

Dollarization on exports: A case study of Ecuador and El Salvador

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Abstract

This paper examines the effect of dollarization on exports for Ecuador and El Salvador, two countries that adopted the U.S. dollar as their official currency in the late 1990s. Using regression analysis and a control group of Latin American countries, the study finds a statistically significant increase in exports for both countries following dollarization. The paper also discusses the potential benefits and drawbacks of dollarization, as well as the limitations and implications of the study's findings. Overall, the research suggests that dollarization can contribute to export-led growth, but careful consideration should be given to the unique circumstances of each country.

1 Introduction

In recent years, dollarization, the adoption of the US dollar as the official currency, has become an increasingly popular approach for countries facing economic turmoil. This is due in part to the recognition that the US dollar remains stable in times of financial crisis, both domestically and internationally. The current Ukraine-Russia crisis had significant economic repercussions not only in the immediate region but also worldwide. This event serves as a reminder of how crises can cause financial instability and adversely affect many countries. For instance, the East Asia and Russian currency crises of 1997 and 1998 caused financial instability that led to the inflation of local currencies, making them a major setback for businesses and citizens. Consequently, this led some countries to opt for dollarization to stabilize their financial systems and prevent further economic downturns.

Ecuador and El Salvador are two examples of countries that have undergone dollarization in recent years. Ecuador experienced an economic crisis between 1998 and 1999, which resulted from a combined inflationary-currency crisis, financial crisis, and a sovereign debt crisis. The country adopted dollarization in 2000, abandoning its local currency, the *sucre*, and replacing it with the US dollar. El Salvador, on the other hand, opted for dollarization in 2001 to address the overvaluation of its currency, the Salvadoran *Colón*. Before 2001, Salvadorans living abroad sent US dollars to their relatives living in the country, who would immediately exchange them for *Colóns* to spend them domestically. This led to an artificially overvalued *Colón* that made the country's exports less competitive.

Prior to their adoption of the US dollar, both Ecuador and El Salvador experienced declining and unstable exports. Therefore, it is of great interest to analyze the impact of dollarization on their respective economies, particularly on their export performance, in order to determine if the post-dollarization outcomes align with expectations and actual outcomes.

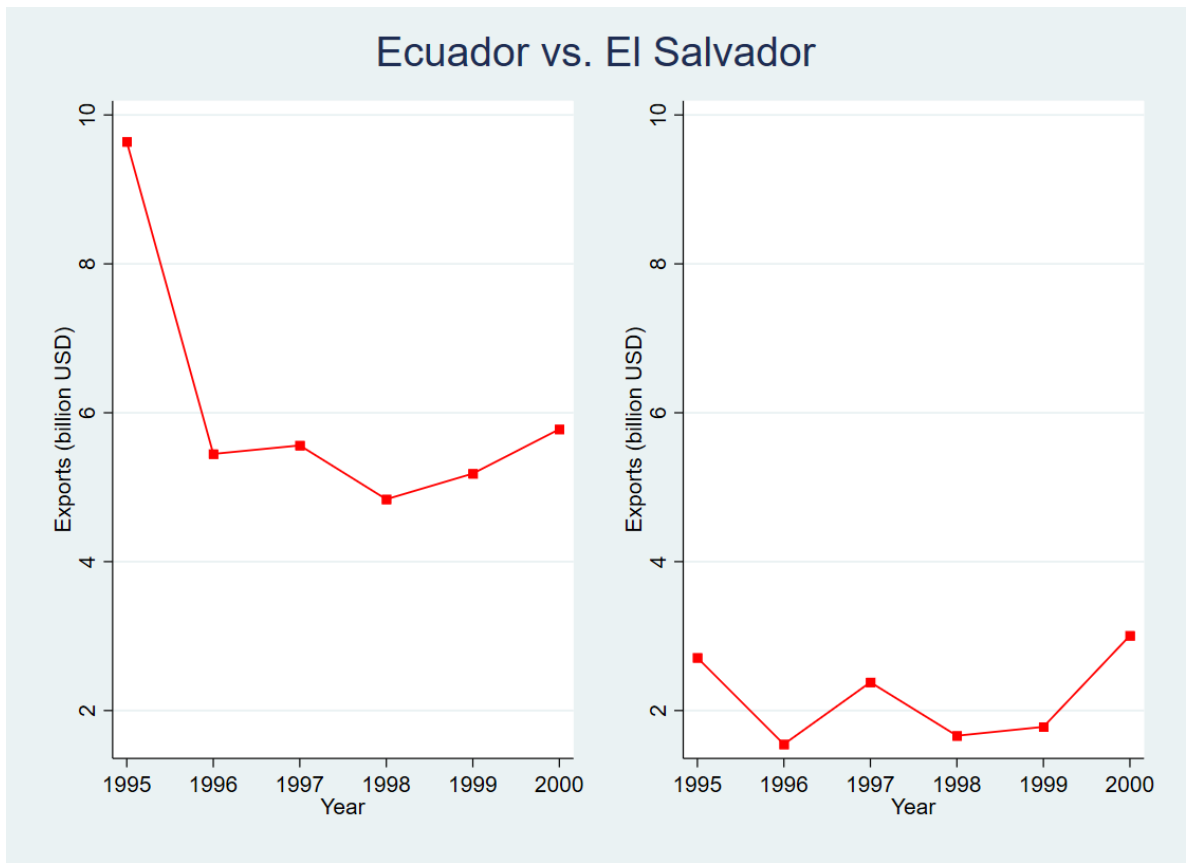


Figure 1: Pre-dollarization exports of Ecuador and El Salvador

The impact of dollarization on exports has become a crucial aspect of international trade, given the decline and instability of Ecuador and El Salvador's exports before dollarization. Therefore, this thesis aims to determine the effect of dollarization on aggregate exports in both countries. By examining the change in export data before and after dollarization, valuable insights into the competitiveness of their products in the global market and its effect on their economies can be gained. Based on historical financial success post-dollarization in other countries, this paper hypothesizes a positive and significant effect of dollarization on exports.

The results of this research will be beneficial to policymakers, economists, and businesses operating in Ecuador and El Salvador, as well as in countries that import goods from them. This study will provide essential information on the impact of dollarization on exports and can inform future policy decisions on the adoption and maintenance of the US dollar as the official currency. Moreover, the findings of this research will also serve as valuable guidance for other countries considering dollarization, allowing them to make informed decisions based on the experiences of Ecuador and El Salvador. While this paper will not cover the effect of

de-dollarization policies, as occurred in Zimbabwe in June 2019, it is a significant topic that requires further exploration.

2 Literature Review

Dollarization has been a critical policy choice for many countries, including Ecuador and El Salvador. Ecuador adopted dollarization in 2000 amidst an economic and banking crisis, while El Salvador implemented it in 2001 to attract foreign investment and build upon previous reforms. Researchers have conducted extensive studies on the macroeconomic indicators and trade flows associated with dollarization in these countries. While previous studies have examined the impact of dollarization on the banking sector, interest rates, bilateral trade, and other macroeconomic indicators, there is limited research that explores the simultaneous effect of dollarization on both countries' exports to the rest of the world.

For instance, Quispe-Agnoli and Whisler (2006, 71) found that dollarization improved bank performance in Ecuador, but the effect on exports was not addressed. In contrast, Rivera (2007, 14) used a gravity model to show that dollarization had a positive effect on El Salvador's bilateral trade, but imports increased, and exports grew slower as a result. Similarly, Towers and Borzutzky (2004, 42) and Havaladar (2020, 71) documented declining nominal and real interest rates after dollarization in El Salvador. Anderson (2016, 59-60) analyzed the role of dollarization in curing hyperinflation and promoting low GDP growth in Ecuador, but the effect on exports was not considered.

Despite the abundance of literature on dollarization's effects, the literature is inconclusive about its impact on exports for both Ecuador and El Salvador. Sandoval et al. (2015, 15-16) found no significant effect on El Salvador's exports through F-tests and gravity-model regression analysis, while Vasquez et al. (2018, 19-20) noted that Ecuador's exports were affected by a higher proportion of US-Ecuador transactions but weakened competitiveness, resulting in ambiguity. Furthermore, previous studies have failed to examine the impact of dollarization on exports to the rest of the world. Additionally, Rivera (2007) only examined the effect of dollarization on El Salvador's exports by using its major trading partners without a control group.

Therefore, this research paper aims to fill this gap in the literature by exploring the simultaneous effect of dollarization in Ecuador and El Salvador on their exports to the rest of the world. The study will adopt a difference-in-difference research specification and compare the countries' export data to a control group of Latin American (LatAm) countries with

similar GDP per capita trends prior to dollarization. We will later see why this is the case. This approach will provide a comprehensive understanding of the effect of dollarization on exports in both countries and its implications for their economic growth. This research will contribute to the existing literature by providing insights into the impact of dollarization on trade flows in a broader context.

3 Data Summary

3.1 Data Sources and Scope:

To answer the research question, this paper will utilize empirical data. The relevant time period for this research will be from 1995 to 2005, with export data collected yearly and denoted in value of thousands of USD and weight in metric tons. The geographic scope of this research will be all countries trading with Ecuador or El Salvador. The data set that will be used in this research will be obtained from the Centre d'Études Prospectives et d'Informations Internationales (CEPII) website, which is the main French institute for research into international economics. In particular, the BACI database is chosen for the bilateral trade flows which contain the export values. This data has been carefully chosen as it has extracted the relevant export data between all exporting and importing countries and compiled it into one file. To determine suitable Latin American countries to serve in the control group, GDP per capita data will be taken from the World Bank website (i.e., their database). Therefore, all data for this paper is considered accurate and reliable based on these sources.

3.2 Data Selection

The data is available from 1995 to 2021. But due to the confounding effects that the 2008 financial crisis and the series of Euro crises after 2008 can have on Ecuador's and El Salvador's exports, export data up to and including 2005 is used (as the housing bubble is increasingly evident in 2006 and 2007). This paper considers all exports from Ecuador, El Salvador, and Latin American countries to the Rest of the World (ROW) due to our control group.

3.3 Data Limitations

While it would have been ideal to include GDP per capita data for all Latin American countries in the analysis, the World Bank dataset for GDP per capita does not contain data for French Guyana, Guadeloupe, Martinique, Saint Barthélemy, and Saint Martin from 1995 to 2005. We will find later that this is not an issue as these countries are omitted from the control group.

Moreover, there are no export data for some small island nations such as Saint Lucia as there are hardly any exports from these countries. However, this is expected to have a tiny insignificant effect on the coefficient estimates due to their small imports from the treated countries, Ecuador and El Salvador.

3.4 Data Transformation

Each observation is year (t), exporter country (i), importer country (j), export value in thousands of USD (v), export weight in metric tons (q), and a 6-digit product code (k)

Three new variables were created. Exports were converted to billion of USD to create a variable and were then log-transformed to create another variable, which had no adverse consequences since (total) export values are strictly positive for all considered countries. A new post-dollarization indicator variable was created. Export weight and product code were redundant so they were dropped.

4 Empirical Strategy

4.1 Estimation Equation

This paper will use a staggered difference-in-difference approach to accommodate the two different treatment years: Ecuador in 2000, and El Salvador in 2001. The estimation equation is as follows:

$$\ln(Exports_{it}) = \alpha + \delta \cdot Dollar_{it} + \beta_i + \gamma_t + \epsilon_{it}$$

The variable, $Exports_{it}$, indicates the export value (in billion USD), from an exporting country i at year t , transformed logarithmically to find the desired effect in percentage changes. $Dollar_{it}$ is the binary variable for a country if that has been dollarized at and after time t . This captures the effect of dollarization on exports only at and after it was implemented. δ is the coefficient of interest. β_i and γ_t captures the country-level and year-level fixed effects respectively. ϵ_{it} is the error term.

4.2 Estimation Method

The basis of this study relies on the parallel trends assumption, which suggests that Ecuador and El Salvador's economic trajectory would have remained unchanged in the absence of dollarization. This assumption helps to control for extraneous factors that may impact exports, including fluctuations in the global economy, shifts in trade policies, and technological advancements. To validate the parallel trends assumption, we will compare the export patterns of Ecuador and El Salvador with a control group average comprised of Latin American countries that exhibit similar GDP per capita trends prior to dollarization. As a side note, we will compare trends for Ecuador up to and including 2001, since the noticeable effect on exports is visible after 2001. This enables a proper parallel trends comparison with El Salvador.

4.3 Control group

4.3.1 Latin America

Furthermore, Latin American countries are used in the control group for several reasons. First, they are geographically close to Ecuador and El Salvador, which are the focus countries of the analysis. This can help make sure that the control group countries have similar regional economic conditions and exposure to global economic shocks, making them more comparable to the treatment countries. Second, Latin American countries share similar historical, cultural, and linguistic ties, which can affect their economic development and trade relationships. Finally, other regions may have different economic and political conditions that could confound the analysis. For example, using countries from Europe or Asia as a control group could introduce differences in trade policies, exchange rates, and other factors that might affect the analysis. For example, in our time period, the East Asia and Russian currency crises in 1998-1999 impacted the entire Latin American region.

4.3.2 Similar GDP per capita levels

To determine whether dollarization has a causal effect on a country's exports, it is essential to control for other factors that could influence exports. For example, some countries might be more vulnerable to currency crises than others, and such crises could affect their export performance. One way to address this issue is to remove Latin American countries with dissimilar GDP per capita levels, as these countries might have different structural characteristics that could confound the analysis. By controlling for the exports of Latin American countries with similar GDP per capita levels, we can more accurately isolate the effect of dollarization on exports. This approach helps to reduce the risk of spurious correlations and provides a clearer understanding of the causal mechanisms at work.

4.3.3 Reasoning for omitting specific countries



Figure 2: Map of Latin America containing treatment, control group, and omitted countries

The above map shows the treatment countries and the control group comprised of Latin American countries with similar GDP per capita levels. The treatment countries are Ecuador and El Salvador. Most Latin American countries were kept. Several large ones such as Mexico, Argentina, and Uruguay were dropped because they each suffered an economic crisis which

caused their GDP per capita levels to deviate away from that of Ecuador and El Salvador.

Mexico suffered the "Tequila" crisis which was a currency crisis sparked by the Mexican government's sudden devaluation of the peso against the U.S. dollar in December 1994 and became one of the first international financial crises ignited by capital flight. The 6.6 percent contraction in GDP and the nearly 30% drop in capital formation that occurred in Mexico in 1995 were closely associated, first, with a persistent rise in the exchange rate along with a growing current account deficit and, subsequently, with a sharp cutback in capital inflows, which forced the country into a recession and a huge devaluation of the peso despite the extensive international support it received in 1995. Their GDP per capita deviated from the levels of Ecuador and El Salvador and dropped from the final regression.

Similarly, the Argentine economy was seriously affected by the Tequila effect. Although this did not lead to a crisis in terms of a sharp drop in the exchange rate against the currency of trading partners, as it had expected in 1995, GDP contracted by 5% and investment shrank by 16% (Ffrench-Davis 1998, 22). Wage increases kept the cost of production in Argentina high, depressing exports and encouraging imports simply because of the appreciation of the US dollar against other currencies and also because of the depreciation (and devaluation in the case of Brazil) of some of the neighboring countries' currencies. Argentina's competitiveness worsened as the dollar strengthened relative to most of the other currencies pulling the peso up with it. The terms of trade also moved against Argentina, with world prices for its exports declining relative to the prices of its imports. But the biggest blow to Argentine competitiveness came when Brazil's currency, the *real*, fell sharply in 1999 (Nataraj and Sahoo 2003, 1643). As a result, their GDP per capita declined soon after 1999 and hence, was removed from the regression.

Uruguay was hit with a major banking crisis in 2002. In this, a massive run on banks by depositors (most of them from neighboring Argentina) caused the government to freeze banking operations. The crisis was caused by a considerable contraction in Uruguay's economy and by over-dependence on Argentina (tourism, and construction boom), which experienced a strong phase of an economic meltdown itself in late 2001. In total, liquidity support provided by the government during 2002 amounted to US \$2.4 billion, or approximately 20 percent of that year's GDP, while the ensuing GDP contraction amounted to approximately 11 percent.

Their GDP per capita decreased the most among all Latin American countries during 2000-2005.

Small island nations such as French Guyana, Guadeloupe, Martinique, Saint Barthélemy, and Saint Martin were dropped from the control group. The economic development and trade policies of these overseas territories are likely to be heavily influenced by France, their metropolis. As a result, significant differences in economic structure, trade relationships, and other factors could confound the comparison of export performance before and after dollarization if included in the control group. By excluding them, the analysis can focus on a more comparable set of countries and provide a more accurate assessment of the impact of dollarization on exports in Ecuador and El Salvador. Puerto Rico's economic policy is influenced by the US in a good way as its GDP per capita has soared past every other country in Latin America in our time period. Furthermore, there were no export data for the remaining small island nations as already mentioned in section 3.3. This is expected to have a tiny insignificant effect on the coefficient estimates.

4.4 Mechanism

When a country adopts the U.S. dollar, it effectively gives up control of its own monetary policy, including the ability to devalue its currency. This can lead to a more stable and predictable exchange rate, which can make it easier for exporters to plan and conduct business. A stable exchange rate also reduces the risk of currency fluctuations, which can be particularly important for smaller, export-dependent countries.

Furthermore, the U.S. dollar is the most widely used currency for international trade, with many countries and businesses preferring to conduct transactions in dollars. This means that by adopting the U.S. dollar, a country can potentially increase its attractiveness to foreign investors and customers, who may be more willing to do business in a country that uses a widely accepted and stable currency.

4.5 Parallel trends

4.5.1 Ecuador

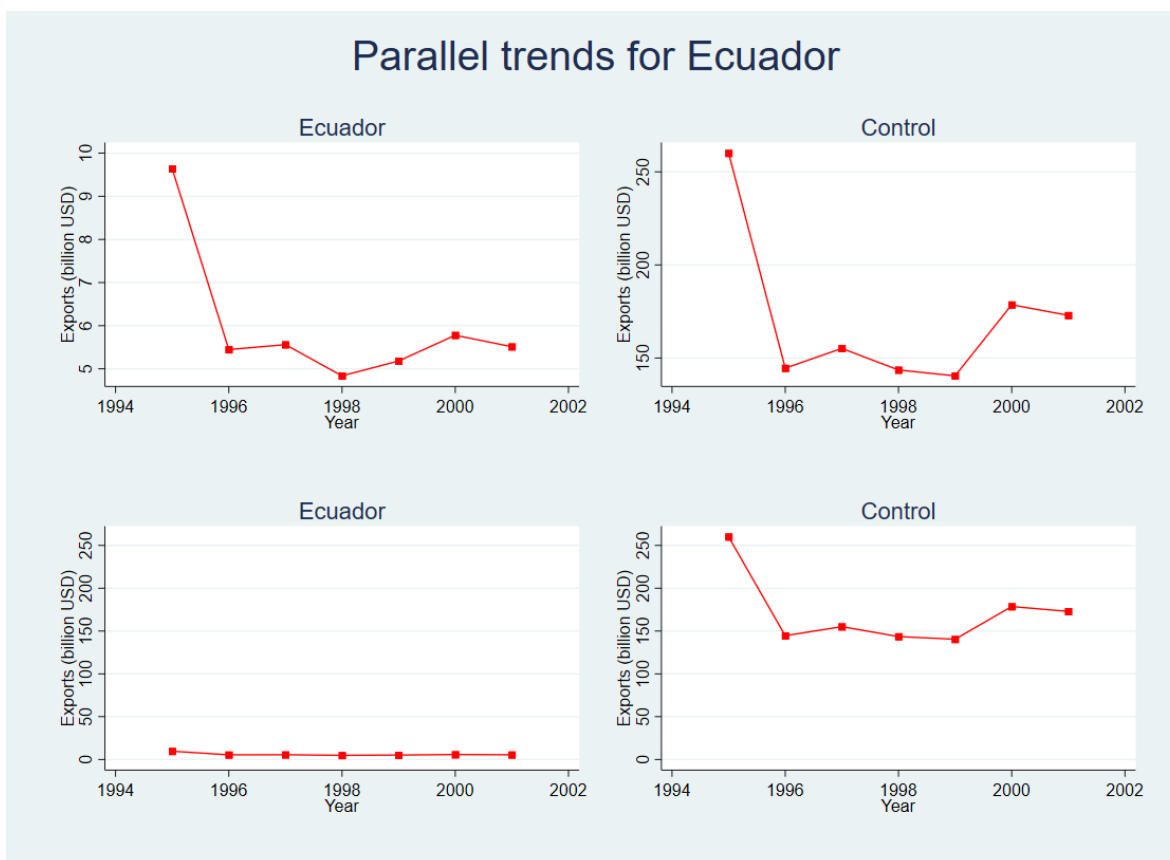


Figure 3: Parallel trends for Ecuador using control group

Upon examining Figure 3 above, it is evident that the parallel trends assumption does not hold for Ecuador's exports. The second row displays a common vertical axis, unlike the first row, which makes it easier to compare the trends. There must be structural differences or external shocks that are not inclusive of the entire Latin American region. Note the first row: although there were similar increases and decreases in exports between Ecuador and the control group average, it is clear that macroeconomic shocks to the control group are in sync with Ecuador.

4.5.2 El Salvador

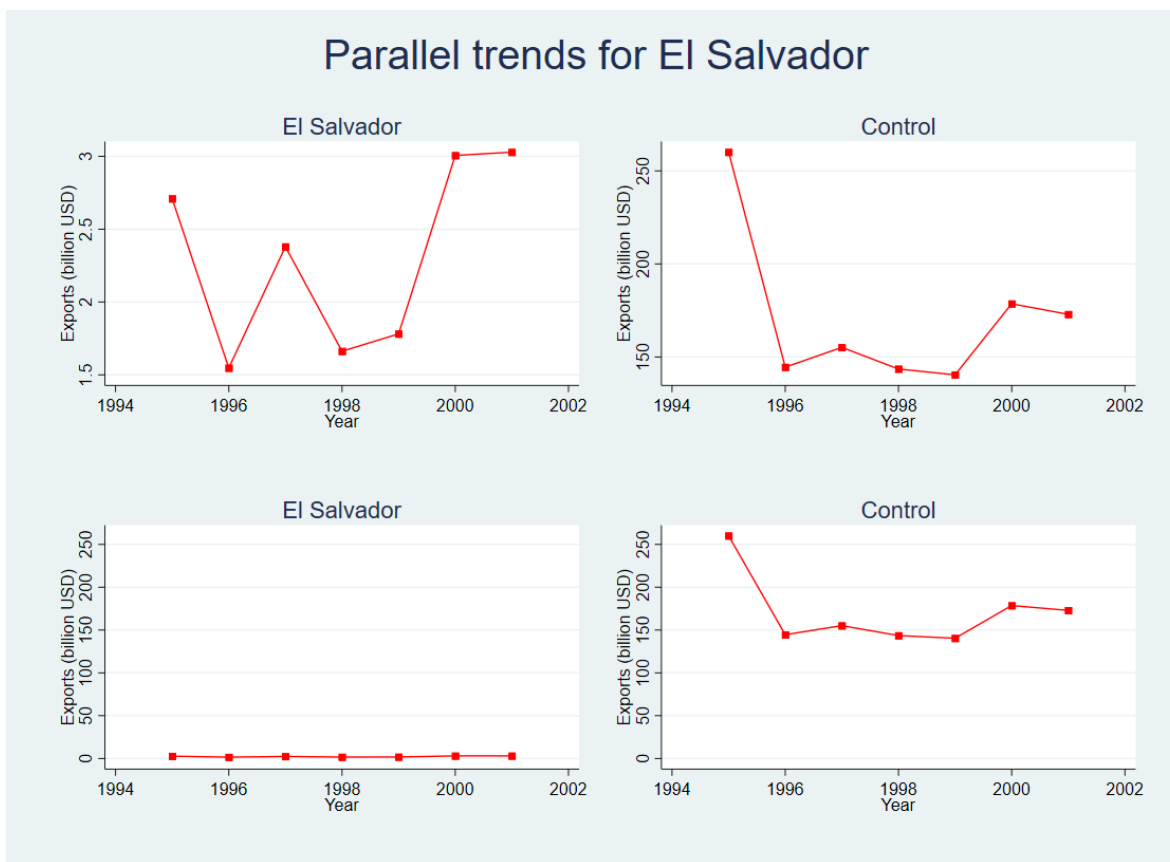


Figure 3: Parallel trends for El Salvador using control group

Similarly, when we examine the second row for El Salvador, we find that the parallel trends assumption also does not hold for its exports. Note the rapid increases and decreases, which are similar to the control group average but more dramatic for Ecuador as its exports were historically lower than those of most Latin American countries in absolute terms, so there would be a larger percentage change in its exports.

Despite the absence of the parallel trends assumption, it is still valuable to estimate the diff-in-diff effect of dollarization on exports for Ecuador and El Salvador. This estimation provides valuable insights into the competitiveness of their products in the global market and the impact on their economies. Therefore, the lack of parallel trends does not diminish the importance of the difference-in-difference effect estimation.

5 Empirical results

Table 1:

VARIABLES	(1) <i>OLS</i>	(2) <i>FE</i>	(3) <i>LATAM</i>	(4) <i>LATAM1</i>
doll _{it}	−2.131*** (0.317)	0.00457 (0.0662)	0.163 ** (0.0708)	0.153 ** (0.0714)
Constant	0.527*** (0.0621)	−1.901*** (0.0949)	3.768*** (0.0443)	0.885*** (0.0469)
Observations	2,401	2,401	253	220
R-squared	0.024	0.971	0.992	0.989
Country FE	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>
Year FE	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Robust standard errors in parentheses. Dependent variable is $\ln(\text{Exports}_{it})$. LATAM is FE regression with LatAm control group. LATAM1 is FE regression with similar LatAm GDP pc levels

5.1 Results

Table 1 shows the impact of dollarization on exports studied through four regressions: an Ordinary Least Squares (OLS) regression, a Fixed Effects (FE) regression, where exports from all countries to the Rest of the World (ROW) are considered, a FE regression with all LatAm countries as the control group, and finally, a FE regression with LatAm countries with similar GDP per capita levels as a control group.

The OLS regression provides an uninterpretable coefficient estimate due to the nature of the OLS regression i.e., the absence of fixed effects. This is supported by the extremely low R-squared value of 0.024.

In the fixed effects regression, the effect of dollarization is approximately a 0.457% increase in exports, which is not significantly different from 0. The t-statistic value of 0.0195 supports this finding. We would naively say that there is no statistically significant effect of dollarization on exports. The estimated coefficient of 0.457% suggests that, on average, dollarizing does increase exports, but the relatively high standard error indicates that the estimate is imprecise and may not be reliable. The lack of statistical significance means that the effect is not large enough to be considered practically important or economically meaningful. Consequently, the FE regression does not provide evidence to support the idea that dollarization has a significant

impact on exports.

The analysis is based on 2,401 observations, which provide sufficient precision and statistical power. However, not taking fixed effects into account results in a residual term with significant variation due to unobserved factors, resulting in an R-squared value close to 0, as seen in running the OLS regression without fixed effects. The high R-squared value (0.971) in the fixed effects regression indicates that the post-dollarization indicator variable and the fixed effects explain 97.1% of the variation in log exports. This suggests that the model is a good fit for the data. Nonetheless, the high R-squared value alone does not guarantee that the estimates are unbiased or that the model is the best fit for the data. This can be amended by robustness exercises.

5.2 Robustness

To ensure the robustness of the analysis, the difference-in-difference regression is performed three times (considering FE only). In the first regression, we consider exports from all countries to the Rest of the World (ROW). In the second regression, we focus on exports from Latin American countries to the ROW. This is done by keeping only observations where Latin American countries are the exporting country. Finally, we include exports solely from Ecuador, El Salvador, and a control group of Latin American countries with similar economic development (GDP per capita) levels. This approach aims to test the sensitivity of the coefficient of interest to different specifications and helps us identify potential outliers that could bias the estimates.

Columns three and four of Table 1 present the results of the second and third regressions, respectively. Using Latin America as a control group, the coefficient estimate in column three is 0.163, which is statistically significant at the 5% level. This suggests a 16.3% increase in exports due to dollarization. Despite the reduction in the number of observations from columns two to three, the increase in standard error is minimal, and the R-squared value is much closer to 1. When we further refine our control group to include only LatAm countries with similar GDP per capita levels, we get an almost identical coefficient estimate, standard error, and a high R-squared value, albeit with a lower number of observations. This is shown in column 4. Our final finding is that dollarization increases exports by 15.3%, with a similar

t-statistic value, suggesting that our regression results are robust.

However, the limitation of the parallel trends assumption not holding is that it could introduce bias into our estimate of the effect of dollarization. Without the parallel trends assumption, we cannot be certain that any changes we observe in exports are solely due to the introduction of dollarization, as other factors that may have affected both the treatment and control groups may not have been adequately controlled for.

In particular, if there were underlying differences in trends between Ecuador and El Salvador and the control group prior to dollarization, these differences could have confounded the effect of dollarization on exports. This is possible because there are within-country differences in our control group. Every country does not share the same characteristics as Ecuador and El Salvador. This could have led to an over- or underestimation of the true effect of dollarization on exports, making it difficult to draw accurate conclusions about the impact of dollarization on export performance.

6 Conclusion

This study shows that dollarization in Ecuador and El Salvador led to a statistically significant increase of 15.3% in their exports, even though the parallel trends assumption did not hold. It is worth noting that while a stable increase in exports was a benefit for El Salvador, it was just one of many benefits it was hoping for. The primary objective of dollarization was to contribute to small increases in economic growth through lowered interest rates, and rising exports were seen as a pathway to higher growth, not the end goal. We can imagine that less importance was given to an immediate rise in exports for El Salvador when compared to Ecuador's case.

It is essential to mention that in this study, each importing country was given equal weight when performing each regression. This included small countries that accounted for a tiny fraction of an exporting country's overall yearly trade. But what if we gave more weight to larger trading partners? Rivera (2007) did this solely for El Salvador. He gave all the weight to trading partners where their trade with El Salvador corresponded to more than 80% of the total Salvadorian trade during the sample period. Specifically, these were Brazil, Costa Rica, Ecuador, Germany, Guatemala, Honduras, Japan, Mexico, Netherlands, Nicaragua, Panama, Spain, and the United States. His gravity model regression found that dollarization had a significant effect of a 52% increase in overall Salvadorian trade. Therefore, if this paper had analyzed the effect of dollarization using Ecuador's and El Salvador's major trading partners alongside the control group, we may have a larger significant point estimate. However, this would have resulted in a considerably smaller number of observations, which may have caused a larger standard deviation.

In conclusion, while dollarization has been found to have a significant positive effect on exports in both Ecuador and El Salvador, it is essential to consider other factors that may have contributed to this increase. Additionally, the method of control group selection should also be considered when estimating the impact of dollarization on exports.

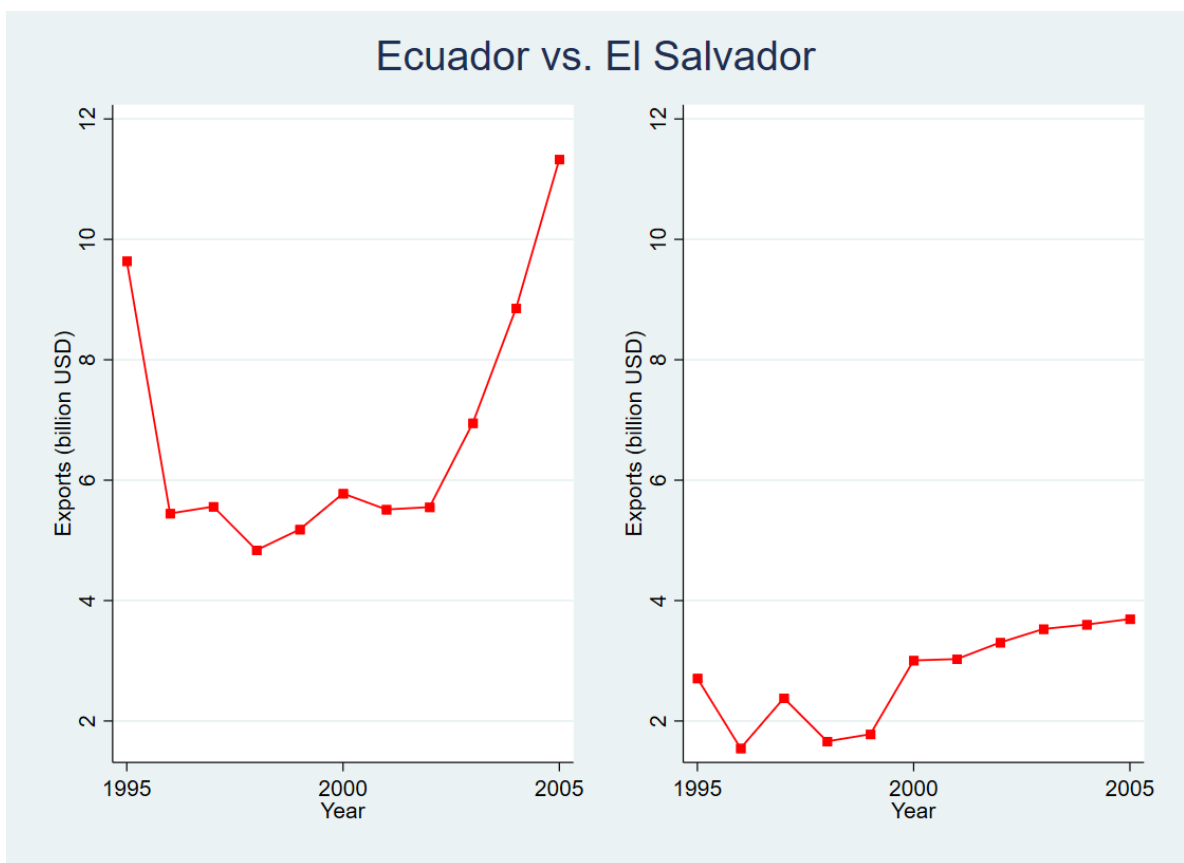


Figure 5: Pre and Post-dollarization exports of Ecuador and El Salvador

6.1 Reality

The visualization provided in Figure 5 clearly indicates a substantial increase in exports for both Ecuador and El Salvador post-dollarization. It is noteworthy that Ecuador's exports saw a sharp surge immediately after dollarization, as opposed to the prior trend, which was the opposite. This change in trend, accompanied by the stable increase in Ecuador's exports, suggests that the adoption of the US dollar as the official currency had a positive and statistically significant effect on Ecuador's exports. Figure 5 also shows a stable increase in El Salvador's exports following dollarization, affirming the statistical significance found in Table 1. These observations reinforce the conclusion that the dollarization policy was successful in boosting exports in both Ecuador and El Salvador. Nevertheless, it is important to consider other potential factors that could have contributed to the increase in exports. For example, any improvements in the infrastructure, institutions, or policies of these countries may have played a role. However, given the evidence presented in both Table 1 and Figure 5, it is

reasonable to conclude that dollarization had a positive impact on exports for both Ecuador and El Salvador.

6.2 Implications

Every country faces different challenges when it comes to financial instability, and it is crucial to assess various solutions to address these issues. If a country's main goal is to achieve export-led growth, then dollarization may be a suitable option, as this paper has demonstrated. Dollarization has the potential to increase exports by providing greater monetary stability, reducing transaction costs, and increasing confidence among investors and consumers. However, it is important to recognize that dollarization is not a one-size-fits-all solution and may not work for every country or situation.

In contrast, de-dollarization refers to countries reducing their reliance on the US dollar as a reserve currency, medium of exchange, or as a unit of account. While there is limited research on de-dollarization, it can have significant effects on a country's economy, particularly in the area of exports. This paper would hypothesize a negative statistically significant effect of de-dollarization on exports. In Zimbabwe's case, de-dollarization occurred in June 2019 when the country replaced the US dollar with the Zimbabwe dollar. While it is too soon to determine the long-term effects on exports, it is likely that de-dollarization will create greater uncertainty and volatility in the country's financial system, potentially leading to a decline in exports. Therefore, it is important for policymakers to carefully consider the potential consequences of de-dollarization before implementing such measures.

7 References

- Anderson, Ariana. 2016. "Dollarization: A case study of Ecuador." *Journal of Economics and Development Studies* no. 2: 56-60. <https://doi.org/10.15640/jeds.v4n2a4>.
- Ffrench-Davis, Ricardo. 1998. "Policy Implications of the Tequila Effect." *Challenge* 41(2), 15-43. <http://www.jstor.org/stable/40721819>.
- Havaladar, Deepak. 2020. "Dollarization – A Case Study of Panama, Ecuador, and El Salvador." *International Journal of Humanities and Social Science* 7 (5): 69-71. <https://doi.org/10.14445/23942703/ijhss-v7i5p108>.
- Nataraj, Geethanjali, and Sahoo, Pravakar. 2003. "Argentina's Crisis: Causes and Consequences." *Economic and Political Weekly*, 38(17), 1641-1644. <http://www.jstor.org/stable/4413486>
- Quispe-Agnoli, Myriam and Elena Whisler. 2006. "Official Dollarization and the Banking System in Ecuador and El Salvador." *Economic Review - Federal Reserve Bank of Atlanta* 91 (3): 55-III. <https://www.proquest.com/scholarly-journals/official-dollarization-banking-system/docview/200340686/se-2>.
- Rivera, Jorge Raul. 2007. "Analysis of Trade on El Salvador Post Dollarization." PhD diss., Louisiana State University and Agricultural Mechanical College. https://digitalcommons.lsu.edu/gradschool_theses/1721?utm_source=digitalcommons.lsu.edu%2Fgradschool_theses%2F1721&utm_medium=PDF&utm_campaign=PDFCoverPages.
- Sandoval, Luis, Jaime E. Malaga, and Carlos E. Carpio. 2015. "Analysis of the Impact of Dollarization and CAFTA-DR on El Salvador's Trade Flows." *AgEcon Search*. 2015. <https://ageconsearch.umn.edu/record/196817>.
- Towers, Marcia, and Silvia Borzutzky. 2004. "The Socioeconomic Implications of Dollarization in El Salvador." *Latin American Politics and Society* 46 (3). Cambridge University Press: 29-54. <https://doi.org/10.1111/j.1548-2456.2004.tb00284.x>
- Vasquez, Carmen Alavarez, Victor F. Guaranda Sornoza, Lilian del Jesus Aguilar Ponce, Antonio E. Pinargote Vasquez, Diana A. Zambrano, Jessenia H. Moran Chilan. 2018. "Cost-Benefit Analysis of Dollarization, Ecuador Case." *Dominio de Las Ciencias* 4 (4): 3-24. <https://doi.org/https://dx.doi.org/10.23857/dom.cien.pocaip.2018.vol.4.n.4.3-24>.