Assessing the Effect of State Visits on International Trade: 
The case of Brazilian Exports

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Abstract The literature often suggests that trade is a key factor in economic growth and development. In this context, many countries have adopted different diplomatic policy actions as strategies to promote foreign trade. Nonetheless, empirical studies on this subject have still quite heterogeneous results and do not present a conclusive answer regarding the effectiveness of such policies. This paper contributes to this literature with new evidence on the influence of state visits on foreign trade. Using a dynamic version of the gravity model of trade, we assess the effect of Brazilian presidential visits on Brazilian exports during 1985-2016. The results show that presidential visits had a positive and statistically significant impact on Brazilian exports. The estimated impact, approximately 33%, is slightly greater than the ones found in similar studies for other developing countries.

Keywords: State visits, Exports, Gravity model of trade, Generalized method of moments.

JEL Classification: F14, F59, C33

1. Introduction

Heads of state constantly make official visits to discuss common agendas related to politics, economic cooperation, human rights, environmental protection, cultural exchange or other issues as well as to participate in multilateral meetings, such as forums and conferences (Kunychka and Raneta 2016; Nitsch 2007; Yeo and Lee 2009). Despite substantial advances in communication technology, mutual visits between countries have actually increased in recent decades, as shown by Lin, Yan and Wang (2017). This upward trend is likely due to the effectiveness of state visits in promoting agreements and deals in comparison with simple remote communication, although their costs are considerably higher.

One aspect of official visits that has become quite relevant in the analysis of international policies is their effect on foreign trade. As the literature has shown, foreign trade can benefit an economy in various ways. It can promote growth, increase productivity and have positive impacts on employment, pay and job qualifications, regardless of whether the country is an exporter or importer (Johnson 2012; Case, Fair and Oster 2014). Many researchers and politicians often claim that foreign trade is a key factor in economic development. Unsurprisingly, it has been steadily growing in the world economy. Data from the World Trade Organization (2017), for example, shows that the total value of global exports of goods and services was $19 trillion in 2017, almost 25% of world GDP.
Motivated by the economic relevance of such relationship, several studies have analyzed the repercussions of diplomatic foreign policy actions on international trade. They consider its many forms, such as diplomatic (embassies, consulates, honorary consulates) and non-diplomatic representations (trade and investment promotion agencies, international chambers of commerce, regional trade representations) and high-level diplomacy, carried out by the president himself, including official visits.

In general, the results are quite heterogeneous and did not present a conclusive answer regarding their effectiveness. Although many studies used a similar statistical approach, based on the gravity model of trade, each analyzed only the reality of one or several countries, for a limited period of time. Since each region is part of a specific economic context, much like each trip has its own objectives, the divergence between the results is understandable.

Dealing more specifically with official state visits — the focus of this study — Nitsch (2007) estimated that a visit by a head of state was associated with an increase in exports of approximately 8 to 10 percent for France, Germany and the United States between 1948 and 2003. Lavallée and Lochard (2016) found a similar effect when they assessed only French exports from 1977 to 2007. Johnson (2012), however, did not find a statistically significant effect for Denmark, Norway, the United Kingdom or Sweden between 1995 and 2010.

In the case of developing countries, the estimated effects seem to be considerably larger. Yeo and Lee (2009) showed that each international visit by South Korean presidents from 1981 to 2007 increased exports to the country visited by approximately 39%. Kunychka and Raneta (2016) estimated an average increase of 29% in Ukrainian exports to each country visited by its president from 1995 to 2014. Ekmekci and Yildirim (2013), when analyzing Turkish foreign policy in economic and ideological contexts through President Recep Tayyip Erdogan’s trips, also found a rather significant positive effect using Poisson regression models.

It is worth noting that in the case of China, a major player in international trade, the results point to a non-significant impact. Denny (2012) explored the impact of visits by Chinese presidents, prime ministers, foreign ministers and trade ministers to African states on bilateral Sino-African trade between 2003 and 2010. Although some positive results were found, the study’s conclusion was that visits by Chinese heads of state to Africa do not in fact lead to an increase in bilateral trade. Lin, Yan and Wang (2017) reassessed this same case considering a more comprehensive sample, comprising 48 African countries from 1990 to 2012. According to the estimates, an African state visit to China increases Chinese exports to Africa by 1% on average. Considering several countries around the world, Liu (2017) found that the impact of Chinese diplomatic visits on international trade, including trips by Chinese presidents, vice presidents, prime ministers, deputy prime ministers and heads of state, between 2002 and 2012, was, in general, not significant.

The present study contributes to the literature by analyzing the relationship between official visits and export volume for Brazil, the most prominent Latin American economic agent in international trade. In recent decades, the country has increased and developed different aspects of its activities related to foreign trade.

The economic liberalization initiated by the Fernando Collor government (1990-1992), followed by inflationary stabilization during Itamar Franco’s term (1993-1994) allowed the country to enter the globalized world, beginning in the Fernando Henrique Cardoso
government. It was during his term, in 1999, that the Brazilian real was devalued, allowing the development of a plan to strengthen exports. Lula, his successor as president, maintained Fernando Henrique’s strategy with regard to exports, while adjusting the political rhetoric, causing Brazil to distance itself from the countries of the Global North, and demonstrate a greater proximity to different underdeveloped nations, which had previously been relegated to the background. Noteworthy here is the significant impact on the increase of Brazil-China bilateral trade.

In any case, the increase in trade and political relations with developing countries met with fewer difficulties in the Lula government largely because these countries were emerging economically and thus demanding more imported products, particularly raw materials (Lima and Duarte 2013; Vieira 2014). As shown in Graph 1 in the appendix, there was a substantial increase in Brazilian exports from 1985 to 2016, likely as a result of this.

Given this context, this study seeks to identify whether official visits by presidents contributed to an increase in the flow of exports to the countries visited. The analysis will be carried out by applying the dynamic gravity model to a data panel comprising 347 international trips by Brazilian presidents to 85 countries from 1985 to 2016. Previous studies have found no significant impact from diplomatic actions on Brazil’s trade. Vieira (2014), for example, through the use of probit models, found that presidential trips did not affect the direction of Brazilian exports in the period from 1992 to 2008, although there was a critical juncture in the handling of Brazilian foreign policy between 1997 and 2002. In addition to employing a more comprehensive database, this study differs from the previous literature by using an empirical dynamic panel model, which is more suitable for studying variables that are strongly time-dependent. This method was also used in studies on the relationship between official visits and exports in Fuchs and Klann (2013) and Liu (2017).

Another advantage of the dynamic panel model is the treatment of the endogeneity of the official visits variable in the study of foreign trade. Using the generalized method of moments (GMM) estimation, it is possible to instrumentalize this variable in an attempt to nullify the bias caused by the problem. Although the suspected endogeneity is plausible, the literature is not conclusive as to its presence and the size of the bias. Nitsch (2007) used the number of tourists received by countries, but the impact of the visits estimation did not change significantly. Lin, Yan and Wang (2017), using instrumental variable estimators, suggested that endogeneity is not a major problem in the study. Exogeneity tests in Liu (2017), in log-linear and Poisson pseudo maximum likelihood (PPML) models, indicated no such problem.

The remainder of the paper is divided into four sections. The first section addresses the theoretical model, the methodology developed and the econometric foundations used to obtain the results. The second section describes the database used. The third section presents the results obtained using the estimated model and makes an analogy to the results found in other related studies. Finally, the fourth section presents the study’s final considerations, which are followed by the bibliographic references and the appendix.

2. Empirical Approach

The econometric model used to ascertain whether state visits have an impact on trade relations is based on the gravity model of trade. It is a derivation of Isaac Newton’s universal law of gravity, in which the economic attraction between two countries is measured by expected trade
levels, based on the size of their economies (generally determined by Gross Domestic Product – GDP) and the distance between them.

Perhaps the first mathematical formulation and empirical application of the gravity model in economics took place in 1960 in Walter Isard’s book *Methods of Regional Analysis: An Introduction to Regional Science*, in which the author sought to assess the potential of labor mobility between different regions of the United States. It was followed by studies from Tinbergen (1962), Poyhonen (1963) and Linnemann (1966), which estimated the flow of trade between two countries, using basic variables that are still used today to determine this flow. Some studies gradually began to establish the microeconomic foundation of the gravity model of trade, such as Anderson (1979), Bergstrand (1985), Bergstrand (1989) and Anderson and Van Wincoop (2003).

For the panel data analysis, as in the present study and in most of the previous empirical studies, the benchmark model based on the gravity equation is Baldwin and Taglioni (2006), who adapted the econometric equation from Anderson and Van Wincoop (2003). The basic regression equation is commonly estimated in log-linear form, taking as a dependent variable the log of exports from nation “o” to nation “d” ($T_{rd,od,t}$) and as independent variables the log of GDP ($GDP_{d,t}$), representing the size of the economies, the log of the distance between the nations ($Dst_{od}$), and other control variables ($X_{j,od,t}$) that can typically affect international trade. A detailed description of these variables is presented in the following section.

$$T_{rd,od,t} = a_{od} + \delta_t + \beta_1GDP_{d,t} + \beta_2Dst_{od} + \sum_{j=3}^{K}\beta_jX_{j,od,t} + \epsilon_{od,t}, \quad (1)$$

where $a_{od}$ and $\delta_t$ are control terms for heterogeneity between units and over time, and $\epsilon_{od,t}$ is an error variable.

The empirical model adopted in this study highlights the variable of interest, official visits by the president of nation “o” to nation “d” ($V_{st,od,t}$) and employs a dynamic structure.

$$T_{rd,od,t} = a_{od} + \delta_t + \beta_1T_{rd,od,t-1} + \beta_2V_{st,od,t} + \beta_3GDP_{d,t} + \beta_4Dst_{od} + \sum_{j=5}^{K}\beta_jX_{j,od,t} + \epsilon_{od,t}, \quad (2)$$

The use of the dynamic panel model is likely more suitable for studying variables whose current values exhibit a certain dependence on their past values. In the specific case of the gravity model, as Bun and Klaassen (2002) and Liu (2017) argue, static panel gravity models of trade are somewhat limited because they only allow contemporary effects. Countries that have traded with each other in previous periods have naturally developed a distribution network for products and services, reducing trade barriers and generating product loyalty. The previous trade between two countries is thus a variable that can positively affect contemporary relations. Ignoring this aspect could lead to an incorrect inference from the model.

The empirical model from Equation (2) will be estimated using the GMM method proposed by Arellano and Bond (1991), also called the Arellano-Bond estimator, which is suitable for models with dynamic panel data and is recommended when there is a suspicion of endogeneity in the regressors and, more specifically, because of the natural relationship between the error term ($\epsilon_{od,t}$) and the variable $T_{rd,od,t-1}$, a characteristic of the dynamic panel. The presence of the lagged dependent variable as a regressor makes the results obtained by the ordinary least squares and fixed effects methods biased. In the Arellano and Bond (1991) method, the first difference of the regression equation is taken to eliminate the fixed effects and the lags of the dependent variable, and the regressors are used as an instrument in the GMM estimation.
This method was used in the context of official visits and exports in Fuchs and Klann (2013) and Liu (2017). Furthermore, GMM was also used in other studies related to international trade. Edrees et al. (2015) examined the impact of government spending, economic growth, trade, foreign aid and foreign direct investment on poverty reduction in Africa; Martincus and Carballo (2008) used—among other methods—GMM to investigate the effectiveness of export promotion agencies in Peru. Balamoune-Lutz (2011) used the Arellano-Bond GMM estimator in panel data from African countries to explore the effects of increased international trade between Africa and China; similarly, Giovannetti and Sanfilippo (2009) used GMM to break the Chinese trade’s influence over Africa, examining the impact of the Chinese manufacturing sector on African exports.

The official visits regressor \((V_{stodt})\) will have an econometric treatment similar to that applied to the lagged dependent variable \((Trd_{odt-1})\) in the Arellano and Bond (1991) method, in an attempt to correct problems associated with the possible endogeneity of this variable. As noted in Johnson (2012), when countries are selected for state visits, those with greater market potential for exports will be more likely to be chosen, and thus, trade causes state visits; in turn, state visits can promote trade, as business delegations are present on the trips, and the presidents themselves play the role of negotiator.

The validity of the estimated results will be assessed by a series of tests, as follows: the Arellano-Bond test for the absence of first- and second-order autocorrelation; the Sargan and Hansen “J” tests for over-identifying restrictions, to verify the validity of the instruments; and the Difference-in-Hansen test, to examine the exogeneity of the instruments.

3. Database

The study sample consists of 347 observations for relations between Brazil and 85 countries from 1985 to 2016. Initially, 531 observations were considered. However, a more detailed document analysis in collaboration with the Secretariat of the Presidency of the Republic revealed that some of the official visits made by Brazilian presidents during this period were unofficial trips, such as participation in inauguration ceremonies, funerals, cultural events and sporting events. The observations associated with these visits were excluded from the sample, following the example of Nitsch (2007), Yeo and Lee (2009) and Kunychka and Raneta (2016). Furthermore, trips that were not focused on a specific country were excluded, i.e., those that involved participation in forums and multilateral meetings, such as the General Assembly of the United Nations, as this study is focused on bilateral relations, rather than multilateral ones. The list of trips selected for the sample can be found in Table 3 in the appendix.

Trips to the Vatican (eight trips) and Macau (one trip) were also excluded, due to a lack of data for many other variables as well as for a possible non-economic reason for the visit in the case of the Vatican and a lack of international sovereignty in the case of Macao. States that no longer exist, such as the Union of Soviet Socialist Republics (one trip) and Czechoslovakia (one trip) were also excluded. Finally, the European Union (one trip) was excluded from the sample; although it has legal status under international law, its presence could distort the results, as many states present in the analysis are also members of the European Union. The sample was thus reduced from 531 to 347 trips involving 85 countries.
Although, in most cases, the president did not make more than one trip per country in a single period, there are cases in which several trips occurred. The decision was therefore made to use a variable based on the number of trips made to a given country in a given period, rather than a simple dummy variable indicating that a trip was made, to ascertain whether a higher number of visits has a greater impact on exports, as pioneered by Nitsch (2007), and also carried out by Lavallée and Lochard (2016). The variable $V_{st_{od,t}}$ thus indicates the number of official visits by Brazil’s head of state to country $d$ in period $t$.

The variable $Trd_{od,t}$ indicates the logarithm of Free on Board (FOB) exports from Brazil to destination country $d$ in period $t$, in US$. $GDP_{d,t}$, is the logarithm of the GDP of country $d$ in US$ and $Dst_{od}$ is the logarithm of the distance in kilometers between the main cities (economic centers) of each country. The FOB export data were obtained from the database of foreign trade statistics regarding Brazil’s trade balance, made available by the Ministry of Industry, Foreign Trade and Services (Ministério da Indústria, Comércio Exterior e Serviços - MDIC). The GDP data (in dollars) were taken from the World Bank database, and the distance data were taken from the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

For cases where there is zero flow of exports, Brakman and Bergeijk (2010) warn that the way these data are treated can affect the results. In the present study, there are 39 cases of zero exports, as well as 48 cases of non-existent data for international trade, as they encompass a period prior to the independence of some specific countries. This was solved by assigning a value of 1 (one) to the cases where there is zero flow, following Johnson (2012), and removing from the sample those cases in which there is no trade data due to the lack of autonomy or non-existence of the country in the period in question.

The other explanatory variables, $X_{j_{od,t}}$, are different factors that might impact international trade among countries and which have been used in previous empirical studies. Among the information available for the period and countries, we obtained eight relevant variables, as follows: the logarithm of the area (in square kilometers) of country $d$; the real exchange rate of Brazil’s currency, relative to the currency of country $d$, as an indicator of price competitiveness; and dummy variables representing a similar level of freedom (political rights and civil liberties), same official language, contiguity, existence of a trade agreement (as per MDIC), island destination country and landlocked destination country; in all cases, a value of 1 was attributed for a positive response and a value of 0 was attributed for a negative response.

The data for the countries’ area (in square kilometers) was taken from the World Bank database. The information regarding the distance in kilometers between the economic centers of each country and the common language and contiguity dummy variables were collected from the CEPII. The real exchange rate of Brazil’s currency, compared to each of the currencies of the importing countries in a given period, was taken from a historical series published by the United Nations Conference on Trade and Development (UNCTAD).

The level of freedom was obtained through reports published by the organization Freedom House, based on criteria that classify countries according to the political rights and civil liberties of their citizens, on a scale of 1 to 7, where values from 1 to 2.5 indicate freedom, values from 3 to 5.5 indicate partial freedom, and values from 5.5 to 7 indicate a lack of freedom. Brazil’s level was, therefore, compared with the other countries in the sample, transforming that variable into a dummy that indicates a level of freedom similar to that of Brazil in a given period.
The criterion selected for the trade agreement variable was the existence of a bilateral or multilateral agreement between Brazil and the destination country, according to the MDIC. A value of 1 for the dummy variable indicates the effective validity of an agreement, rather than merely its signing. Finally, information about whether a given nation is landlocked or is an island was obtained through The World Factbook, a Central Intelligence Agency (CIA) publication with general information on countries, including geographical data.

Some variables used in previous studies were not selected for the present study, as they were not suitable for the Brazilian context. For example, no dummy variable for countries using the same currency was included, as only Brazil uses the Brazilian real, as well as the other currencies predating the Brazilian real plan that are contained in the sample. Nor was a variable related to colonial links included, as only two countries would have had a colonial link with Brazil (Portugal and Uruguay). Finally, population and per capita income variables were not included in the model because, although they have been used in the literature, they are usually highly correlated with each other and with GDP, as indicated by Yeo and Lee (2009).

4. Empirical Results

The statistical tests performed to validate the model are shown in Table 1. In the version of the Arellano-Bond estimator used, the first difference of the regression equation was taken to eliminate the fixed effects, and all possible lags of $Trd_{od,t-1}$ and $Vst_{od,t}$ and the first lag of the other explanatory variables were used as instruments. It is important to reemphasize that the explanatory variables $Trd_{od,t-1}$ and $Vst_{od,t}$ were treated in a similar way in the estimation process.

The Arellano-Bond test for autocorrelation in residuals AR(1) and AR(2) was carried out using the estimates of the first and second stages of the parameter. The hypothesis tested is that there is no serial correlation. To that end, AR(2) should not be significant. The results in Table 1 show that AR(2) is not statistically significant, and therefore, the hypothesis that the endogenous variable is a suitable instrument is not rejected since there is no first-order autocorrelation between the error differences.

<table>
<thead>
<tr>
<th>Table 1. Diagnostic Tests for the Estimated Model</th>
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<tbody>
<tr>
<td>Arellano-Bond Correlation Test for AR(1)</td>
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<tr>
<td>Arellano-Bond Correlation Test for AR(2)</td>
</tr>
<tr>
<td>Sargan’s Test</td>
</tr>
<tr>
<td>Hansen’s Test</td>
</tr>
</tbody>
</table>

Difference-in-Hansen tests of exogeneity of instrument sets:

GMM instruments for levels

Hansen test excluding group: $\chi^* = 77.64$  
Prob $> \chi^2_{77}=0.04$

Difference (null H = exogenous): $\chi^* = 0.54$  
Prob $> \chi^2_{2}=0.76$

$iv(GDP_{od,t},Dst_{od,t},d_t,X_{5,od,t},...,X_{12,od,t})$

Hansen test excluding group: $\chi^* = 72.75$  
Prob $> \chi^2_{70}=0.01$

Difference (null H = exogenous): $\chi^* = 5.43$  
Prob $> \chi^2_{11}=0.91$

Note: $Z^*$ and $\chi^*$ are the test statistics and Prob$> Z$ and Prob $> \chi^2_m$ are the corresponding p-values.
The “J” tests proposed by Sargan (1958) and Hansen (1982) were also performed, adapting Sargan’s test to GMM to verify the validity of the instruments when testing the over-identification hypothesis. Sargan’s test assumes the existence of homoskedasticity, whereas Hansen’s test supposes heteroskedastic errors. The null hypothesis of the tests is that all the instrumental variables are not correlated with the error term, i.e., the instruments are exogenous. Under this hypothesis, the test statistic is asymptotically distributed as a chi-square variable with “m - k” degrees of freedom, where “m” is the number of instruments and “k” is the number of endogenous variables. Both tests indicated a rejection of the null hypothesis that all the instrumental variables were not correlated with the error term at the 5% level, thus validating the instruments used.

The Difference-in-Hansen test aims to investigate the exogeneity of the instruments through the difference between the Hansen statistic—with the exclusion of some instruments—and the equation containing all instruments (including suspect instruments). The null hypothesis is that, in both cases, they are valid. The results, shown in Table 1, indicate that the Hansen statistics with the exclusion of suspect instruments were statistically significant at the 5% level (p-values 0.04 and 0.01) and the p-values of the differences (0.76 and 0.91) were not statistically significant at the 5% level, such that it is not possible to reject the null hypothesis that the instruments are valid in the sense that they are exogenous.

Table 2 shows the results obtained through econometric analysis using the Arellano-Bond dynamic panel GMM method. The variable $v_{st,0d}$ is statistically significant at the 5% level and indicates that official presidential visits have a positive impact of approximately 33% on Brazilian exports. This result is consistent with Nitsch (2007), Yeo and Lee (2009), Lavallée and Lochard (2016), Kunychka and Raneta (2016) and Lin, Yan and Wang (2017), as all these studies found a positive influence of visits by heads of state on exports, albeit with different intensities. However, it should be noted that each study has a particular sample, addresses different countries and uses specific statistical methods.

The coefficient obtained for visits made (33%) is higher than the result in Nitsch (2007), who reported a percentage ranging from 8% to 13% in his analyses. The author studied trips by heads of state from France, Germany and the United States, which are countries with a notable global influence in the political, economic and military fields. Lavallé and Lochard (2016), who developed a study on France, found a coefficient similar to that of Nitsch (2007), i.e., 8%. In the case of Denmark, Norway, Sweden and the United Kingdom, Johnson (2012) reported that visits by heads of state had a limited influence on the field of trade. In other words, countries with a great deal of global influence clearly have a wide range of interests, such that an international trip by their head of state can have repercussions far beyond economic effects.

There is a contrast, for example, between the objectives of developed and developing countries, as the latter are primarily concerned with economic expansion and political stability. The impact of a Brazilian presidential visit (33%) can therefore be compared to the effect of visits from other relatively similar countries. The result obtained in the present study was consistent with the coefficients found in Kunychka and Raneta (2016), which reported that state visits had an impact of 29% on Ukrainian exports, and in Yeo and Lee (2009), which found that visits by South Korean presidents contributed to a 39% increase in South Korean exports.
Table 2. Results of the Estimated Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>p-value</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_{rd_{od,t}}$</td>
<td>0.55*</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td>$GDP_{d,t}$</td>
<td>0.49*</td>
<td>0.00</td>
<td>0.16</td>
</tr>
<tr>
<td>$Dst_{od}$</td>
<td>-0.67*</td>
<td>0.03</td>
<td>0.30</td>
</tr>
<tr>
<td>$Vst_{od,t}$</td>
<td>0.33*</td>
<td>0.01</td>
<td>0.12</td>
</tr>
<tr>
<td>Area ($X_{5,od,t}$)</td>
<td>-0.02</td>
<td>0.76</td>
<td>0.06</td>
</tr>
<tr>
<td>Similar level of freedom ($X_{6,od,t}$)</td>
<td>0.01</td>
<td>0.94</td>
<td>0.07</td>
</tr>
<tr>
<td>Common language ($X_{7,od,t}$)</td>
<td>0.21</td>
<td>0.45</td>
<td>0.28</td>
</tr>
<tr>
<td>Island country ($X_{8,od,t}$)</td>
<td>0.08</td>
<td>0.61</td>
<td>0.16</td>
</tr>
<tr>
<td>Landlocked country ($X_{9,od,t}$)</td>
<td>-0.49*</td>
<td>0.04</td>
<td>0.23</td>
</tr>
<tr>
<td>Contiguity ($X_{10,od,t}$)</td>
<td>0.25</td>
<td>0.21</td>
<td>0.19</td>
</tr>
<tr>
<td>Trade agreement ($X_{11,od,t}$)</td>
<td>0.06</td>
<td>0.67</td>
<td>0.13</td>
</tr>
<tr>
<td>Exchange rate ($X_{12,od,t}$)</td>
<td>0.00008*</td>
<td>0.00</td>
<td>0.00002</td>
</tr>
<tr>
<td>Time ($\delta_t$)</td>
<td>0.006</td>
<td>0.16</td>
<td>0.004</td>
</tr>
</tbody>
</table>

$F^*(13.84)$ | 326.94 |
Prob>F (model) | 0.00 |
Observations | 2527 |
Groups | 85 |

* denotes statistical significance at the 5% level.

In the cases of Denny (2012), Liu (2017) and Lin, Yan and Wang (2017), which addressed visits between China and African countries, only the latter achieved a slightly positive result and in only one of the analyses performed, concluding that visits by African heads of state to China increase Chinese exports to Africa by 1%. China’s investment strategies in Africa do not seem to be related to visits by Chinese prime ministers and presidents, but rather to other factors.

In general, there is a clear trend in the literature toward finding evidence that state visits have a positive impact on exports, as this was the result obtained in most of the studies on the subject. There is thus an indication that an economic motivation is one reason for the increase in presidential trips that has occurred in recent decades, as discussed by Lin, Yan and Wang (2017). Although there are costs involved, the presence of the presidents and their delegations may be more efficient than remote communication, thus contributing to the introduction of Brazilian products and services into the markets of the nations visited.

The effect of the recipient country’s GDP is statistically significant and positive, indicating that a 1% increase in the foreign country’s GDP implies an increase of 0.49% in Brazilian exports to that country. The elasticity of GDP was also positive in most of the studies, as follows: in Nitsch (2007), it ranged from 0.16% to 0.84%; Lavallé and Lochard (2016) found a value of 0.69%; in Yeo and Lee (2009), the value was 0.8%; Denny (2012) obtained values of elasticity ranging from 0.77% to 0.8%; while Lin, Yan and Wang (2017) reported a value of 0.57%. Notably, in Kunychka and Raneta (2016), this variable was not statistically significant. The substantial variation in exports can thus be understood as a result of the countries’ GDP. This percentage is justified by the fact that large markets are attractive to exporters since there is a demand for more products, which is intrinsic to the gravity model of trade, such that the result expected for this variable was found. The coefficient obtained in the present study is consistent with that presented in the other studies, but slightly lower, indicating that the GDP variable has slightly less influence on the determination of which countries will receive Brazilian exports,
compared to the impact that it has in developed countries, as well as in China and South Korea, for example.

With regard to another variable that is part of the essential composition of the gravity model of trade, the estimated coefficient for $D_{st}$ is significant and indicates that a 1% increase in the distance between countries implies a reduction of 0.67% in Brazilian exports to the foreign country. It should be noted that distance was the most elastic variable in the model, which emphasizes its importance for international trade. The result is understandable, as it is expected that geographically distant nations will interact less from the standpoint of trade, due to the higher costs involved with transportation and the greater length of time required to complete commercial transactions. It is clear, however, that the impact of distance was smaller in Brazil and in developing countries compared to developed countries. In Nitsch’s (2007) study on France, Germany and the United States, the elasticity of distance ranged from -0.98% to -1.25%, whereas in Lavallé and Lochard (2016), the elasticity of distance for France was -1.24%. In developing countries, Kunychka and Raneta (2016) found an elasticity of -0.85% for Ukraine, and Yeo and Lee (2009) reported an elasticity of distance of -0.52% for South Korea. This may indicate an attempt at market expansion by developing countries, which seek to place less emphasis on transaction costs for more distant nations.

In relation to the other statistically significant variables, the coefficient for the dummy variable that indicates whether or not the export destination country has a coastline suggests a negative impact of approximately 49% on Brazilian exports to landlocked nations. This variable was expected to have a negative coefficient, given that landlocked countries present restrictions on commercial transactions; since they lack their own ports, they must use ports in nearby countries, which makes the process as a whole more expensive. Not surprisingly, other studies also found negative coefficients for the variable, as follows: from -83% to -102% in Nitsch (2007); -101% to -104% in Denny (2012); and -59%, at the significance level of 10%, in Kunychka and Raneta (2016).

The Brazilian currency exchange rate variable, although statistically significant, shows virtually no relevance with regard to its impact on Brazilian exports because an increase of one unit in the exchange rate implies an approximate increase of 0.0008% in exports. This increase was expected, as the higher exchange rate makes the Brazilian product more competitive due to the devaluation of the national currency. In the other studies that also used a variable for exchange rate, Lin, Yan and Wang (2017) found a coefficient without statistical significance and Yeo and Lee (2009) obtained an elasticity of -1.58%, using the South Korean won as the currency.

The lagged exports were highly relevant for current exports and were statistically significant at the level of 5% of the confidence interval, indicating that a 1% increase in exports in the previous period has a positive impact of approximately 0.55% on exports in the current period. The other variables (area, similar level of freedom, common language, island foreign country, contiguity and existence of a trade agreement) were not statistically significant.

5. Conclusion

One reason why national heads of state constantly travel abroad is to establish economic relations with other nations. It is no accident that delegations of businessmen accompany heads of state on their travels, enhancing the president’s bargaining power.
The present study sought to ascertain whether official visits by Brazilian presidents contribute to an increase in the flow of Brazilian exports to the nations visited. To this end, using the gravity model of trade, 347 international trips by Brazilian presidents to 85 countries were analyzed, comprising the period from 1985 to 2016 (32 years).

The gravity model of trade was present in several previous studies on the subject, as it has shown itself to be an empirically robust method for examining international trade patterns, estimating the economic attraction between two countries according to the size of their economies (generally determined by GDP) and the distance between them, as well as different control variables.

Considering the possible endogeneity between the variable of interest—official state trips—and time persistence in the dependent variable—export value—an empirical dynamic panel model was used, estimated using the Arellano-Bond GMM. The result shows that presidential trips had a positive and statistically significant impact of approximately 33% on Brazilian exports, which is relatively higher than the significant effects obtained in most other previous studies, such as those of Nitsch (2007), Yeo and Lee (2009), Lavallée and Lochard (2016), Kunychka and Raneta (2016) and Lin, Yan and Wang (2017). It is worth mentioning that the estimated impact of official trips on Brazilian exports is similar in magnitude to those found in developing countries.

Although each study has a particular sample, addresses different countries and uses specific statistical methods, based on this result, there is a clear trend in the literature toward finding evidence that state visits have a positive impact on exports. There is, therefore, a strong indication that, even with the costs involved, the presence of the presidents and their delegation may be more efficient than remote communication, thus contributing to the introduction of Brazilian products and services into the markets of the nations visited.

The present study has limitations, such as the lack of data for a more comprehensive analysis involving visits received by foreign heads of state; the fact that it did not use variables employed in previous studies that did not fit the Brazilian case study; the lack of detail regarding the reasons that motivated each trip and their costs, as this is confidential information not disclosed by the government; and the fact that the variable of interest inherently quantifies the visits and thus does not reveal the content or depth of the conversations that took place.

Future analyses and studies might identify events subsequent to the visits and look for a relationship between them, as well as use other variables and statistical methods, rather than being limited to what has been addressed in previous studies. Another possibility is to investigate the relationship between state visits and direct foreign investment in Brazil. Depending on access to information, it might also be possible to carry out a deeper examination of the subjects related to each visit, focusing on some political, economic, environmental or other aspect and analyzing the impact on Brazilian trade resulting from visits received by foreign heads of state.

Endnotes

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** Pro-Rectory of Planning and Administration, Federal University of Ceará, Fortaleza, CE, Brazil 60.020-18.


Decrete no. 70, 274, March 9, 1972. Approves norms for public ceremonies and the general order of precedence.


APPENDIX

Graph 1. Brazilian Exports, in billions of US$ (1985-2016)


Table 3. Official Visits by Brazilian Presidents (1985-2016)

<table>
<thead>
<tr>
<th>Year</th>
<th>Countries visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>Mexico, Uruguay and Venezuela</td>
</tr>
<tr>
<td>1986</td>
<td>Argentina, Cape Verde, Italy, Portugal and the United States</td>
</tr>
<tr>
<td>1987</td>
<td>Argentina, Mexico (2), Peru, Uruguay and Venezuela</td>
</tr>
<tr>
<td>1988</td>
<td>Argentina, Bolivia, China, Colombia, France, the United States and Uruguay (2)</td>
</tr>
<tr>
<td>1989</td>
<td>Angola, Argentina, Bolivia, Costa Rica, Ecuador, Guyana, Japan, Paraguay (2), Peru, Suriname, the United States and Venezuela</td>
</tr>
<tr>
<td>1990</td>
<td>Argentina, Chile, Italy, Paraguay, Portugal, the United States and Uruguay</td>
</tr>
<tr>
<td>1991</td>
<td>Angola, Italy, Mozambique, Namibia, Norway, Spain, Sweden, the United States (2) and Zimbabwe</td>
</tr>
<tr>
<td>1992</td>
<td>Bolivia, Senegal, Spain and Uruguay</td>
</tr>
<tr>
<td>1993</td>
<td>Argentina, Bolivia and Uruguay</td>
</tr>
<tr>
<td>1994</td>
<td>Colombia and Venezuela</td>
</tr>
<tr>
<td>1995</td>
<td>Belgium, Chile, China, Colombia, Germany, Malaysia, Portugal, Spain, the United States and Venezuela</td>
</tr>
<tr>
<td>1996</td>
<td>Angola, Argentina, India, Japan, Mexico, South Africa and the United States</td>
</tr>
<tr>
<td>1997</td>
<td>Bolivia, Canada, Chile, Colombia, France, Italy, the United Kingdom (2) and Uruguay</td>
</tr>
</tbody>
</table>
1998 Bolivia, Paraguay, Portugal, Spain (2), Switzerland (2), the United States and Venezuela
1999 Argentina, Colombia, Germany, Italy, Peru, Portugal, the United Kingdom and the United States
2000 Bolivia, Costa Rica, France, Germany (2), Netherlands, Portugal, Spain and Venezuela
2001 Bolivia (2), Ecuador, France, Indonesia, Peru, South Korea, Spain, Timor-Leste and the United States (2)
2002 Chile, Italy, Portugal, Russia, Spain, Ukraine, the United Kingdom and Uruguay
2003 Angola, Argentina, Cuba, Egypt, France, Germany, Lebanon, Libya, Mexico, Mozambique, Namibia, Peru, Portugal, Sao Tome and Principe, South Africa, Spain, Syria, United Arab Emirates, the United States and Venezuela
2004 Bolivia, Cape Verde, Chile, China, Dominican Republic, Ecuador, Gabon, Haiti, India, Ukraine and the United States
2005 Cameroon, Colombia (2), France, Ghana, Guyana, Guinea Bissau, Italy (2), Japan, Nigeria, Portugal, Russia, Senegal, South Korea, Suriname and Venezuela
2006 Algeria, Bolivia, Botswana, Chile, Peru and the United Kingdom
2007 Angola, Argentina, Bolivia, Burkina Faso, Chile, Congo, Denmark, Finland, Germany, Honduras, India, Jamaica, Mexico, Nicaragua, Norway, Panama, Paraguay, Sweden, Switzerland, South Africa, Spain, the United States, Uruguay (2) and Venezuela
2008 Argentina (3), Bolivia, China, Colombia, Cuba (2), Czech Republic, El Salvador, France, Ghana, Haiti, India, Indonesia, Italy, Mozambique, Netherlands, Peru, Spain, Timor-Leste, the United States, Venezuela and Vietnam
2009 Argentina, Belgium, Bolivia, Chile, China, Costa Rica, Denmark, France (3), Germany, Guatemala, Italy, Kazakhstan, Paraguay, Peru, Russia, Saudi Arabia, Sweden, Turkey, Ukraine, the United Kingdom (2), the United States and Venezuela (3)
2010 Argentina, Cape Verde, Chile, Cuba, El Salvador, Equatorial Guinea, Haiti, Iran, Israel, Jordan, Kenya, Mexico, Mozambique, Palestine, Paraguay, Portugal, Qatar, Russia, South Africa, South Korea, Tanzania, Uruguay (2) and Zambia
2011 Angola, Argentina (2), Belgium, Bulgaria, China, France, Mozambique, Paraguay, Peru, Portugal, South Africa, Turkey, the United States, Uruguay (2) and Venezuela (2)
2012 Colombia, Cuba, France, Germany, Haiti, India, Mexico, Peru, Russia, Spain, the United States (2) and Uruguay
2013 Chile, Equatorial Guinea, Ethiopia, Nigeria, Peru, Portugal, Russia, South Africa and Uruguay
2014 Argentina, Australia, Belgium, Cuba, Ecuador, Italy, Qatar and Switzerland
2015 Belgium, Finland, Italy, Mexico, Sweden and Turkey
2016 Argentina, Chile, China, India, Japan, Paraguay and the United States

Source: Secretariat of the Presidency of the Republic (2017)