0.033)	(0.032)	(0.037)	(0.036)	(0.025)
RTA	0.220***	0.139**	0.355***	0.253***	-0.103**
	(0.064)	(0.065)	(0.076)	(0.071)	(0.051)
ln (Dest GDPpc)	0.267***	0.305***	0.562***	0.533***	-0.060
	(0.091)	(0.093)	(0.104)	(0.109)	(0.074)
ln (GDPpc)	0.074***	0.065***	0.078***	-0.023	-0.003
	(0.019)	(0.019)	(0.024)	(0.022)	(0.016)
Destination fixed effects	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES
Observations	5,328	5,186	4,677	5,177	5,188
R-squared	0.673	0.678	0.657	0.478	0.478

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country-pair level. Note: dependent variable are defined at bilateral level (country-pair). The estimating sample for the regressions excludes observations whose corresponding number of entrants, exiters, incumbents, surviving entrants and market concentration is equal to 1.

5.2. Budget allocation by firm size

Previous studies of EPAs in individual countries have emphasized the heterogeneous effect of EPA on firms of different sizes. Intuitively, one would expect that trade costs impose a larger burden on small firms relative to large firms. As a result, the impact of EPA services and support may be inversely related to firm size. Although our data do not provide information on exporters by size, we can still test if EPA spending on firms of different sizes has different effects on the number of exporters per destination. If, for example, the budget allocated to small firms has a positive effect on the total number of exporters, we can infer that small exporters are driving this outcome.

The results confirm our expectation and are presented in Table 3. *Ceteris paribus*, we find that the effect of budget allocation decreases with firm size. Only allocating EPA's budget to small firms increases the number of exporters per destination (Table 3, Panel A). The effect is weak for medium-sized firms (Table 3, Panel B) and negative for large firms (Table 3, Panel C).[15]

More specifically, our results indicate that 1% increase of budget allocated to small firms increases the number of exporters per destination by around 0.14%. Instead, 1% increase of budget allocated to medium sized firms increases the same number by 0.07%. Finally, where the budget allocated to large firms increases by 1%, the number of exporters per destinations declines by 0.27%. Spending on large firms may reduce the total number of exporters due to resource reallocation as described in Melitz (2003). As large firms, that likely already export, expand production, they may take resources and labour away from smaller firms. This may make trade costs more burdensome for smaller firms, leaving fewer total exporting firms after the adjustment.

Our results align with prior evidence on the distributional effect of EPAs (Cruz 2014; Volpe Martincus and Carballo 2010; Munch and Schaur 2018). For example, Volpe Martincus et al. (2012) find that, in Argentina, export promotion programs have a stronger effect on total exports and on the number of export markets for small and medium-sized firms compared to large firms.

[15] A test of difference of coefficients is provided in the Appendix (Table A3) and confirm significant differences between the number of exporters when more budget is allocated to small and medium-sized firms as opposite to large firms. Yet, no statistical difference exists between allocating more budget to small and medium-sized enterprises.

We also repeat the previous exercise substituting the dependent variable with the number of entrants, exiters, incumbents, surviving entrants and market concentration, as measured by the Herfindahl Index. We observe that allocating more budget to small exporters increases "churning", *i.e*. both entries and exits per destination increase. On the other hand, coefficients are not significant or even negative when we turn to medium-sized or large firms. [16]

Moreover, we can see that only increasing budget to small enterprises increase incumbent exporters; while surviving entrants increase when more budget is allocated either to small and medium-sized firms but not when allocated to large firms. The effect on surviving entrants shows is only positive only when more budget is allocated to small firms and negative when budget is allocated to medium and large firms. Finally, and in line with all the above, only allocating more budget to SMEs decreases concentration.

Table 3. Budget allocation by firm size

Panel A: Small firms

Dep. var.:	ln (Number of Exporters)	ln (Number of Entrants)	ln (Number of Exiters)	ln (Number of Incumbents)	ln (Number of Surviving Entrants)	ln (Market Concentration)
ln (Budget Allocated to Small Firms)	0.143***	0.238***	0.263***	0.269***	0.377***	-0.053*
	(0.043)	(0.041)	(0.041)	(0.050)	(0.049)	(0.031)
ln (Budget Total)	0.452***	0.273***	0.260***	0.288***	0.092*	-0.239***
	(0.047)	(0.045)	(0.045)	(0.055)	(0.054)	(0.035)
ln (Distance)	-1.166***	-1.025***	-1.007***	-1.067***	-0.921***	0.599***
	(0.036)	(0.035)	(0.034)	(0.040)	(0.039)	(0.026)
RTA	0.293***	0.231***	0.165**	0.382***	0.283***	-0.079
	(0.071)	(0.069)	(0.069)	(0.081)	(0.078)	(0.052)
ln (Dest GDPpc)	0.271***	0.223**	0.240***	0.472***	0.436***	-0.024
	(0.084)	(0.091)	(0.091)	(0.104)	(0.107)	(0.074)
ln (GDPpc)	0.155***	0.103***	0.097***	0.114***	0.008	-0.028*
	(0.021)	(0.019)	(0.019)	(0.024)	(0.021)	(0.016)
Destination fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	5,990	5,328	5,186	4,677	3,991	5,177
R-squared	0.698	0.654	0.657	0.640	0.581	0.460

Table 3. *Continued*

Panel B: Medium-sized firms

[16] Table report results using country, destination and country-destination fixed effects. The estimated within-effects show that, as budget allocated to larger exporters grows, the number of exporters declines. The regression using only budget allocated to large exporters shows no significant effect on the number of exporters.

Dep. var.:	ln (Number of Exporters)	ln (Number of Entrants)	ln (Number of Exiters)	ln (Number of Incumbents)	ln (Number of Surviving Entrants)	ln (Market Concentration)
ln (Budget Allocated to Medium-sized Firms)	0.075*	0.024	0.019	0.011	-0.073***	0.093**
	(0.039)	(0.036)	(0.035)	(0.046)	(0.027)	(0.043)
ln (Budget Total)	0.518***	0.487***	0.502***	0.546***	-0.218***	0.382***
	(0.041)	(0.038)	(0.037)	(0.049)	(0.028)	(0.046)
ln (Distance)	-1.175***	-1.044***	-1.027***	-1.086***	0.602***	-0.943***
	(0.036)	(0.035)	(0.034)	(0.040)	(0.026)	(0.039)
RTA	0.275***	0.197***	0.128*	0.345***	-0.073	0.240***
	(0.071)	(0.069)	(0.069)	(0.081)	(0.052)	(0.077)
ln (Dest GDPpc)	0.272***	0.217**	0.240***	0.472***	-0.027	0.427***
	(0.085)	(0.092)	(0.091)	(0.105)	(0.074)	(0.109)
ln (GDPpc)	0.147***	0.100***	0.096***	0.115***	-0.021	0.005
	(0.022)	(0.020)	(0.019)	(0.024)	(0.017)	(0.022)
Destination fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	5,990	5,328	5,186	4,677	3,991	5,177
R-squared	0.697	0.651	0.653	0.637	0.573	0.460

Panel C: Large firms

Dep. var.:	ln (Number of Exporters)	ln (Number of Entrants)	ln (Number of Exiters)	ln (Number of Incumbents)	ln (Number of Surviving Entrants)	ln (Market Concentration)
ln (Budget Allocated to Large Firms)	-0.271***	-0.360***	-0.325***	-0.277***	-0.276***	0.127***
	(0.034)	(0.033)	(0.032)	(0.034)	(0.034)	(0.025)
ln (Budget Total)	0.896***	0.899***	0.863***	0.779***	0.782***	-0.434***
	(0.036)	(0.036)	(0.035)	(0.037)	(0.037)	(0.027)
ln (Distance)	-1.206***	-1.052***	-1.039***	-0.982***	-0.986***	0.633***
	(0.039)	(0.038)	(0.037)	(0.044)	(0.044)	(0.028)
RTA	0.326***	0.283***	0.201***	0.339***	0.338***	-0.099*
	(0.074)	(0.072)	(0.072)	(0.082)	(0.083)	(0.054)
ln (Dest GDPpc)	0.353***	0.335***	0.313***	0.557***	0.567***	-0.110
	(0.084)	(0.091)	(0.091)	(0.105)	(0.105)	(0.075)
ln (GDPpc)	0.206***	0.163***	0.161***	0.054**	0.045*	-0.067***
	(0.024)	(0.022)	(0.022)	(0.025)	(0.025)	(0.018)
Destination fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	5,342	4,730	4,634	4,158	3,508	4,642
R-squared	0.709	0.667	0.670	0.642	0.598	0.490

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country-pair level. Note: dependent variables are defined at bilateral level (country-pair). The estimating sample for the regressions excludes observations whose corresponding number of exporters, entrants, exiters, incumbents, surviving entrants and market concentration is equal to 1.

6. Robustness checks

Regressing EPA spending on the number of exporters may lead to issues of reverse causality (Hayakawa, Lee, and Park 2014). For example, EPAs in countries with large numbers of exporting firms may be motivated to spend more than EPAs in countries in which only a few firms export. This would make our proxy for institutional support endogenous to the system and our results biased. To address these concerns, we use information from a newly released dataset on trade strategies to build an instrumental variable for the budget allocated to new exporters.

In addition, we test equation (1) on other econometric models to account for any missing observations. Specifically, we test our baseline model with a Poisson model specification, PPML, Tobit left censored and through an inverse hyperbolic transformation of our dependent variable. For ease of exposition, we present one robustness test at a time.

6.1. Addressing endogeneity

We repeat the baseline regression using an IV approach built upon information from the Trade Strategy Map (TSM henceforth) compiled by ITC. The TSM database compiles an exhaustive inventory of documents on national plans that have a significant development and trade strategy component. In particular, the database includes time frames of strategies directly initiated and implemented by local authorities covering issues related to environment, trade, economic growth, and education.

The information at our disposal covers all of the developing countries in our sample. For the five developed countries, all part of the European Union, we augment the data using the trade strategies in place during the sample period.[17]

Countries that have ongoing and pre-defined export strategies are less likely to allocate EPA spending based on the current number of exporters. Thus, trade strategy would only be related to the number of exporters thorough the budget allocation, making it a suitable instrumental variable.

To model our variable, we focus on the availability of strategies having a specific trade component [18] ongoing in 2005 and 2010. We estimate equation (1) using only the subsample of countries which indeed have a trade strategy. We use the duration of export strategies as a predictor of the budget allocated to new exporters. In this approach we assume that countries with longer lasting trade strategies will have higher total budgets available for export promotion. Formally, the first stage of IV estimator is given by:

$$\ln(Budget\ Targeted_{it}) = \pi + \pi_1 \ln(1 + Duration\ of\ Export\ Strategy_{it}) + \pi_2 \ln(Budget\ Total_{it}) + \pi_3 \ln(Distance_{ij}) + \pi_4 (RTA_{ijt}) + \pi_5 \ln(GDPpc_{jt}) + \pi_6 \ln(Dest\ GDPpc_{it}) + \gamma_7 Year_t + \gamma_8 Destination_j + \varepsilon_{ijt}. \quad (2)$$

Where $Duration\ of Export\ Strategy_{it}$ is our instrument. This variable equals zero if no strategy is implemented before 2005 (or 2010), excluding t. Otherwise, this variable equals the number of years a trade strategy was designed to be in place. If more than one strategy was implemented during the sample period, we use the average duration of these strategies. Because we use a logarithmic transformation, we add 1 to the measure to avoid omitting observed zeros.

The second stage regression is given by:

$$\ln(Y_{ijt}) = \alpha + \widehat{\beta_1} \ln(Budget\ Targeted_{it}) + \beta_2 \ln(Budget\ Total_{it}) + \beta_3 \ln(Distance_{ij}) + \beta_4 (RTA_{ijt}) + \beta_5 \ln(GDPpc_{jt}) + \beta_6 \ln(Dest\ GDPpc_{it}) + \gamma_7 Year_t + \gamma_8 Destination_j + \varepsilon_{ijt}. \quad (3)$$

The results of the IV regression are reported in Table 4 and confirm what we have previously discussed. Column (1) report coefficients of the regression run only on countries having an ongoing and pre-defined export strategy. The results show a positive relationship between EPA spending on new exporters and the total number of exporters. The coefficient of the budget is now higher than what we found in previous instance, confirming our hypothesis of a positive relation between the budget and the export strategy.[19] Column (2) shows the results of the first stage regression and confirms a positive relationship between the duration of export strategies and EPA budgets.

Column (3) shows the results for the second stage regression. When we instrument the targeted EPA budget with the duration of export strategy, we find that a 1% increase in EPA spending on new exporters is associated with a 1% increase in the total number of exporters. This result is statistically significant at the 0.01 level.

The bottom lines of the table show the results of the statistical tests confirming that our instrument is relevant. The Keinberg-Paap (K-P) LM and Anderson Rubin first stage statistics reject the null of underidentification, thus we are confident that our instrument satisfies the rank condition. The Keinberg-Paap Wald test (F test) is higher than any value of Stock & Yogo (2005), with the 10% threshold having a value of 16.38. Therefore,

[17] We refer to the trade strategies as in Gstöhl (2016). Specifically, we use as reference the "Lisbon Strategy" (2000), the "renewed Lisbon Strategy" (2005), the "European 2020" (2008) and the "Trade Growth and World Affairs" (2010). The information collected for Norway, being not comparable as we couldn't address them to the establishment of strategies, couldn't be included

[18] These include the ones specifically focused on trade and trade promotion, trade facilitation, trade financing and strategies to provide more trade information.

[19] A binscatter reporting the relation between the budget allocation and the duration of export strategy is reported in the Appendix.

the maximum bias associated with coefficients tends to be smaller than 10%. Finally, the IV model shown a goodness of fit of 69%, thus the variables included proved to be good predictors for the dependent variable.

Table 4. Export strategy: budget allocation and number of exporters for countries with export strategy and IV regression

Dep var: ln (Number of Exporters)	(1)	(2)	(3)
	OLS	First stage	IV
ln (Budget Allocated to New Exporters)	0.641***		1.006***
	(0.045)		(0.142)
ln (Budget Total)	0.026	1.039***	-0.463***
	(0.047)	(0.006)	(0.148)
ln (Distance)	-1.254***	-0.057***	-1.099***
	(0.041)	(0.017)	(0.036)
RTA	0.173**	-0.097***	0.399***
	(0.082)	(0.036)	(0.072)
ln (Dest GDPpc)	0.238	-0.100*	0.072***
	(0.149)	(0.060)	(0.027)
ln (GDPpc)	0.102***	0.109***	0.377***
	(0.023)	(0.009)	(0.097)
ln (1 + Duration of Export Strategy)		0.125***	
		(0.010)	
Destination fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Observations	3,777	5,990	5,990
R-squared	0.744	0.914	0.690
Underidentification and weak instrument tests			
KP-LM stat			155.14
p-value			0.000
KP F test			163.09
p-value			0.000
Anderson-Rubin F test			63.86
p-value			0.000

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country-pair level. Note: Equation (1) is equivalent to Equation (6) in Table 1 but executed on a sample of firms that have an export strategy in year t. Dependent variable is defined at bilateral level (country-pair). The estimating sample for the regressions excludes observations whose corresponding number of exporters is equal to 1.

We also apply our regression using different samples. We also reapply our IV strategy first on a sample of developing countries and again on a sample of developing countries excluding Turkey[20]. We exclude Turkey because it has four-times the number of exporters than countries with similar total average budgets allocated to new exporters. We find that, regardless of this outlier, there is a positive and significant relationship between the budget allocated to new exporters and the number of exporters per destinations. The results

[20] The list of countries by development status is provided in the Appendix (Table A5). Country classification only for exporting countries.

are close to the one based on the complete sample, suggesting that estimates are not biased upwards by an effect of developed countries. This further confirms the importance and effectiveness of institutional support in both developed and developing countries.

In terms of the goodness of fit for our instrument, the coefficient remains positive and significant in all first stage regressions. The point estimates stand at 0.23 and 0.20%, in column 1 and 3, respectively, thus the correlation with the variable of interest (budget allocated to new exporters) is not affected by different samples.

Table 5. Export strategy: IV regressions on alternative subsamples

Dep var: ln (Number of Exporters)	(1)	(2)	(3)	(4)
	Only developing countries		Only devloping, excluding Turkey	
	First stage	IV	First stage	IV
ln (Budget Allocated to New Exporters)		1.288***		0.554***
		(0.117)		(0.117)
ln (Budget Total)	1.118***	-0.823***	1.131***	0.022
	(0.006)	(0.129)	(0.006)	(0.133)
ln (Distance)	-0.076***	-1.207***	0.033*	-1.035***
	(0.021)	(0.044)	(0.020)	(0.040)
RTA	-0.017	0.508***	0.040	0.672***
	(0.049)	(0.088)	(0.051)	(0.080)
ln (Dest GDPpc)	-0.115	0.379***	-0.049	0.154***
	(0.080)	(0.028)	(0.074)	(0.035)
ln (GDPpc)	0.002	0.422***	-0.102***	0.445***
	(0.011)	(0.142)	(0.010)	(0.118)
ln (1 + Duration of Export Strategy)	0.227***		0.204***	
	(0.013)		(0.014)	
Destination fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	4,463	4,463	4,123	4,123
R-squared	0.878	0.622	0.898	0.672
Underidentification and weak instrument tests				
KP-LM stat		239.02		193.33
p-value		0.000		0.000
KP F test		301.5		226.03
p-value		0.000		0.000
Anderson-Rubin F test		141.15		21.72
p-value		0.000		0.000

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country-pair level. Note: Dependent variable is defined at bilateral level (country-pair). A list of exporters by countries is provided in the Appendix (Table 4). Definition of development status is applied only to exporters. The estimating sample for the regressions excludes observations whose corresponding number of exporters is equal to 1.

6.2. Modelling count data

Operating with a ln-ln form, we can compare only countries with positive trade flows. Under this approach we assume that zero trade flows occur due to rounding or declaration thresholds and are "statistical zeros" rather than "structural zeros" (Head and Mayer 2014). With a logarithmic transformation, these observations become missing values and are dropped from the analysis. As a result, the estimates provide us with the elasticity of the outcome variable (*i.e.*, number of new exporters per destination) with respect to budget allocation only for countries which had at least one exporter in 2005.

In this section, we modify the baseline regression using models that accommodate zeros. In this setting we now assume that zero trade flows between countries are endogenous and due, for instance, to the higher trade costs faced in specific markets. In this setting, zeros provide information about trade costs. As a result, ignoring these observations creates selection bias.

To allow for unbiased estimates compare a number of modifications to the structural gravity model that incorporate zeros. Here, we compare the results of our ordinary least squares (OLS) model with three other models: Poisson pseudo maximum likelihood (PPML), Tobit left censored and inverse hyperbolic sine transformation (HIS)[21] of our dependent variable. While all three methods are able to take advantage of the information contained in zero trade flows, the use of the PPML estimator applied to the gravity model expressed in a multiplicative form, also accounts for heteroscedasticity (Yotov et al. 2016)[22], which makes this estimator particularly attractive and is often used to check robustness of OLS estimators in a gravity framework.

Results are presented in Table 6 and each strategy is presented with and without fixed effects for ease of comparison with our OLS reported in column 1 and 2. Our results confirm that changing estimators does not affect the positive and significant effect of budget allocation on the number of exporters. These results reinforce our expectations that larger EPA budgets leads to a greater number of exporters.

Our point estimates, which are larger after including countries with observed zeros, are of similar magnitudes across specifications. The OLS estimates in column (2) show that a 1% increase in an EPA budget leads to a 0.4% increase in the number of exporters. The estimates of PPML model in column (4) show that a 1% increase in an EPA budget leads to a 0.7% increase in the number of exporters. The coefficiens of the Tobit model show that a 1% increase in an EPA budget leads to a 0.5% increase in the number of exporters. Finally, as shown in Bellemare and Wichman (2020), the HIS coefficients reported in columns (7) and (8)can be interpreted as elasticities[23]. These estimates show that a 1% increase in an EPA budget leads to a 0.6% increase in the number of exporters.

[21] The inverse hyperbolic sine function transform the dependent variable according to the formula:

$arsinh\, Y_{ijt} = \ln(Y_{ijt} + \sqrt{Y_{ijt}^2 + 1})$.

[22] The ppml estimator also respect the additive property that ensure fixed effects to be identical to their structural terms (Yotov et al. 2016).

[23] This is because, for most values of Y, $\text{asinh}(Y) \approx \ln(2Y)$.

Table 6. Testing on different models

Dep var: ln (Number of Exporters)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS		PPML		Tobit left censored		HIS	
ln (Budget Allocated to New Exporters)	0.460***	0.411***	0.738***	0.732***	0.462***	0.511***	0.577***	0.605***
	(0.029)	(0.038)	(0.088)	(0.071)	(0.037)	(0.028)	(0.038)	(0.029)
ln (Budget Total)	0.110***	0.095**	0.005	0.022	0.091**	0.108***	-0.064	-0.088**
	(0.035)	(0.046)	(0.104)	(0.087)	(0.044)	(0.032)	(0.045)	(0.035)
ln (Distance)	-1.140***	-0.895***	-0.769***	-0.921***	-0.971***	-1.222***	-1.077***	-1.215***
	(0.034)	(0.041)	(0.066)	(0.055)	(0.036)	(0.029)	(0.042)	(0.035)
RTA	0.332***	0.658***	0.420***	0.338***	0.631***	0.272***	0.828***	0.397***
	(0.068)	(0.088)	(0.147)	(0.128)	(0.080)	(0.065)	(0.097)	(0.079)
ln (Dest GDPpc)	0.319***	0.451***	0.398***	0.171*	0.501***	0.344**	0.483***	0.199***
	(0.084)	(0.018)	(0.035)	(0.101)	(0.016)	(0.148)	(0.018)	(0.077)
ln (GDPpc)	0.117***	0.091***	-0.337***	-0.321***	0.104***	0.127***	0.142***	0.160***
	(0.021)	(0.029)	(0.038)	(0.030)	(0.027)	(0.020)	(0.028)	(0.020)
Destination fixed effects	YES	NO	NO	YES	NO	YES	NO	YES
Year fixed effects	YES	NO	NO	YES	NO	YES	NO	YES
Observations	5,990	5,990	8,261	8,261	5,990	5,990	8,261	8,261
R-squared	0.714	0.486					0.503	0.714

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country-pair level. Note: Dependent variable is defined at bilateral level (country-pair). Note: in the ppml regression the dependent variable is the number of exporters per destination.

7. Conclusion

Firms face a number of fixed and variable costs when they decide to start exporting or to internationalize. By simplifying the export process and by facilitating the information flow, export promotion agencies can reduce the costs of exporting and better connect companies to markets. The positive externality produced by the export promotion institutions are even more important for SMEs. These are more likely to lack resources and knowledge needed to enter a foreign market. The empirical literature has, in fact, shown that only the largest and most productive firms tend to export (Melitz and Redding 2015). The interventions provided by EPAs can lower the productivity threshold to allow smaller and less productive firms to export and enhance the productivity of firms (De Loecker 2013; Lileeva and Trefler 2010).

In this paper we combine information on EPA's budget allocation with country level indicators of exporters' performance in 27 countries. We test whether export support aimed at new exporters is effective in expanding participation in international markets. Our results indicate that an increase in the budgeted allocated to new exporters is positively related to the number of exporters per destination. Our baseline model, a fixed effects model, predicts that a 10% increase in the budget allocated to new exporters increases the number of exporters per destination by 4.6%. We observe that these results are led by the number of incumbent firms and by the number of surviving entrants, emphasizing how allocating more resource to new exporters contribute to stabilizing incumbents and to reinforce the strongest among the new entrants, by allowing them to survive.

The last result indicates that the effect of supporting new exporters is strongest when smaller firms (new entrants) are targeted. Therefore, we test if effects of EPA budgets allocated to new exporters differs by the size of the targeted firms. The results show that only allocating EPA's budget to small firms increases the number of exporters per destination and that the effect is weak when the budget is allocated to medium-sized firms. The results also show a negative effect on the number of exporters when the budget is allocated to large firms. Our results are supported by a number of robustness checks, including an IV variable approach and alternative specifications, aimed at reducing concerns for endogeneity and selection bias.

Our results confirm that trade support has the potential to help SMEs integrating in international trade and that trade promotion has a role to play in facilitating inclusiveness. The findings from this paper also suggest that if the policy objective of an export promotion agency is to increase export participation – the number of exporters – EPA support should focus on small firms. Export promotion institutions can use these results to make better informed decisions about their budget allocation.

References

Allen, Treb. 2014. “Information Frictions in Trade.” *Econometrica* 82 (6): 2041–83.

Álvarez E, Roberto, and Gustavo Crespi T. 2000. “Efecto de Las Políticas de Fomento En El Dinamismo Exportador Chileno.” *El Trimestre Económico*, 557–77.

Atkin, David, Amit K Khandelwal, and Adam Osman. 2017. “Exporting and Firm Performance: Evidence from a Randomized Experiment.” *The Quarterly Journal of Economics* 132 (2): 551–615.

Bellemare, Marc F, and Casey J Wichman. 2020. “Elasticities and the Inverse Hyperbolic Sine Transformation.” *Oxford Bulletin of Economics and Statistics* 82 (1): 50–61.

Bernard, Andrew B, and J Bradford Jensen. 1999. “Exceptional Exporter Performance: Cause, Effect, or Both?” *Journal of International Economics* 47 (1): 1–25.

———. 2004. “Why Some Firms Export.” *Review of Economics and Statistics* 86 (2): 561–69.

Broocks, Annette, and Johannes Van Biesebroeck. 2017. “The Impact of Export Promotion on Export Market Entry.” *Journal of International Economics* 107: 19–33.

Cadot, Olivier, Ana M Fernandes, Julien Gourdon, and Aaditya Mattoo. 2015. “Are the Benefits of Export Support Durable? Evidence from Tunisia.” *Journal of International Economics* 97 (2): 310–24.

Chaney, Thomas. 2008. “Distorted Gravity: The Intensive and Extensive Margins of International Trade.” *American Economic Review* 98 (4): 1707–21.

Cruz, Marcio. 2014. “Do Export Promotion Agencies Promote New Exporters?”

Dai, Mi, and Miaojie Yu. 2013. “Firm R&D, Absorptive Capacity and Learning by Exporting: Firm-level Evidence from China.” *The World Economy* 36 (9): 1131–45.

De Loecker, Jan. 2013. “Detecting Learning by Exporting.” *American Economic Journal: Microeconomics* 5 (3): 1–21.

Girma, Sourafel, Holger Görg, and Joachim Wagner. 2009. “Subsidies and Exports in Germany: First Evidence from Enterprise Panel Data.”

Görg, Holger, Michael Henry, and Eric Strobl. 2008. “Grant Support and Exporting Activity.” *The Review of Economics and Statistics* 90 (1): 168–74.

Gstöhl, Sieglinde. 2016. “‘Trade for All’–All for Trade? The EU’s New Strategy. College of Europe Policy Brief# 3.16, January 2016.”

Hausmann, Ricardo, and Dani Rodrik. 2003. “Economic Development as Self-Discovery.” *Journal of Development Economics* 72 (2): 603–33.

Hayakawa, Kazunobu, Hyun-Hoon Lee, and Donghyun Park. 2014. “Do Export Promotion Agencies Increase Exports?” *The Developing Economies* 52 (3): 241–61.

Head, Keith, and Thierry Mayer. 2014. “Gravity Equations: Workhorse, Toolkit, and Cookbook.” In *Handbook of International Economics*, 4:131–95. Elsevier.

Hidalgo, César A, and Ricardo Hausmann. 2009. “The Building Blocks of Economic Complexity.” *Proceedings of the National Academy of Sciences* 106 (26): 10570–75.

Hidalgo, César A, Bailey Klinger, A-L Barabási, and Ricardo Hausmann. 2007. “The Product Space Conditions the Development of Nations.” *Science* 317 (5837): 482–87.

ITC. 2017. “How Strategic Are Trade Strategies? Trends for Effective Development.” International Trade Center, Geneva.

Lederman, Daniel, Marcelo Olarreaga, and Lucy Payton. 2006. *Export Promotion Agencies: What Works and What Doesn’t*. The World Bank.

———. 2010. “Export Promotion Agencies: Do They Work?” *Journal of Development Economics* 91 (2): 257–65.

Lederman, Daniel, Marcelo Olarreaga, and Lucas Zavala. 2016. “Export Promotion and Firm Entry into and Survival in Export Markets.” *Canadian Journal of Development Studies/Revue Canadienne d’études Du Développement* 37 (2): 142–58.

Lileeva, Alla, and Daniel Trefler. 2010. “Improved Access to Foreign Markets Raises Plant-Level Productivity… for Some Plants.” *The Quarterly Journal of Economics* 125 (3): 1051–99.

Lin, Faqin. 2015. “Learning by Exporting Effect in China Revisited: An Instrumental Approach.” *China Economic Review* 36: 1–13.

Manjón, Miguel, Juan A Máñez, Maria E Rochina-Barrachina, and Juan A Sanchis-Llopis. 2013. “Reconsidering Learning by Exporting.” *Review of World Economics* 149 (1): 5–22.

Melitz, Marc J. 2003. “The Impact of Trade on Intra-industry Reallocations and Aggregate Industry Productivity.” *Econometrica* 71 (6): 1695–1725.
Melitz, Marc J, and Stephen J Redding. 2015. “New Trade Models, New Welfare Implications.” *American Economic Review* 105 (3): 1105–46.
Munch, Jakob, and Georg Schaur. 2018. “The Effect of Export Promotion on Firm-Level Performance.” *American Economic Journal: Economic Policy* 10 (1): 357–87.
Olarreaga, Marcelo, Stefan Sperlich, and Virginie Trachsel. 2017. “Export Promotion: What Works?” *Development* 184.
Rangan, Subramanian, and Robert Z Lawrence. 1999. “Search and Deliberation in International Exchange: Learning from Multinational Trade about Lags, Distance Effects, and Home Bias.” *NBER Working Paper*, no. w7012.
Stock, James H, and Motohiro Yogo. 2005. “Testing for Weak Instruments in Linear IV Regression.” *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg* 80 (4.2): 1.
Verhoogen, Eric A. 2008. “Trade, Quality Upgrading, and Wage Inequality in the Mexican Manufacturing Sector.” *The Quarterly Journal of Economics* 123 (2): 489–530.
Volpe Martincus, Christian, and Jerónimo Carballo. 2008. “Is Export Promotion Effective in Developing Countries? Firm-Level Evidence on the Intensive and the Extensive Margins of Exports.” *Journal of International Economics* 76 (1): 89–106.
———. 2010. “Beyond the Average Effects: The Distributional Impacts of Export Promotion Programs in Developing Countries.” *Journal of Development Economics* 92 (2): 201–14.
———. 2012. “Export Promotion Activities in Developing Countries: What Kind of Trade Do They Promote?” *The Journal of International Trade & Economic Development* 21 (4): 539–78.
Volpe Martincus, Christian, Antoni Estevadeordal, Andrés Gallo, and Jessica Luna. 2010. “Information Barriers, Export Promotion Institutions, and the Extensive Margin of Trade.” *Review of World Economics* 146 (1): 91–111.
Yang, Yong, and Sushanta Mallick. 2010. “Export Premium, Self-selection and Learning-by-exporting: Evidence from Chinese Matched Firms.” *The World Economy* 33 (10): 1218–40.
Yotov, Yoto V., Roberta Piermartini, José-Antonio Monteiro, and Mario Larch. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO. https://doi.org/10.30875/abc0167e-en.

Appendix

Table A1. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of Exporters	13,338	161	820	0	26,890
Number of Entrants	13,338	50	242	0	9,301
Number of Exiters	13,338	45	227	0	9,512
Number of Surviving Entrants	13,338	21	103	0	4,029
Number of Incumbents	13,338	78	450	0	17,589
Market Concentration (HI)	13,338	0.310	0.275	0.001	1
Budget Allocated to New Exporters (mln USD)	11,362	15.4	27	0	127
Budget Allocated to Small Firms (mln USD)	11,362	18.2	36.5	0	203
Budget Allocated to Medium-sized Firms (mln USD)	11,362	21.8	43.7	0	203
Budget Allocated to Large Firms (mln USD)	11,362	8.2	14.5	0	63.6
Budget Total (mln USD)	11,362	40	64.20	0.26	270
Distance (km)	12,204	8,263	4,515	17	19,812
RTA (Dummy)	12,150	0.12	0.32	0	1
GDP pc	13,338	10,626	17,160	372	87,309
Dest GDPpc	10,071	11,535	16,706	149	106,185
Duration of Export Strategy	13,338	3.64	4.23	0.00	13.33

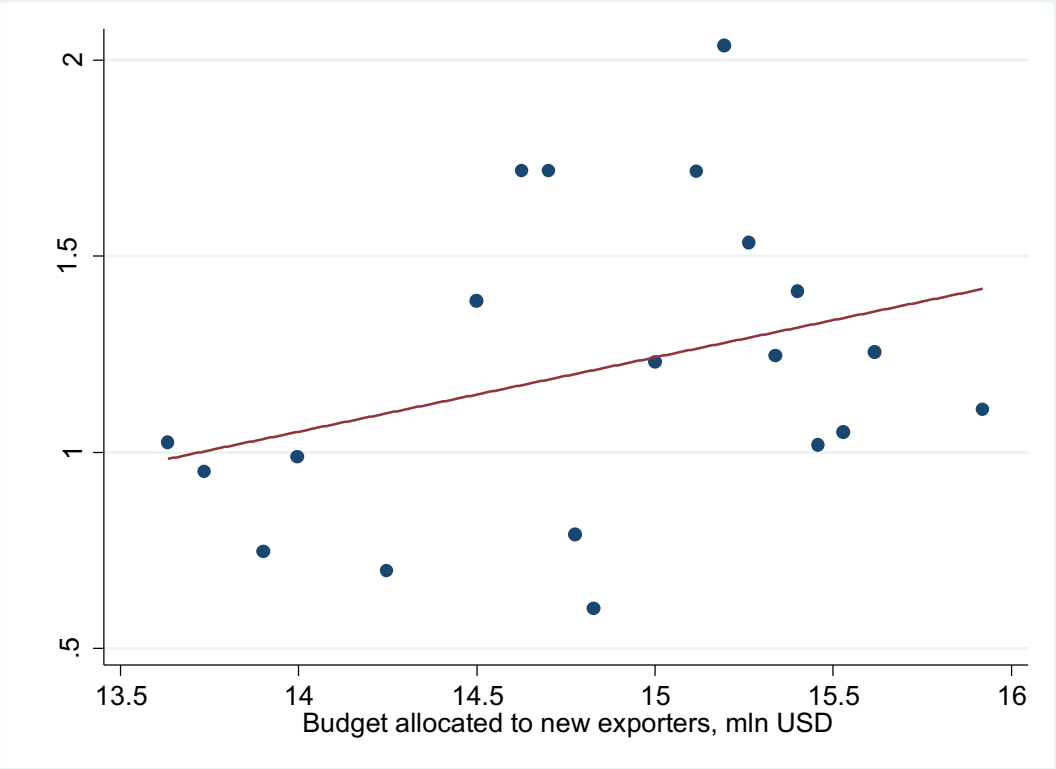
Table A1. *Continued*

Variable	Percentage change between 2005 and 2010
Number of exporters per destination per country	12
Number of entrants per destination per country	58
Number of exiters per destination per country	55
Number of surviving entrants per destination per country	59
Number of incumbents per destination per country	67
Herfindal Index per destination per country	4
Budget allocated to new exporters (mln USD)	-25
Budget allocated to small firms (mln USD)	49
Budget allocated to medium-sized firms (mln USD)	-8
Budget allocated to large firms (mln USD)	-21
Total budget (mln USD)	-13

Table A2. Variable definitions

Variable	Definition	Source
Ln (Number of Exporters)	Number of firms that export in year t from country i per destination j (natural logarithm).	World Bank Exporters Dynamics Database
ln (Number of Entrants)	Number of firms that do not export in year t-1 but export in year t, from country i per destination j (natural logarithm).	"-"
ln (Number of Exiters)	Number of firms that export in year t-1 but do not export in year t, from country i per destination j (natural logarithm).	"-"
ln (Number of Surviving Entrants)	Number of firms that do not export in year t-1 but export in both years t and t+1, from country i per destination j (natural logarithm).	"-"
ln (Number of Incumbents)	Number of firms that exports in both years t-1 and t, from country i per destination j (natural logarithm).	"-"
ln (Market Concentration)	Herfindahl-Hirschman Index in natural logarithm.	"-"
ln (Budget Allocated to New Exporters)	Budget devoted to new exporters (mln USD) in natural logarithm.	Export promotion agencies (EPA) survey
ln (Budget Allocated to Small Firms)	Budget allocated to small firms (mln USD) in natural logarithm.	"-"
Ln (Budget Allocated to Medium-sized Firms)	Budget allocated to medium-sized firms (mln USD) in natural logarithm.	"-"
ln (Budget Allocated to Large Firms)	Budget allocated to large firms (USD) in natural logarithm.	"-"
ln (Total Budget)	Log of the total EPA's budget (mln USD) in natural logarithm.	"-"
ln (Distance)	Simple distance between the country pair (most populated cities, km) in natural logarithm.	CEPII
RTA	Dummy equals 1 if the country pair belong to the same regional trade agreement.	"-"
ln (Dest GDPpc)	Importer GDP per capita (USD) in natural logarithm.	IMF WEO
ln (GDPpc)	Exporter GDP per capita (USD) in natural logarithm.	"-"
Duration of Export Strategy	Average duration of export strategy ongoing in 2005 (or 2010) if the strategy is pre-defined i.e. implementation started before 2005 (or 2010).	ITC Trade Strategies Database

Figure A1. Correlation between export strategy and budget allocated to new exporters



Note: The relationship between the two variables is the result of a binned scatterplot, using destination fixed effects and year, as well as controls. The variable Budget allocated to new exporter is defined in the natural logarithm, the variable average duration of ongoing export strategy is defined in ln (+1).[24]

Table A3. Test of the equality of the coefficients between different budget allocations

Budget Allocated to New Exporters	p- value chi^2 test
Ln (Budget Allocated to Large Firms) = Ln (Budget Allocated to Small Firms)	0.000
Ln (Budget Allocated to Large Firms) = Ln (Budget Allocated to Medium-sized Firms)	0.000
Ln (Budget Allocated to Small Firms) = Ln (Budget Allocated to Medium-sized Firms)	0.247

Note: The tests are computed on the coefficients of the regression reported in Table 3.

[24] Binned scatterplots are a non-parametric method of plotting the conditional expectation function (which describes the average y-value for each x-value). To generate a binned scatterplot, binned scatter groups the x-axis variable into 20 equal-sized bins, computes the mean of the x-axis and y-axis variables within each bin, then creates a scatterplot of these data points. By default, binned scatter also plots a linear fit line using OLS, which represents the best linear approximation to the conditional expectation function

Table A4. Number of exporters and budget allocation by firm size

Dep var: ln (Number of Exporters)	(1)	(2)	(3)
ln (Budget Allocated to Small Firms)	0.133**		
	(0.053)		
ln (Budget Allocated to Medium-sized Firms)		0.096**	
		(0.045)	
ln (Budget Allocated to Large Firms)			-0.013
			(0.103)
Country fixed effects	YES	YES	YES
Destination fixed effects	YES	YES	YES
Country-pair fixed effects	YES	YES	YES
Observations	5,198	5,198	4,776
R-squared	0.981	0.980	0.980

*** p<0.01, ** p<0.05, * p<0.1. Robust (Hubert-White sandwich correction) standard errors in parentheses, clustered at country level. Note: Dependent variable is defined at bilateral level (country-pair). A list of exporters by countries is provided in the Appendix (Table 4). The estimating sample for the regressions excludes observations whose corresponding number of exporters is equal to 1.

Table A5. Exporting countries included by development status[25]

Developing countries	Developed countries
Albania	Denmark
Bangladesh	Estonia
Botswana	Norway
Brazil	Portugal
Burkina Faso	Spain
Chile	
Costa Rica	
Dominican Republic	
Ecuador	
Guatemala	
Jordan	
Macedonia, FYR	
Mauritius	
Mexico	
Nicaragua	
Peru	
Senegal	
Tanzania	
Turkey	
Uganda	
Uruguay	
Zambia	

[25] Note: the classification used in this paper is drawn from the United Nations classification, available at: http://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf