Export Destination and Firm Performance: The Case of Ecuador and the United States

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Abstract

The evidence regarding the effects of trade on the performance of firms varies depending on different factors, such as the industry, the firm's size, the trading partner, and others. In Latin America, various studies have proven the benefits of trading. However, the impacts of the trade relations with the United States have been scarcely studied by Latin American countries. We contribute to the literature studying how trade between Ecuador and the United States impact the performance of Ecuadorian firm. We use data from Superintendencia de Compañías, Valores y Seguro (SCVS) and from Ministerio de Producción, Comercio Exterior, Inversiones y Pesca (MPCEIP) to evaluate the performance of firms that export to the US compared to those that export to other countries. We employ different empirical strategies and leverage computational tools of data analysis to assess the relationship. We use panel data with fixed effects and lagged covariates to mitigate a possible reverse causality and omitted variable bias. Our findings highlight a positive significant impact across three measures of performance, return on assets, employment, and sales. This study contributes valuable insights for policymakers and stakeholders interested in trade relationships, especially with the USA. We also demonstrate how technological tools used in data analysis can be essential for shedding light on economic development.

Keywords

Exports, Trade, Firm Performance, Computational Economics, Data Analysis.

1. Introduction

For economists, policymakers, and other interested parts, it is relevant to understand the behavior of trade and the possible impacts to the performance of firms in an era of increasing globalization. This article delves into the relationship between trade activities and firm performance, focusing specifically on the case of Ecuadorian firms and their exports to the United States.

Engaging in international trade can significantly enhance firm performance by providing access to new markets, opportunities for growth, and avenues for specialization [1, 2]. Exporting allows firms to tap into larger consumer bases, enabling them to scale up production and achieve economies of scale. Access to foreign markets also exposes firms to diverse consumer preferences and competitive dynamics, encouraging innovation and product differentiation [3]. Moreover, international trade facilitates the transfer of knowledge, technologies, and best practices across borders, enabling firms to improve their production processes and enhance efficiency [4]. By participating in global value chains, firms can leverage comparative advantages and optimize their supply chains, ultimately leading to improved profitability and competitiveness in the global marketplace [5, 6].

Specifically, exporting to the United States can offer firms a multitude of benefits that can positively impact their performance. The US market can present unparalleled opportunities for firms due to its vast consumer base, high purchasing power, and diverse demand for goods and services. While exporting to the US does not guarantee automatic success, firms that effectively navigate the complexities of the

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US market can gain a competitive edge, and improve the performance of firms and the well-being of a country [7].

The commercial relationship between Ecuador and the United States has been historically shaped by preferential initiatives advanced by the United States to foster trade engagement with developing nations. Among these initiatives was the Generalized System of Preferences (GSP), which enabled Ecuador to export its commodities to the American market duty-free. Furthermore, Ecuador derived benefits from the Andean Trade Promotion and Drug Eradication Act (ATPDEA). However, the expiration of these initiatives ensued, culminating in Ecuador forfeiting the GSP privileges by the conclusion of 2020, thereby impacting a multitude of Ecuadorian goods subject to tariffs upon entry into the American market [8, 9].

At its core, our research seeks to answer a fundamental question: how does exporting to the United States influence the performance of Ecuadorian firms compared to those exporting to other countries? While the benefits of international trade are widely acknowledged, the specific impact of exporting to the US for a developing country such as Ecuador remains unexplored, therefore the importance of studying it.

To address this question, we employ computational economics techniques and data analysis methods, such as kernel density estimation to compare the performance distribution of firms that export to the US versus those that export to other countries. Moreover, we show a theoretical optimization model to select and justify the variables included in the empirical analysis.

Despite the allure of the US market, anecdotal evidence suggests that Ecuadorian firms exporting to other countries may also experience noteworthy benefits, challenging the assumption of preferential treatment towards US-bound exports. The main hypothesis of this study is that Ecuadorian firms exporting to the United States outperform their counterparts engaged in trade with other countries, given the sheer size and purchasing power of the US market [10]. However, preliminary observations suggest that this may not always be the case. Some Ecuadorian firms exporting to niche markets or regions with less competition may exhibit resilience and profitability comparable to, if not exceeding, those exporting to the US. This puzzling phenomenon prompts us to delve deeper into the underlying mechanisms at play, questioning traditional notions of market size as the sole determinant of export success.

This paper contributes to the existing literature by providing empirical evidence on the comparative performance of Ecuadorian firms engaged in trade with the United States versus other international markets. Our identification strategy that employs Panel Data Regression considers firm-invariant and time-specific factors that affect the analysis, by including firm and time fixed effects. We also control for a block of firm-specific covariates, considering different specifications with and without lags to attenuate reverse-causality concern.

While previous studies have explored the link between trade and firm performance, few have examined this relationship within the context of Ecuadorian exporters, particularly concerning their engagement with the US market. By focusing on Ecuador, a small, open economy with a diverse export base, our research offers valuable insights into the differential effects of trade on firm outcomes, thereby enriching our understanding of the broader implications of international trade for developing economies.

The following sections comprising this paper are a comprehensive review of existing literature about the relationship between exports to developed nations and the hypotheses derived from such studies; subsequently, an exposition of the methodology employed and the dataset utilized for conducting the empirical analysis, with a specific focus on Ecuadorian exporting firms; and lastly, the presentation of findings and the subsequent conclusions drawn from the outcomes of the study.

2. Literature Review

2.1. Exporting activity and the performance of firms

The research on the possible effects of exporting on the performance of firms reveals different results, which exposes the importance and complexity of this topic. Studies, such as Peters and Roberts

[11] show that exporting activity can enhance firm performance, by increasing sales, and improving profitability and innovation. The authors mention that exporting firms usually invest more in research and development, which generates higher rates of productivity growth. Furthermore, Panta et al. [12], show that exporting allows firms to achieve economies of scale because they expand beyond domestic borders. The unit costs of producing could decrease as the firms increase their production to comply to international demand. For instance, Forslid et al. [13] demonstrate that exporter firms in Sweden are usually more productive than non-exporters and have lower environmental emissions. They explain that they optimize the use of fixed costs over a larger output, which lowers average costs and improves performance. This also generates a negative relation between firms' emission intensity and firm productivity.

Other positive significant results in this relationship are found through mechanisms like resource allocation, competition, and diversification. According to Rijesh [14], productive firms select themselves to export markets, leading to a reallocation of resources to these more productive firms. Cirera et al. [15] support these results showing that Brazilian exporting firms invest more in technology and are more productive. Also, in line with Cai et al. [16] research, competitive pressure is a factor experienced by exporting firms, that can improve their productivity. Moreover, entering international markets can mitigate risks as those firms could gain stability from market diversification. For instance, Xuefeng and Yasar [17] show that firms that perform exporting activities are more stable than non-exporters.

Furthermore, the learning effects of exporting are widely studied to prove the impact of exports on performance. The firms that participate in foreign markets, tend to force themselves to improve the quality of their products and services and become more efficient and innovative to acquire an advantaged position over competitors. This process can result in an improvement in their performance in domestic and international markets. On this line, the learning-by-exporting hypothesis points out that the knowledge and experience gained from international markets improve the performance of firms. This happens because they can gain new ideas from foreign markets, other technologies, and management practices which can enhance productivity and innovation. For instance, Pane and Patunru [18] find that firms that entered export markets improved their productivity. In the same way, Ballestar et al. [19], find that the participation of firms in competitive environments and advanced technology improved the productivity of Spanish manufacturing small and medium enterprises.

While a body of literature identifies a positive impact of exports on the performance of firms, other studies highlight the possible negative effects. The size of the firms can play an important role in the negative impact. Specifically small firms can have problems with managing adequately the costs generated from exporting, the logistics, and the foreign regulations. These problems may countervail their possibility to improve performance [20]. Also, the unpredictability of international markets could enhance a destabilization of the performance of firms, as the uncertainty of demand can generate irregular sales and earnings [21].

Furthermore, the exchange rate volatility can impact the performance of exporting firms, mainly those from developing countries [22]. The authors evidence that currency fluctuations cause financial instability, which worsens firm performance. Another important factor for possible negative effects is the regulations of foreign markets. The different regulations can increase operational costs, and delays and reduce competitiveness. Also, it has been proven that environmental regulations reduce significantly export volumes of firms [23].

The literature also shows that in certain cases there could be no significant relationship between the variables of interest. Between the main factors are heterogeneity [24], control for selection bias, and industry-specific characteristics [25, 26]. They examined various studies and found no significant export effect on performance in certain contexts. The variety of results found on the literature emphasizes the relevance of context-specific analysis.

2.2. The role of export market destination

The importance of export destination in the analysis of the performance of exporting firms lies in the fact that market characteristics, regulatory environment, and economic stability can affect the

profitability, growth, and competitive advantage of a firm. According to Demir and Hu [27], the size of the market and the growth potential can affect the process of exporting and the performance of the firms. The authors stress that the firms that export to larger markets usually experience better performance because of greater demand. If the country of destination does not have growth potential, and there is market saturation, it would be difficult to position the products and therefore affect negatively the performance of firms [28].

Additionally, the regulatory environment in the export destination country can be favorable or prejudicial for the exporting firm. The trade policies can have the role of facilitating or hindering the firm performance. For instance, Mamba and Balaki [29] mention that markets with liberal trade policies can lower the costs and reduce barriers to exporting firms, which lets them perform better. On the contrary, a restrictive regulatory environment can reduce profit margins and increase market barriers.

The possible differences in communication and business practices, caused by cultural differences, can also influence firm performance. The home country and the export destination can suffer of misunderstandings or miscommunications. Authors such as Morgan et al. [30] have studied this and discovered that exporters that have cultural similarities or whose country of origin is the destination country, usually perform better because they adapt better to the business practices. Therefore, the importance to choose correctly with which country you are negotiating and the personnel they have for doing this.

Other factors that affect the performance of firms depending on the market destination are the economic stability and growth of the export destination and the exchange rate volatility. Labibah et al. [31] investigate the importance of stable and growing markets chosen as export destinations; the firms that export to this type of country, experience a consistent demand and have reduced risk, also allows them to have long-term planning, which generates a better and sustained performance. In the case of exchange rate, Gopinath et al. [32] analyze the importance of firms exporting to countries that have stable currencies, as this permits the firms to have stable financial outcomes.

3. Overview

Ecuador's commercial balance has undergone different changes in the last few years. The analysis of the exchange information provides insights into the competition and economic standing of Ecuador in the international market. The following graph of exports, imports, and terms of trade illustrates a general overview of the commercial economic activity of the country.

In 2024, the level of exports grew compared to 2023. For instance, in January of 2023, exports totalized USD 2,338 billion, whereas in January of 2024, they increased to USD 2,611 billion. Summing up from January to April 2023, the level of exports was USD 9,990 billion, whereas, during the same period in 2024, they reached USD 10,985 billion, which is a 9.96% increase over 2023. Hence, Figure 1 shows a positive trend of Ecuador's export performance and, therefore a better position in the international market. The graph also shows a decrease of the level of imports in the same period from USD 9,954 billion to USD 9,186 billion. Additionally, the term of trade shows the rate of export and import prices, which has improved compared to 2023 from 91 to 99 (average for the period January-April).

The exports are classified into oil products and non-oil products, the latter divided into primary products and industrialized products. The primary products include bananas, coffee, shrimp, wood, natural flowers, fish, tuna, cacao and others. Meanwhile, the industrialized products are prepared coffee, cocoa products, fish flour, chemicals and pharmaceuticals, hats, textiles, metal manufactures, and others. Overall, the level of exportation of primary products exceeds those of oil products, and oil products exceed those of industrialized products.

Between January and April of 2023, the total level of exports of primary products was USD 5,97 billion, rising to USD 6,016 billion in 2024, marking a modest increase of 0.77%. In the case of industrialized products, the increase was 11% compared to the level in 2023, reaching the value of USD 1,555 billion in 2024. In the same line, oil products exports saw an increase of 30.4%. This Figure 2 highlights the evolving panorama of export dynamics during the first four months of both 2023 and 2024, underscoring
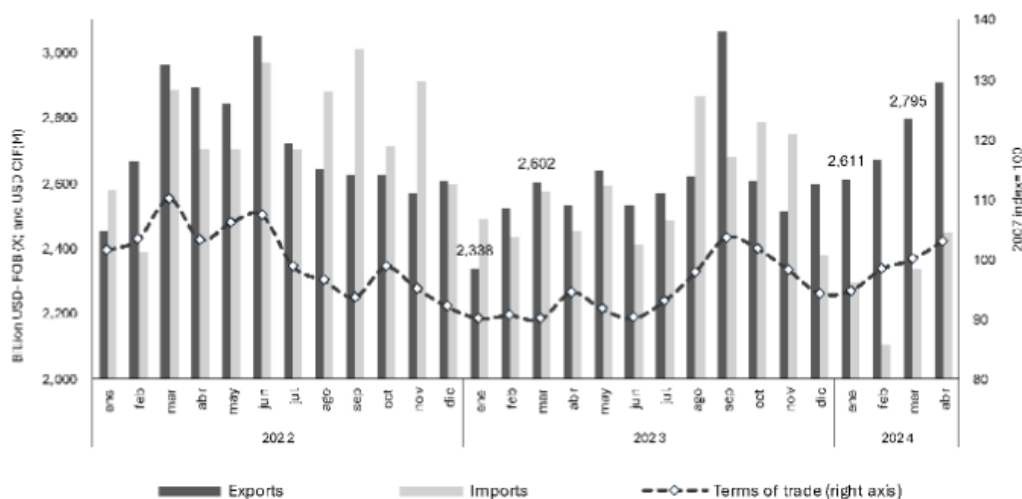
Figure 1: Ecuador balance of trade

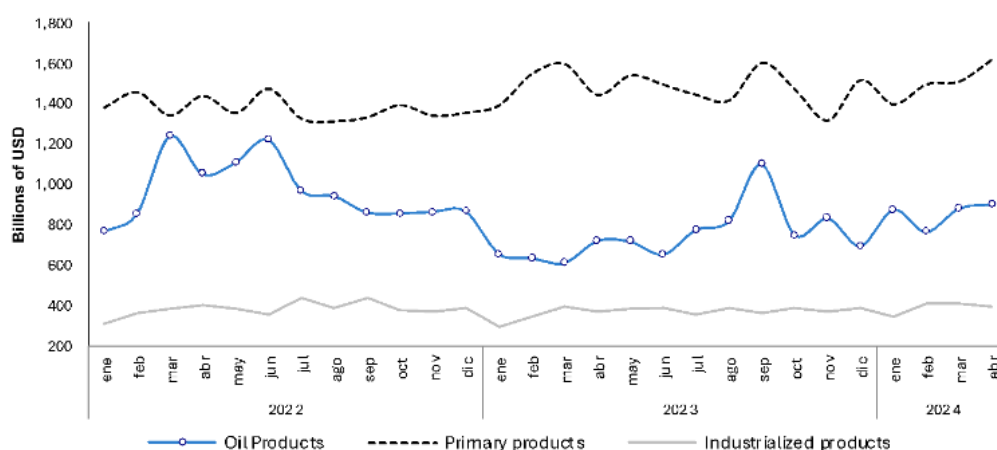the different contributions of each type of product to the country's export profile.

Figure 2: Level of Ecuadorian exports by type of product

Notes: Adapted from the graphs presented in the monthly statistics of the Banco Central del Ecuador.

Figure 3 shows the percentage of exports by country, economic area, and continent in April 2024. The United States stands out as the primary destination for our exports, followed by Asian countries, the Latin American Integration Association, and the European Union.

The trade relationship between the United States and Ecuador is complementary, as Ecuador exports primary products to the US while Ecuador imports manufacturing products, machines, and technological artifacts. Over the last 5 years, the level of exports to the US has increased on average 7%, whereas the level of imports from the US has increased 17% on average from 2019 to 2023. The main products that Ecuador exports to the United States are oil products, crustaceans, fruits, and other foods.

Based on the graphs, we highlight the critical role of the US market in Ecuador's export strategy, given the consistent position of the US as the top destination for Ecuadorian exports for several years. This opportunity is advantageous for exporters due to the stability and the size of the US economy. The graph depicting the levels of exports and imports between Ecuador and the US highlights the ability of Ecuador to meet the rising demand for primary products in the US. The main sectors, such as agriculture and oil extraction, derive benefits from access to this market, positioning firms within those sectors to capitalize on most of the export opportunities.
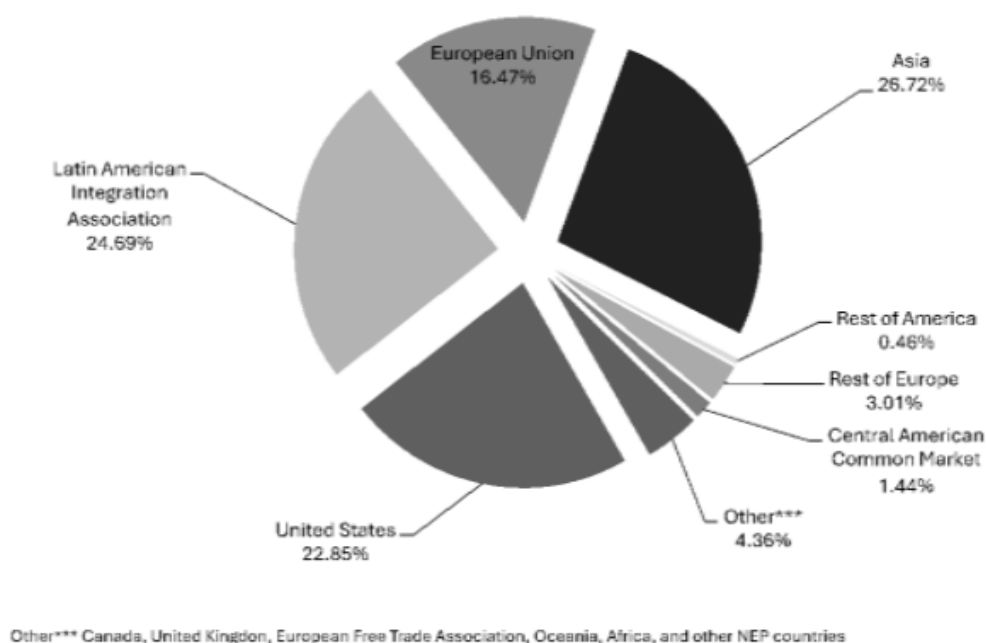
Other*** Canada, United Kingdon, European Free Trade Association, Oceania, Africa, and other NEP countries

Figure 3: Level of exports by country of destination
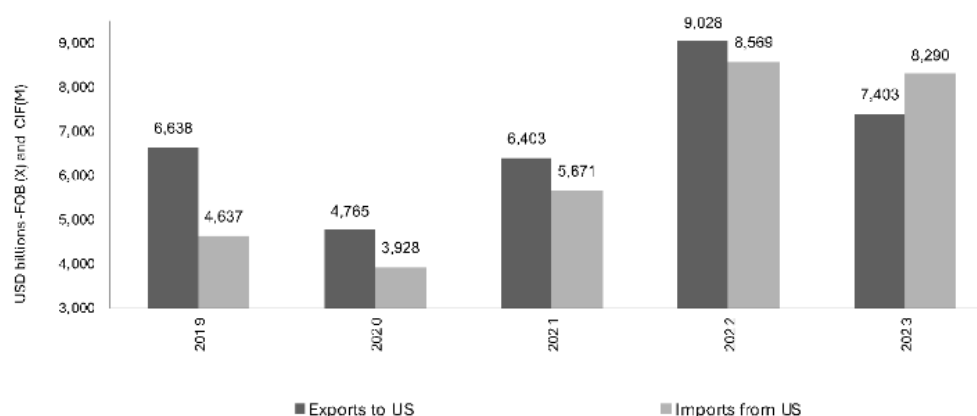

Figure 4: Exports and imports to the US

Through this overview, we underscore how the exports contribute to Ecuador, especially the exports done to the US, which motivates the investigation and provides a context to explore the relationship of interest. This section highlights an important aspect of international trade that has been scarcely studied in Latin America [33]. Analyzing the international trade dynamics, sets a foundation for exploring the economic impact of exporting to the US, thus filling the gap in the literature.

4. Materials and Methods

4.1. Theoretical background

A firm that participates on export activity can affect its performance, according to different theories. The Uppsala Model, developed by Jan Johanson and Jan Vahlne in 1977, mentions that firms that decide to internationalize, experience various stages taking advantage of the opportunities presented by markets from abroad [34]. Some of these advantages could be economies of scale and diversification of risks

and markets, which could reduce the dependence on domestic markets. This model also mentions the stage of the learning and experience gained from internationalization, that makes a firm become more efficient over time, leading to lower costs, and improved quality, which improves the performance of the firm. Besides this internationalization model, the Resource-Based View mentions that firms with unique resources and capabilities can gain a competitive advantage over other firms. Exporting firms can improve their resources, such as technology, labor, and branding, which enhances their performance [35].

Considering the theoretical background, we establish a computational economics model to evaluate how the exporting activity can affect the performance of firms. We mainly consider elements of resource-based view (RBV) and learning curve theory, which relates to the Uppsala Model.

$$Y = f(X, K, L, T, EX) - Costs \tag{1}$$

Where Y is the performance of firms, f represents the function that evaluates the relationship between Performance and X, which is the level of exports, K is the capital investment, L represents labor, T captures the technology level, EX (the experience gained from exporting). We include capital, labor, and technology considering that the Resource-Based View mentions that the resources of the firms are relevant for competitive advantage. Moreover, according to the Learning Curve Theory, the experience gained by the exporting firm impacts productivity.

The optimization of the equation would be considering the following function:

$$f(X, K, L, T, EX) = (T)(K)^\alpha (L)^\beta (EX)^\gamma (X) \tag{2}$$

Subject to

$$C(X, K, L) = C_1 X + C_2 K + C_3 L \leq Earnings \tag{3}$$

$$EX(t) = \int_0^t X(\tau) d\tau \tag{4}$$

We develop an algorithm to prove the theoretical relationship, using computational methods. By setting initial values, and optimizing iteratively the function, we determine how high levels of exports, capital, labor and technology can contribute to maximize the firm performance. We do not show technology on the graph, as we assume that it remains constant.

4.2. Data

We use data from 2018 to 2022 of 5,538 firms that report data to the Superintendencia de Compañías, Valores y Seguros (SCVS) and to Ministerio de Producción, Comercio Exterior, Inversiones y Pesca (MPCEIP) to evaluate the performance of firms that export to the US compared to those that export to other countries. The data includes information from the firm's financial statements, which report the level of assets, revenues, number of employees, and level of exports. We debug this database by only considering the firms that have complete and consistent information on the variables related to the normal operation of a firm. Therefore, we do not consider the firms that report zero on variables such as assets, sales, and employees. From the MPCEIP, we extract the information of the country of destination of the exports and the level of exports.

The variables used for the analysis include the dependent variables that are performance measures: 1) Level of sales, which is the total sales of firm i at time t in USD, 2) Level of employment, which is the total number of workers in a firm i per year t, 3) Profitability, measured by calculating the return on assets.

Additionally, we include management, measured by the asset turnover ratio. This indicator is known as the management efficiency coefficient, as it measures the effectiveness of administration. The greater the volume of sales that can be achieved with a certain investment, the more efficient the business
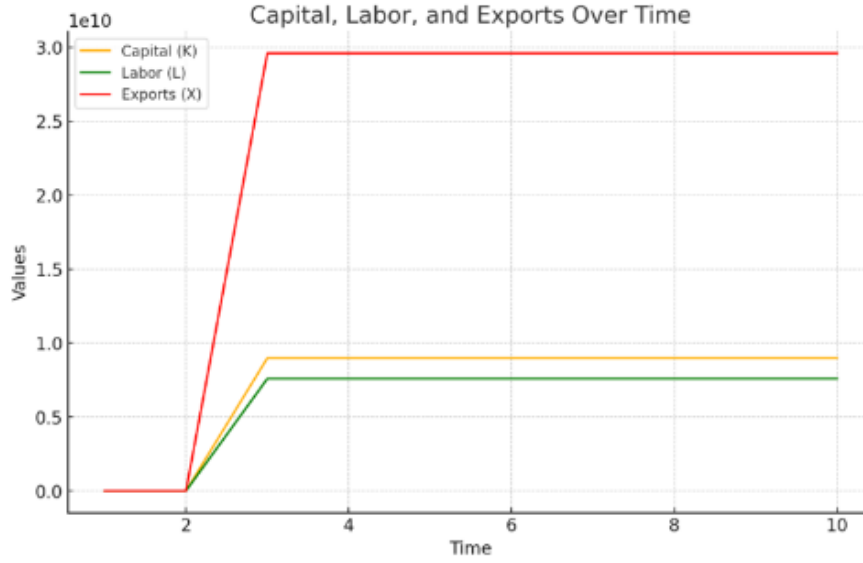
Figure 5: Computational economics model results

management will be. This ratio captures the labor of the administrators. Moreover, we consider liquidity, measured by the current ratio, to capture the health and stability of the firm, and size, measured by the natural logarithm of assets.

4.3. Empirical Approach

We evaluate how performance varies depending on the export destination whether it is to the USA or other countries. Based on the theoretical background, we use the following empirical strategies.

First, to establish the link between exportation to the USA and performance, which is central in our hypothesis of market destination affecting the performance of firms, we run an OLS regression as follows:

$$Performance_{it} = \alpha_0 + \alpha_1 D.USAexport_{it} + \alpha_2 exports_{it} +$$

$$\sum_k \beta_k micro\,controls_{kit} + \sum_k^2 \delta_k micro\,controls_{kt} \qquad (5)$$

We evaluate the effect of export destination, $D.USAexport_{it}$, of firm i on year t (a dummy variable equal to 1 if the firms export to the USA and 0 if they export to other countries), on three measures of performance, return on assets (ROA), level of employment and the logarithm of sales. We control for the level of exports, $exports_{it}$, and for a set of micro controls $\sum_k \beta_k micro\,controls_{kit}$, that include solvency, size, management, and liquidity. We also control for country characteristics, $\sum_k^2 \delta_k micro\,controls_{kt}$, that is inflation rate and the logarithm of gross domestic product.

From the specification (1) α_1 is the principal coefficient of interest. It measures if the export destination, specifically exporting to the USA, has a positive significant effect on the performance of exporter firms.

We then estimate a panel data regression with fixed effect to control for firm invariant characteristics that are not considered in the equation 5, such as the industry, organization culture, and other characteristics of the firms that do not change on the short term, captured by γ_i.

$$Performance_{it} = \gamma_i + \alpha_1 D.USAexport_{it} + \alpha_2 exports_{it} +$$

$$\sum_k \beta_k micro\,controls_{kit} + \sum_k^2 \delta_k micro\,controls_{kt} + \epsilon_{it} \qquad (6)$$

Since there could be some concerns of potential omitted variable bias on the time period level, we modify equation 6 as follows.

$$Performance_{it} = \gamma_i + \theta_t + \alpha_1 D.USAexport_{it} + \alpha_2 exports_{it} + \sum_k \beta_k micro\ controls_{kit} + \epsilon_{it} \tag{7}$$

In this new specification, we add time-fixed effects, which capture the country's characteristic, macroeconomic variables, but also capture possible exogenous shocks that are common to all firms across the country in a particular year and affect the performance of the firms. In the equation 7 α_1 is also our coefficient of interest, and our hypothesis relies on a significant positive relation between the firms that export to the USA, and their performance outcomes.

We also run the equation 8 considering the one-period lag of the control variables to capture their dynamics over time, and to mitigate possible reverse causality on the analysis.

$$Performance_{it} = \gamma_i + \theta_t + \alpha_1 D.USAexport_{it} + \alpha_2 exports_{it} + \sum_k \beta_k micro\ controls_{kit-1} + \epsilon_{it} \tag{8}$$

We consider that the estimations considered, could mitigate weaknesses in the model and reduce estimation biases. First, we used fixed effects estimate to remove omitted variable bias of any variable that could explain employment, sales, and profitability but are not considered on the model. Second, we use year-lagged covariates to attenuate a possible reverse causality, as it captures the effect of the microcontrol variables in the past, on the current level of performance. Even though it is an ad-hoc solution, we consider it adjusts well enough to investigate the relationship of interest.

5. Results

5.1. Differences in performance by export destination

Table 1 presents the inferential analysis results comparing the mean differences in the main performance variables between firms that export to the United States of America and those that export to other countries. The analysis considers the mean values of sales income, employment, and profitability, measured by the return on equity.

Table 1
Mean difference of firms' performance

Variable	Export to USA	Export to other countries	Diff	t
Sales income	22	13.8	8.2***	6.49
Employment	189	78	111***	13.16
Profitability	0.29	-0.34	0.63***	6.96

Notes: *p <0.1, **p <0.05, ***p <0.01. The sales income is represented in million USD.
Source: Superintendencia de Compañías, Valores y Seguros. Authors' elaboration.

The mean difference test results indicate that, on average, firms exporting to the United States have higher sales income, employment, and profitability compared to firms exporting to other countries. These differences are significant at the 95% and 99% confidence levels. To ensure robust analysis, we also present the Kernel density estimation for the natural logarithm of each variable used to measure firm performance. The Kernel density estimation, a non-parametric method of estimating the probability density function, calculates the likelihood of the analyzed variables reaching specific values. Therefore, the graphs illustrate the distribution of performance variables for exporting firms to the US compared to exporters to other countries.

The following figures show the Kernel density of the level of sales, employment, and profitability of the firms from 2015 to 2022. We show the two groups of firms analyzed, the ones that export to the USA, represented by the solid red line, and those exporting to other countries, the dashed blue line. The Figure 6 that analyzes the level of sales shows that on the right extreme, the curve for exporting firms to the US is shifted to one side, which indicates a higher probability that a larger proportion of exporting firms to the US are in the upper range of sales. In the same line, at the lower end of the sales spectrum, there is a higher probability of concentration among exporters to other countries.
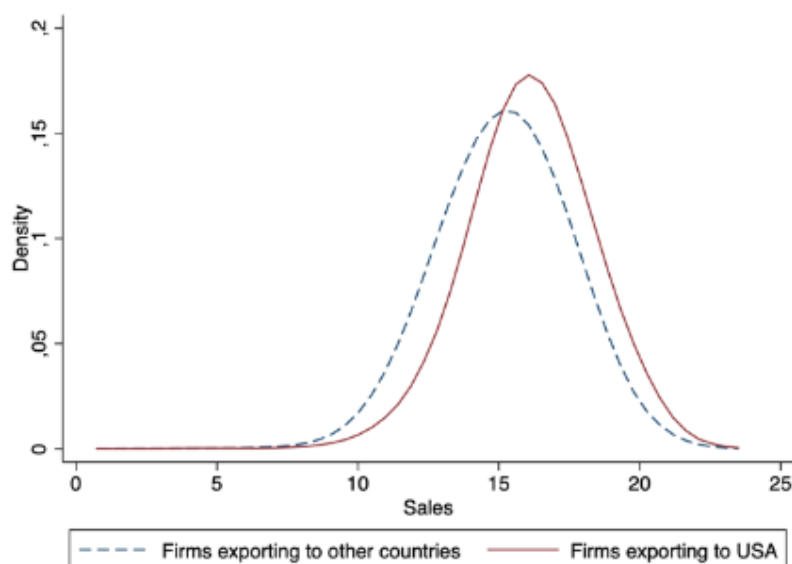

Figure 6: Kernel density of sales comparing firms that export to the US vs to other countries

In the case of level of employment, measured by the number of employees, the results are similar, showing that firms that export to the USA have a higher probability of being in the upper range of employment. Furthermore, in this case, the curves are not distributed similarly, the probability density curve for exporting firms to the US is wider than that of exporters to other countries, suggesting greater dispersion in employment level for exporting firms to the US, whereas the distribution of firms exporting to other countries is more concentrated and is left-skewed, which means that few firms have a large number of employees.

Moreover, the figure 8 shows the analysis of the level of profitability. In the case of firms that export to other countries, the peak of the curve is at a lower level of profitability level compared to the firms that export to the USA. Hence, the graph suggests that, even when both groups cover a similar distribution shape, the USA presents higher levels of profitability compared to their counterparts.

5.2. The effect of export destination on performance

Table 2 presents the results of the specifications detailed in the empirical strategy section. The analysis of the relationship between being an exporting firm to the USA and the level of sales is done using different model specifications and subsamples. The subsamples are divided into Panel A, which considers all the exporting firms that report their balance sheets to the Superintendencia de Compañias, Valores y Seguros, regardless of year-continuity, and Panel B, only considers the firms that have data for all the periods. Each panel has four specifications with various covariates and fixed effects applied. The micro covariates are included in all the specifications but are not reported for reasons of parsimony and relevance. The results of column four include the lagged covariates.

In Panel A, the coefficient of the export level variable is positive and significant across the specifications, which indicates that an increase in export level consistently influences a greater level of sales. In
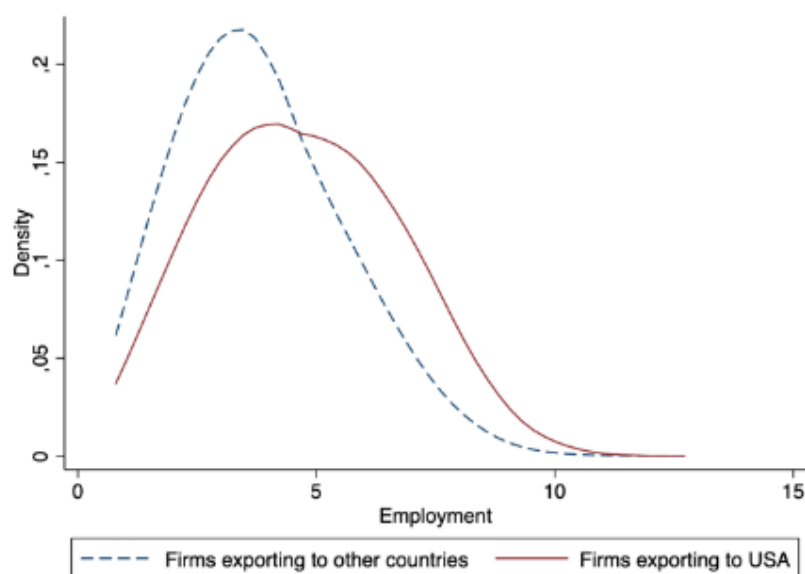
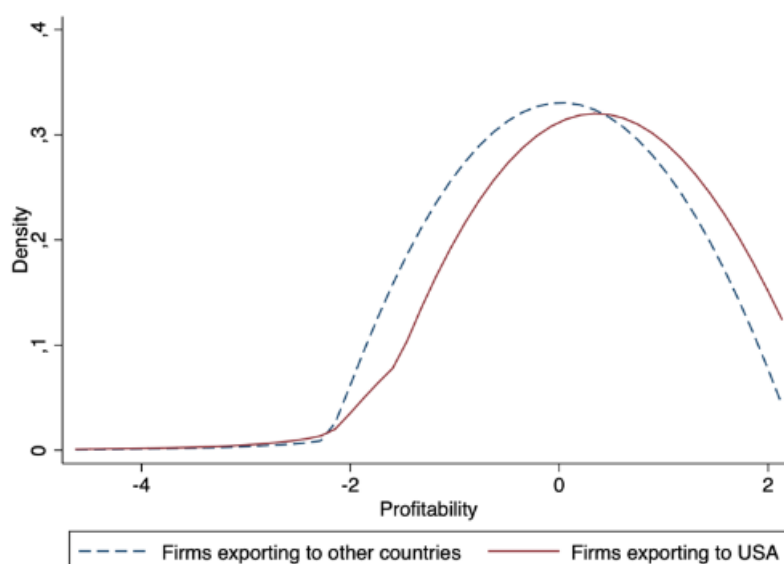**Figure 7:** Kernel density of employment comparing firms that export to the US vs to other countries

Figure 8: Kernel density of profitability comparing firms that export to the US vs to other countries

the case of the coefficient of interest, of D. Exporting to USA, it is also positive and strongly significant in all the specifications. The results highlight that being an exporting firm to the USA has a positive impact on sales. In the case of Panel B, which uses a smaller sample, the results are similar with lower coefficients than Panel A.

Overall, the results are robust across different model specification, which suggests that the observed relationship is not driven by omitted variable bias. The inclusion of firm and time fixed-effects control for unobserved heterogeneity, further validates the findings.

Notes in the Table 2: Robust Standard errors in parentheses, * $p<0.10$, ** $p<0.05$, *** $p<0.01$. Dependent variable: Return on assets as a measure of Profitability. Panels are subsamples created following certain conditions. Panel A is referred to all the samples without dropping firms for any year-continuity criteria. Panel B is referred to a sample where only firms which have all the periods are considered. FE represents a fixed effects regression. Specification (1) follows an Ordinary Least Squares estimation,

Table 2
The influence of exporting to the US on firms' sales

VARIABLES	(1) SALES	(2) SALES	(3) SALES	(4) SALES
Export level	0.0470***	0.0374***	0.0353***	0.0240***
	(0.00250)	(0.00322)	(0.00267)	(0.00405)
D. Exporting to USA	0.138***	0.186***	0.187***	0.160***
	(0.0233)	(0.0324)	(0.0324)	(0.0413)
Number of firm	5,538	5,538	5,538	3,065
Micro Controls	yes	yes	yes	yes
Macro Controls	yes	no	no	no
Firm F.E	no	yes	yes	yes
Time F.E.	no	no	yes	yes
		PANEL B		
Export level	0.0395***	0.0292***	0.0307***	0.0200***
	(0.00359)	(0.00579)	(0.00555)	(0.00488)
D. Exporting to USA	0.0367	0.134***	0.136***	0.167***
	(0.0322)	(0.0411)	(0.0408)	(0.0521)
Number of firm	716	716	716	716
Micro Controls	yes	yes	yes	yes
Macro Controls	yes	yes	no	no
Firm F.E	no	yes	yes	yes
Time F.E.	no	No	yes	yes

specification (2) (3) (4) follows a Panel Data Estimation with fixed effects, and for specification (4) we consider 1-year lagged covariates. The microcontrols described in the data section are included in all the specifications. We do not report these variables for parsimony reasons. We report the level of exportation, which is the natural logarithm of exportation, and the D. exporting to the USA, which is the dummy variable that is equal to 1 if firms export to the USA.

Table 3 presents the regression results of the analysis of the relationship between firms exporting to the USA and employment. The dummy variable of interest, the export destination, exhibits a positive and significant effect on the level of employment, with 99% and 95% of confidence. The coefficient decreases in the specifications (2) through (4), suggesting a reduced impact. This decrease may be caused by the introduction of the firm-invariant characteristics, captured by the fixed effects. Conversely, for Panel B, which established stricter controls for the sample, the results are positive but not significant.

These results show that even though the effect of exporting to the USA in the level of employment is positive, it is more sensitive to model specifications and controls applied, which implies that other factors related to the firms' operations and other economic conditions contribute significantly to the employment, more than the fact of exporting or not to a specific market.

Notes in the Table 3: Robust Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01. Dependent variable: Return on assets as a measure of Profitability. Panels are subsamples created following certain conditions. Panel A is referred to all the samples without dropping firms for any year-continuity criteria. Panel B is referred to a sample where only firms which have all the periods are considered. FE represents a fixed effects regression. Specification (1) follows an Ordinary Least Squares estimation, specification (2) (3) (4) follows a Panel Data Estimation with fixed effects, and for specification (4) we consider 1-year lagged covariates. The microcontrols described in the data section are included in all the specifications. We do not report these variables for parsimony reasons. We report the level of exportation, which is the natural logarithm of exportation, and the D. exporting to the USA, which is the dummy variable that is equal to 1 if firms export to the USA.

Table 4 presents regression results analyzing the relationship between export activities and return on assets (ROA), a measure of profitability. In Panel A, the "export level variable shows positive and

Table 3
The influence of exporting to the US on firms' employment

VARIABLES	(1) EMP	(2) EMP	(3) EMP	(4) EMP
Export level	0.0276***	0.0156***	0.0154***	0.0142***
	(0.00245)	(0.00289)	(0.00248)	(0.00347)
D. Exporting to USA	0.248***	0.0872***	0.0871***	0.0901**
	(0.0244)	(0.0300)	(0.0301)	(0.0445)
Number of firm	5,643	5,643	5,643	3,221
Micro Controls	yes	yes	yes	yes
Macro Controls	yes	no	no	no
Firm F.E	no	yes	yes	yes
Time F.E.	no	no	yes	yes
PANEL B				
Level of exportations	0.0203***	0.0122***	0.0109***	0.0120***
	(0.00407)	(0.00407)	(0.00327)	(0.00324)
D. Exporting to USA	0.136***	0.0467	0.0480	0.0814
	(0.0427)	(0.0481)	(0.0482)	(0.0566)
Number of firm	716	716	716	716
Micro Controls	yes	yes	yes	yes
Macro Controls	yes	yes	no	no
Firm F.E	no	yes	yes	yes
Time F.E.	no	no	yes	yes

significant coefficients across all specifications, ranging from 0.0346 to 0.0820. These results suggest that higher levels of exports are associated with increased profitability. The dummy variable, D. Exporting to USA, also exhibits strong positive and significant coefficients in all specifications, with values ranging from 0.482 to 0.603. This indicates that firms exporting to the USA experience higher profitability compared to those that do not. The consistency of these significant results, even after including various controls and fixed effects, highlights the substantial impact of exporting to the USA on profitability. However, the coefficient decreases slightly when both firm and time-fixed effects are included (specifications 3 and 4), suggesting that some of the observed effects may be due to unobserved heterogeneity that is accounted for by these fixed effects. The panel shows similar results, which underscore the importance of expanding export operations to enhance profitability.

Hence, the impact of exporting to the USA, while robust, is somewhat sensitive to the inclusion of fixed effects, indicating the role of firm-specific and temporal factors in shaping this relationship. These findings provide valuable insights for firms and policymakers aiming to leverage export activities for profitability enhancement.

Notes in the Table 4: Robust Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01. Dependent variable: Return on assets as a measure of Profitability. Panels are subsamples created following certain conditions. Panel A is referred to all the samples without dropping firms for any year-continuity criteria. Panel B is referred to a sample where only firms which have all the periods are considered. FE represents a fixed effects regression. Specification (1) follows an Ordinary Least Squares estimation, specification (2) (3) (4) follows a Panel Data Estimation with fixed effects, and for specification (4) we consider 1-year lagged covariates. The microcontrols described in the data section are included in all the specifications. We do not report these variables for parsimony reasons. We report the level of exportation, which is the natural logarithm of exportation, and the D. exporting to the USA, which is the dummy variable that is equal to 1 if firms export to the USA.

Table 4
The influence of exporting to the US on firms' profitability

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
Export level	0.0346***	0.0820***	0.0631***	0.0600***
	(0.0118)	(0.0157)	(0.00881)	(0.00712)
D. Exporting to USA	0.603***	0.524***	0.588***	0.482***
	(0.0863)	(0.107)	(0.108)	(0.143)
Number of firm	5,841	5,841	5,841	3,318
Micro Controls	yes	yes	yes	yes
Macro Controls	yes	no	no	no
Firm F.E	no	yes	yes	yes
Time F.E.	no	no	yes	yes
		PANEL B		
Export level	0.0392***	0.0632***	0.0596***	0.0626***
	(0.00541)	(0.00822)	(0.00629)	(0.00656)
D. Exporting to USA	0.484***	0.422***	0.414***	0.295**
	(0.0583)	(0.0910)	(0.0930)	(0.123)
Number of firm	716	716	716	716
Micro Controls	yes	yes	yes	yes
Macro Controls	yes	yes	no	no
Firm F.E	no	yes	yes	yes
Time F.E.	no	no	yes	yes

6. Conclusions

The study highlights various findings regarding the effect of exporting to the United States on the performance of Ecuadorian firms. First, the inferential analysis reveals that the firms that export to the US, outperform the firms that export to other countries. Those firms show higher mean values for sales, employment, and profitability. Also, the kernel density estimations support the findings, since they show that the firms exporting to the US are in the upper ranges of the performance variables. Similar studies support these conclusions, where they demonstrate that firms exporting to developed markets exhibit better levels of performance [36].

The regression analysis provided deeper insights into the relationship between exporting to the US and firm performance. For sales, the results showed a positive and significant impact of exporting to the US across various model specifications, indicating robust evidence that access to the US market enhances sales performance. These findings align with research by Njikam [37], which highlight the benefits for firms entering larger and wealthier markets. When examining employment, the study found that exporting to the US also positively affects the number of employees within firms, however, the results are not consistent across all the specifications. Lastly, the study concluded that exporting to the US has a substantial positive impact on profitability, as measured by return on assets (ROA). This conclusion is supported by research from Weiss et al. [38] who found that exporting to developed markets often enhances firm performance outcomes, such as innovation.

This research uses rigorous empirical methods, and panel data techniques like fixed effects and lagged covariates to attenuate potential biases. The study concludes by confirming the hypothesis that the export market destination, in this case to the USA, positively influences the performances of the firms. Nevertheless, it is important to mention the limitations of the study. The period of analysis is from 2018 to 2022, due to data constraints, and we analyze a specific set of firms, which limits the external validity of the study. Furthermore, whereas the panel data estimations are robust, they do not always eliminate all the potential sources of bias.

For future research, we could explore additional dimensions of firm performance affected by trade,

such as productivity growth or technological advancement. Moreover, examining the mechanisms through which trade affects firm performance could provide deeper insights into policy recommendations aimed at fostering beneficial trade relationships. Future research could also benefit from comparing different types of products and services exported, and from separating the analysis into three groups, the countries that only export to the US, the ones that also export to other countries, and the firms that only export to other countries. These analyses could delve deeper in the understanding of the benefits of the market destination.

In conclusion, this study contributes valuable empirical evidence linking trade with the United States to improved firm performance in Ecuador. It unveils the importance of considering bilateral trade dynamics when formulating trade policies and strategies, offering implications for both policymakers and stakeholders interested in fostering international trade relationships.

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