

World Trade Organization or the Organization for Economic Cooperation and Development: What is better for Brazil?

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Abstract

This paper investigates whether the advantages of Brazil participating in the Organization for Economic Cooperation and Development (OECD) would outweigh the disadvantages of losing the benefits of the General System of Preferences (SGP), granted by the World Trade Organization (WTO) to those with status of under development. To answer these issues, a counterfactual analysis was performed using the Synthetic Control Method (SCM). The results suggest that the loss of the benefits of the SGP does not cause significant impacts on Brazilian exports and does not confirm that accession to the OECD is decisive to raise the countries' per capita income.

Keywords: Generalized System of Preferences (GSP), World Trade Organization (WTO), Organization for Economic Co-operation and Development (OECD), Brazil.

Resumo

Este trabalho investiga se as vantagens de o Brasil participar da Organização para a Cooperação e o Desenvolvimento Econômico (OCDE) compensariam as desvantagens de o país perder os benefícios do Sistema Geral de Preferências (SGP), concedidos pela Organização Mundial do Comércio (OMC) àqueles com status de em desenvolvimento. Para responder essas questões, foi realizada uma análise contrafactual por meio do Método de Controle Sintético (SCM). Os resultados sugerem que a perda dos benefícios do SGP não causa impactos significativos nas exportações brasileiras e não confirmam que a acessão à OCDE seja determinante para elevar a renda per capita dos países.

Palavras-Chave: Sistema Geral de Preferências (SGP), Organização Mundial do Comércio (OMC), Organização para a Cooperação e o Desenvolvimento Econômico (OCDE), Brasil.

JEL codes: C21, F43, F53

Área 7: Economia Internacional

1. Introduction

The Organization for Economic Cooperation and Development (OECD) was founded in 1961, having its origins linked to the process of rebuilding Europe after World War II. The objective of the OECD is to act to encourage the construction and execution of policies aimed at finding solutions to the challenges in terms of economic growth, taxation, employment level, environment, education and the environment (OECD, 2020a). In this perspective, the OECD has functioned as a forum in which governments can exchange experiences and seek solutions to common problems.

The institution's activities are carried out through specialized committees, which operate in various areas, such as economics, trade, financial markets, labor and public governance, which meet regularly to take decisions on specific issues and to submit proposals to the OECD Ministerial Council. The measures are discussed in the specialized committees with the participation of national policymakers and the Ministerial Council adopts, by consensus, decisions to be implemented by the member states. The recommendations are usually composed of a statement of general principle, with an annex that sets out more detailed rules entitled Guidelines. The OECD also publishes reports, statistics and other descriptive information, which are not legal instruments, but detailed analyzes in the various fields in which it operates. The Directorate of Economics publishes economic research from member countries and non-member countries, usually with very prescriptive policy analysis in various areas of knowledge. The recommendations adopted by the Ministerial Council of the OECD are not binding or mandatory, although they are produced jointly (AULT, 2009; BATISTA, 2018).

Over the years, the OECD, originally composed of developed countries, began to admit developing countries, and currently has 36 full members. Thus, although they are often characterized as the "club of rich countries", the economies of the Organization's member countries have varied substantially, encompassing countries such as Chile, Colombia and Mexico (AULT, 2009). To join the OECD, the country must be in line with the guidelines related to its insertion in a market economy and a consolidated democratic regime. If, after expressing interest in participating in the entity or invitation, the Ministerial Council of the OECD unanimously approves the request, the country proceeds to subsequent steps, in which it must adopt a series of practices indicated by the organization to adapt to the rules and conventions of the OECD. The country's rules are inspected by 23 responsible committees, with the possibility of requiring changes in the country to ensure alignment with the institution's rules. Only after the Board recognizes the efforts made by the candidate towards good practices and good governance, does he become a full member (CHAHAD, 2018).

According to the OECD, Brazil has had a cooperative relationship with the Organization since 1990 and, since 1999, it has been invited to participate in ministerial meetings, with contributions to the committees and to various projects. Since 2007, the Organization has sought to strengthen cooperation with Brazil, China, India, Indonesia and South Africa and has elevated these countries to the status of Key Partners of the OECD, which allows them to adhere to the Organization's legal instruments, participate in its bodies and be part of their statistical reports and reports (OECD, 2020b). The Organization has recommended that Brazil carry out a planned fiscal adjustment through permanent spending cuts; preserve the autonomy of the Central Bank; consolidate state and federal consumption taxes into a single Value Added Tax (VAT), with a broad base, full refunds for VAT paid on inputs, and zero rate for exports; seek to reduce barriers to entry arising from administrative procedures; gradually increase the retirement age; index pensions to consumer prices rather than the minimum wage; and focus the National Bank for Economic and Social Development (BNDES) lending activities on niches in which the private sector finds it difficult to operate, including financing small startups and innovation projects (OECD, 2018).

The signal from defenders of countries' accession to the OECD is that if the Organization's recommendations are followed, their institutional and political security levels will rise, contributing to increase the flow of investments, to reduce interest rates on foreign funding and , therefore, promoting domestic economic growth. However, it is argued that (i) there may not be an increase in this security, given that, in general, the investor analyzes already existing indicators, such as, for example, economic growth, the magnitude of public debt in relation to the Gross Domestic Product (GDP), the level of international reserves and current account in relation to GDP (SHALDERS; MOTA, 2019); (ii) that, as sanctions are not applied in case of non-compliance with rules or recommendations made to the OECD to

its members, they may not be effectively followed after the accession of the country, as they depend fundamentally on approvals by the Legislative Power, which, at times, may not be in line with the proposals of the Executive Power; (iii) that the economies that most attract foreign direct investment (FDI) in the world are not members of the organization; (iv) that the country's autonomy may be limited due to the regulation of its policies, with a possible reduction in the degrees of freedom for the sovereign establishment of its economic policies; (v) that there is the creation of additional expenses for the country due to the financial contribution that must be made on a regular basis to the OECD; and (vii) that the investment grade granted by rating agencies may be much more relevant than being part of the OECD or not, with countries like China and India leading the ranking of countries with the highest GDP growth in recent years, they have not been part of the Organization (CHAHAD, 2018; MACHADO; GALVÃO, 2018; SHALDERS; MOTA, 2019).

Despite these controversies, in May 2017, during the Michel Temer government, Brazil submitted a formal request to join the OECD, becoming an effective member of the Organization. The Government believed that it could have its request granted quickly, given that it was already actively participating in the Organization as a partner member, but the United States (USA) blocked the negotiation. Argentina, Peru, Croatia, Bulgaria and Romania also pleaded for accession to the OECD and Washington considered that this mass entry of all these countries could mischaracterize the institution (THORSTENSEN; GULLO, 2018). Aiming to unlock the process, on March 19, 2019, President Bolsonaro, on a visit to the US, decided in a meeting with President Donald Trump to give up the status of a developing country in the World Trade Organization (WTO) in exchange for northern support to join the OECD, this condition being imposed by the USA.

It so happens that the analysis of the possible gains from Brazil's accession to the OECD vis-à-vis the loss of benefits arising from its condition as a developing country at the WTO is not trivial. Since the draft proposed by the United States for the International Trade Organization (ICO) in February 1946, the bases for the introduction of a differentiated treatment for less developed countries, such as Brazil, already existed. In 1971, the General System of Preferences (GSP) was instituted, through which benefits and facilities are granted so that goods from developing countries could have easier access to the markets of developed countries, on a non-reciprocal basis, seeking to overcome the problem of the deterioration of the terms of trade and facilitate the progress of the benefited countries in the stages of their development process (MINISTRY OF ECONOMY, 2020). Therefore, the risk is that Brazil renounces these benefits and that the possible benefits of joining the OECD do not offset any economic losses that the country may have, given that part of its exports that are made under the GSP may lose competitiveness in the markets of the countries that grant such benefit, reducing them, or even eliminating them, permanently.

In this sense, this paper seeks to examine whether the advantages of Brazil's participation in the OECD could offset the disadvantages of the country losing the GSP benefits, granted to countries with developing country status at the WTO. To develop these questions, the synthetic control method (SCM) developed by Abadie and Gardeazabal (2003) and Abadie, Diamond and Hainmueller (2010) will be used. In fact, this is one of the contributions of this work, which seeks to carry out the investigation of the impacts of two important measures on the Brazilian economy through a methodology that has been used in several empirical researches. The underlying idea of the SCM lies in the construction of a synthetic counterfactual for an economy exposed to some type of intervention or shock, such as a weighted aggregation of control economies, so that this counterfactual mimics the economic behavior of the other economy in the period prior to the intervention.

In order to analyze the possible gains arising from the country's accession to the OECD, the specific cases of Chile and Mexico will be examined, seeking to verify the effects of accession to the OECD for their respective economies and, therefore, guide the discussions regarding the possible gains of the entry into the OECD for the Brazilian economy. To discuss the effects of the loss of the GSP for Brazil, the work analyzed the impacts of the loss of this benefit for Brazilian exports to the European Union (EU), focusing on some chapters of the Harmonized System 2 (HS2), whose GSP was withdrawn to exports in 2001.

In addition to this introduction and conclusion, the work has three more sections. The second section presents details about the SGP, showing how the benefits of the program have been used by Brazil. The third section contains the formalization of the SCM and explains how the data used in the work were

compiled. In turn, the fourth section presents the application of the referred method and the discussions about the possible gains for Brazil from its accession to the OECD and the possible results arising from the loss of SGP benefits.

2. Brazil and the General System of Preferences (GSP)

Through the SGP, certain products, originating and coming from beneficiary developing countries, obtain preferential tariff treatment in the markets of countries granting this program (developed countries), as presupposed by the principle of Special and Differential Treatment (TED). The TED is one of the central characteristics of the GATT/WTO system (MINISTRY OF ECONOMY, 2020), whose bases derive especially from two exceptions to the use of quantitative restrictions on exports: (i) possible difficulties in the balance of payments; and (ii) special treatment for trade in agricultural products. Articles 8 and 13 of the Havana Charter (which was approved in 1948 already with the provision of the creation of the International Trade Organization) were incorporated into the General Agreement on Tariffs and Trade (GATT) as Article XVIII of the General Agreement. In the 1954 and 1955 revisions, developing countries were able to incorporate more flexibility into this last article and introduce the TED principle, as negotiated in the 1946-1948 period, arguing that they needed to impose quantitative restrictions on trade in manufactures in order to protect their industries and address current account imbalances. In this review, article XXVIII was also introduced, which prescribes that the strict application of the principle of reciprocity in negotiations with developing countries might not be desirable. Thus, differential treatment, in terms of exceptions to the principles of non-discrimination and reciprocity, was incorporated into the multilateral trade system since the early years of the GATT (VENTURA-DIAS, 2007).

At the end of the Tokyo Round (1979), it was decided that there would not necessarily be an obligation to grant differentiated and more favorable treatment, but such measures were allowed to be adopted without reciprocity, which introduced preferential access into the legal framework of the General Agreement. Since then, TED has been based on its two operational pillars: first, on better access to markets through the granting of the GSP and the freedom to create preferential regional and global schemes; and, second, under the right of less developed countries to benefit from the multilateral trading system without the obligation to offer reciprocal concessions, with political discretion in their own markets to limit access to foreign products and conditions to support industries by through industrial policy instruments (VENTURA-DIAS, 2007).

Specifically with regard to the GSP, according to information from the Ministry of Economy (2020), the granting countries of the system are Australia, Canada, United States (including Puerto Rico), Norway, New Zealand, Switzerland, Turkey, Eurasian Customs Union (Kazakhstan, Russia and Belarus) and European Union (27 Member States). Of these, Australia, United States, Japan, Norway, New Zealand and Switzerland currently grant the GSP to Brazil. Table 1 shows that, except for the Eurasian Customs Union, whose SGP was implemented in 2010, the other systems have been in force since the 1970s. The United States, Japan, New Zealand and Switzerland grant a 100% reduction of the customary tariff applied; Australia, from 95% to 100%; Norway from 90% to 100% and the Eurasian Customs Union from 75%.

Table 1. Countries Granting the GSP for Brazil

Grantor	Tariff Reduction	Start of Benefit
Australia	Preferred rates of zero, 4% or 5%.	1974
USA	100% reduction in customs tariff normally applied.	1976
Japan	100% reduction in customs tariff normally applied.	1971
Norway	From 10% to 100% reduction in customs tariff normally applied, depending on the type of product.	1971
New Zealand	100% reduction in customs tariff normally applied.	1972
Suíça	100% reduction in customs tariff normally applied.	1972
União Aduaneira da Eurásia	25% reduction in customs tariff normally applied.	2010

Source: Ministry of Economy, 2020.

It should be noted that there are no WTO definitions of what is a developed country or a developing country. In order to obtain the benefits of the GSP, a WTO member may advertise itself as a developing

country, but other members may object to such an announcement (on technical grounds), preventing the former from making use of the preferences available to developing countries. In other words, the fact that a WTO member announces itself as a developing country does not automatically mean that it will benefit from the unilateral preferences of some developed countries. In practice, it is the country that grants the preferences that decides the list of developing countries that will benefit from these preferences and, therefore, the list of concessions that contain the goods entitled to the GSP (WTO, 2019).

Japan will leave the list of countries that grant the GSP to Brazil in 2021, due to its government's decision to graduate countries considered upper middle income, which are those with per capita income between US\$ 4,126 and US\$ 12,735 in the classification of World Bank and that are responsible for more than 1% of world trade for a period of three consecutive years (MINISTRY OF ECONOMY, 2020). In turn, in 2012, Europe excluded countries that were classified by the World Bank as high or upper-middle income in the previous three years (between 2009 and 2011), among which Brazil, which presented per capita income in this period considered medium-high by the World Bank, being between US\$ 8,373 and US\$ 12,576. These two examples make it clear that it is the country that grants the preferences or imposes the safeguard measures that decides the list of developing countries that will benefit from these mechanisms.

In the case of the USA, upon its implementation in 1974, the GSP was instituted to be in force for ten years, and, after this period, its review became annual. To be exported under GSP rules, in addition to originating from a GSP beneficiary country, the product must be shipped directly from that GSP beneficiary country to the US. The total production costs of the product, ranging from inputs to processing, must be greater than or equal to its export price to the US. Competitive Need Limitation are also defined, whose objective is to exclude from the benefits of the SGP products that have already acquired sufficient maturity so as not to require special rules for access to the North American market. In 2020, for example, such limits restricted from the program products originating from a GSP beneficiary country, whose exports were greater than US\$ 190 million or with a value of 50% or more of the total imported by the US of that same product (MINISTRY OF ECONOMY, 2020).

When this occurs, the producers of the product must make a request to the US for reclassification (CNL waiver), which, if not granted, will result in the removal of the product from the list of GSP beneficiaries for the year. Eventually, the products can be reinstated in the following year by means of a new evaluation carried out within the scope of the annual review of the GSP, carried out at the request of the producer, due to the absence of the product in the US market, due to exemption to less developed countries or because of the value total imports of the small product (minimus exemption) (VISCONTI; KUME, 2019).

Although pressure is being made by the US government for Brazil to renounce its status as a developing country at the WTO, the US, among the countries that grant the GSP to Brazil, is the most representative in terms absolute and relative. As shown in Table 2, the country is the only one that imports over US\$ 5 billion and acquires amounts greater than 2% of total Brazilian exports through the system.

Table 2. Exports to countries that grant GSP to Brazil and proportion of total exports (2018)

Countries	Total Exports (US\$ billion)	Participation in Total Exports in Brazil (%)	Position in the Total Exported by Brazil
USA	28.69	11.99	2 ^o
Japan	4.32	1.81	9 ^o
Russia	1.65	0.69	33 ^o
Switzerland	0.81	0.34	43 ^o
Norway	0.80	0.33	44 ^o
Australia	0.46	0.20	53 ^o
Belarus	0.10	0.04	91 ^o
New Zealand	0.07	0.03	104 ^o
Kazakhstan	0.03	0.01	127 ^o

Source: Own preparation with data from the Ministry of Economy, 2020.

The other countries that grant the GSP to Brazil have little significant shares in total Brazilian exports. Except Japan, which occupies the 9th position among the main destinations for Brazilian exports, the other countries that grant the GSP to Brazil have a negligible share in the total of these exports,

whereas, after Japan, Russia is in the 33rd position. Thus, in practice, the GSP seems to have relevance for Brazilian exports only when they are destined for the US market.

3. Method and Data

3.1. Method

To examine the possible impacts for Brazil of the loss of status as a developing country in the WTO and its accession to the OECD, the Synthetic Control Methodology (SCM), created by Abadie and Gardeazabal (2003) and improved by Abadie, was applied. Diamond and Hainmueller (2010). The SCM assesses the economic effect of an intervention or shock on a unit, which can be thought of as a municipality, state, country and/or other regions. During the pre-intervention period, the method seeks to find a convex combination of similar but unaffected units (control units) that most closely match the relevant economic characteristics of the affected unit, comparing the post-intervention economic evolution of the synthetic control unit with that observed for the affected unit.

Specifically, in this work, we seek to investigate (i) the effects of accession to the OECD on GDP per capita and (ii) the impacts of the loss of status as a developing country (and, consequently, of the loss of the GSP) on exports. Along these lines, several studies have used SCM to analyze the effects of events or shocks related to foreign trade on the economy of the countries involved. Recently, Verevis and Ungor (2020) studied the effects on the New Zealand economy of the free trade agreement signed with China in 2008. Kassa and Coulibaly (2019) analyzed the impact on external trade of the program African Growth and Opportunity Act, which promotes free access for sub-Saharan African countries to the US market for goods and services. Streatfeild (2018) examined whether changes in foreign trade volumes explain improvements in the ability of African states to collect revenue and provide public services from Ghana. Hannan (2017) investigated the impact of trade agreements for 64 pairs of Latin American countries in the period 1989-1996. Finally, Gomis-Porqueras and Puzello (2018) estimated the effect of joining the monetary union on the per capita income of the first six countries that adopted the euro.

In terms of the formalization of the SCM, based on Abadie and Gardeazabal (2003) and Abadie, Diamond and Hainmueller (2010), it is assumed that there is a time series with data of $J+1$ units (or countries, as is the case with this paper), with $j = 1$ being the unit that underwent intervention and $j = 2$ to $i = J + 1$ potential participants in the synthetic control unit (composed of countries that have not undergone intervention, a group called the donor pool), and $W = (\omega_2, \dots, \omega_{J+1})$ a vector ($J \times 1$) of non-negative weights, the sum of which is equal to unity. So the scalar $w_j = (j = 2, \dots, J+1)$ represents the weight of each unit in the construction of the synthetic control unit, with each different value for W producing a different synthetic control unit. It is also considered that T_0 represents the number of pre-intervention periods, with $1 \leq T_0 < T$, with T periods, looking for the result of interest, Y_{it} , for each unit i in the period t . Y_{it}^N indicates the result variable of unit i that did not undergo intervention (N) in the period t , $e Y_{it}^I$ the result variable of unit i that underwent intervention (I) in period t .

The effect of this intervention for unit i is given by: $\alpha_{it} = Y_{it}^I - Y_{it}^N$ (1). Assuming that D_{it} is defined as an indicator of a value of 1 for the unit that was exposed to the intervention and a value of 0 for the unit that was not exposed to the intervention in period t , we have the observed result for unit i in period t indicated by the equation $Y_{it} = Y_{it}^N + \alpha_{it}D_{it}$ (2). Considering that only region 1 was exposed to the intervention after the T_0 period (with $1 \leq T_0 < T$), it is denoted that D_{it} will be equal to 1 if $i = 1$ and $t > T_0$, and equal to 0 if the opposite occurs. Seeking to estimate $(\alpha_{1T_0+1}, \dots, \alpha_{1T})$, for $t > T_0$, we arrive at the equation $\alpha_{1t} = Y_{1t}^I - Y_{1t}^N = Y_{1t} - Y_{1t}^N$ (3).

Considering that, in the case of the unit exposed to the intervention, the result before and after the intervention (Y_{1t}^I) is observed, the aim is to find the result of the unit that was not exposed to the intervention, that is, it is then sought to find Y_{it}^N to obtain an estimate of the effect of the intervention (α_{1t}), $\alpha_{1t} = Y_{1t} - Y_{1t}^N$. It is then Y_{it}^N assumed to be described by $Y_{it}^N = \delta_t + \theta_i Z_i + \lambda_i \mu_i + \epsilon_{it}$ (4), where δ_t is an unknown common factor across countries; Z_i is a vector ($r \times I$) of observed covariates not affected by the intervention;

θ_t is a vector ($I \times r$) of unknown parameters; λ_t is a vector ($I \times F$) of common unobserved variables; μ_i is a vector ($F \times I$) unknown factors; and ϵ_{it} is the error term that represents the transient unobserved shocks with a mean equal to zero.

The units that are part of the synthetic control unit are defined based on the observed characteristics of each country with the potential to participate in this unit, taking into account the set of weights $W = (\omega_2, \dots, \omega_{J+1})$, such that the weighted average of all countries that make up the comparison unit resembles, at most, the unit that underwent the intervention. That is, considering W , the synthetic control estimator Y_{1t}^N can be described by: $\hat{Y}_{1t}^N = \sum_{j=2}^{J+1} w_j Y_{jt}$ (5). Unit weights, w_i , must be selected so that the synthetic control unit matches certain characteristics of the treated unit as closely as possible. So, the synthetic approach consists of finding the weight vector, W^* , which minimizes the distance in pre-intervention characteristics between unit 1 and J control units. Thus, the vector W^* must be defined seeking to minimize the distance $\|X_1 - X_0 W\|_V = \sqrt{(X_1 - X_0 W)' V (X_1 - X_0 W)}$ (7), with $W^* \geq 0$ to $i = 2, \dots, J + 1$ and $\sum_{i=2}^{J+1} w_i^* = 1$, where X_1 is a vector ($k \times I$) that contains the mean values of the pre-intervention variables of the treated unit; X_0 denotes a vector ($k \times J$) that contains the same variables for countries that did not undergo intervention, that is, for the pool of donors; and V is a positive and diagonal semi-definite symmetric ($k \times k$) matrix that presents the relative importance of all explanatory variables.

Once the weights are obtained, the synthetic control unit can be constructed for any $t \geq T_0$ using equation (5). Subsequently, an estimate of the treatment effect at time $t \geq T_0$ can be obtained: $\hat{\alpha}_{1t} = Y_{1t} - \hat{Y}_{1t}^N$ (6). Seeking to find the best fit of the model, it is necessary to minimize the predicted mean square error of the root mean square prediction error (*RMSPE*) in the pre-treatment period. Thus, the *RMSPE* assesses the lack of adjustment for the result variable for any particular country and its synthetic equivalent, which can be presented by: $RMSPE = \left(\frac{1}{T_0} \sum_{t=1}^{T_0} (Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt})^2 \right)^{1/2}$ (7), where T_0 is the total number of periods of the pre-intervention period and the *RMSPE* can be defined similarly for the post-intervention period. It is worth noting that the inferential procedure is valid for any choice of v , but that, by minimizing the *RMSPE*, the algorithm assigns greater weights to the pre-treatment variables that have greater predictive power.

To test the validity of the results, the specialized literature recommends performing the placebo test, the essence of which is to compare the magnitude of the effect estimated in the treated country with those obtained by randomly assigning the treatment to any (non-treated) country in the donor pool. This allows one to assess whether the effect estimated by the synthetic control for the country exposed to treatment is large and consistent with the effect estimated for a randomly chosen country that was not exposed to treatment. If the placebo experiments show that the estimated treatment effect for the treated country is extraordinarily large relative to the placebo treatment effects in non-treated countries within the sample period, it follows that there is statistically significant evidence of an impact in the treatment in the treated country (ABADIE; HAINMUELLER, 2015). Thus, the premise of the placebo test is that the degree of confidence of a synthetic control estimate disappears if similar or higher estimates arise when the intervention is artificially reassigned to units not directly exposed to the intervention (ABADIE; HAINMUELLER, 2015).

The placebo test is performed excluding all countries with a much higher *RMSPE* than Brazil (treated unit), as suggested by Abadie et al. (2010) and by Abadie (2015). This is because, if the country has a very high *RMSPE*, the differences in the real and synthetic export index in the period after the loss of the GSP can be inferred as caused by factors other than the loss of the GSP. In the case of this work, the logic behind this test is simple: when the SCM is applied to countries that have not undergone treatment (i.e., accession to the OECD and loss of the SGP), no significant divergences between the treatment unit results in the post-treatment period and those of the respective synthetic equivalents (placebos) of the non-treated countries.

3.2 Data

In this work, control units were built to assess the possible impacts of two events on the Brazilian economy: (i) the loss of the GSP benefit in its exports and (ii) the country's accession to the OECD. To assess the effects of the first event, the impacts of the loss of the European GSP on Brazilian exports were

analyzed, in order to use the results as a reference to establish inferences about the possible loss of the North American GSP. To this end, a synthetic control unit (hereinafter called Brazil Synthetic) was built in order to determine the effects on the country's exports related to the loss of the GSP benefit in the exports of chapters 1, 2, 9,13, 16, 17, 18, 19, 20, 21, 22, 23 and 24 of the Harmonized System 2 (SH2) occurred in the year 2001 (group referred to here as SGP2001) for the European Union (EU). Taking into account that changes have occurred in the number of countries that make up the EU over the years, so that the variation in exports is not affected by such changes, only countries that were part of the initial formation of the EU are considered in the analysis (hereinafter referred to as EU12), namely: Germany, Belgium, Denmark, Spain, France, Greece, Netherlands, Ireland, Italy, Luxembourg, Portugal and the United Kingdom ¹.

The idea is to build a synthetic control group, whose exports have not lost the benefit of the GSP to the EU for these same SH2 chapters, and to compare the performance of their exports with those of Brazil, a country that underwent this intervention in the aforementioned periods. This group is called Synthetic Brazil, having been used for its construction information from Latin American and Caribbean countries that export to the EU12 and that maintained the benefit of the GSP. For this purpose, 12 potential participants (pool of donors) are defined, in addition to Brazil, taking into account (i) their belonging to the same geographic region (in this case, Latin America and the Caribbean); (ii) whether they are classified as emerging countries or developing countries by the International Monetary Fund (IMF); (iii) whether they were beneficiaries of the European GSP in the period analyzed; and (iv) if they had data on their exports to the EU12 available in the Commodity Trade Statistics Database (Comtrade), of the United Nations Statistics Division (UNSD) for the period 1993-2018².

Table 3. Variables Used in the Construction of Synthetic Control Units

Dados Utilizados	Fonte
Deficit (surplus) in current transactions	<i>World Economic Outlook Database</i> do International Monetary Fund (IMF)
Primary deficit (surplus)	<i>World Economic Outlook Database</i> do International Monetary Fund (IMF)
Exports by SH2 chapter	<i>Commodity Trade Statistics Database (Comtrade)</i> da United Nations (UN)
Total exports	<i>World Economic Outlook Database</i> do International Monetary Fund (IMF)
Openness	<i>UnctadStat</i> da United Nations Conference on Trade and Development (UNCTAD)
Consumer price index	<i>World Economic Outlook Database</i> do International Monetary Fund (IMF)
Foreign Direct Investment (FDI)	<i>World Development Indicators</i> do World Bank
Percentage share of industry in GDP	<i>World Development Indicators</i> do World Bank
GDP (in US\$)	<i>World Development Indicators</i> do World Bank
GDP per capita (in US\$)	<i>World Economic Outlook Database</i> do International Monetary Fund (IMF)
International Reserves	<i>World Development Indicators</i> do World Bank
Unemployment rate	<i>World Development Indicators</i> do World Bank

Source: Own elaboration.

The variable of interest found in the application of the SCM, Y_{it} , concerns the variation index of total exports to the EU12 (1993 = 100), accompanied by the following variables: GDP per capita (in US\$), percentage share of the industry in the GDP, percentage share of agricultural and mineral commodity exports (referring to chapters 1 to 26 of SH2) in total exports to the EU12, percentage share of foreign direct investment in GDP, degree of openness and the ratio between group exports SGP2001 and total exports to the EU12. Regarding the examination of the possible impacts of accession to the OECD, the idea is to apply the SCM to build control units for the Chilean and Mexican economies and compare them with their real economies, as Mexico joined the OECD in 1994, and Chile, in 2010, being the only countries in Latin America and the Caribbean that are members of the OECD until April 2020, when Colombia joined the institution. Thus, we seek to analyze the effects of this process for the Chilean and Mexican economies and, after that, use the results obtained as a reference to discuss the Brazilian case. In the construction of

¹ In the early 1970s, the member countries of the European Community (France, Germany, Italy, Belgium, Luxembourg, Netherlands, United Kingdom, Denmark and Ireland) pledged to form an economic and monetary union. Greece joined this group in 1981, and Spain and Portugal in 1986. In 1988, a committee was appointed to propose the necessary actions for the realization of the European Union and three stages were proposed for this purpose, the first two establishing the institutional bases and the third proposed the adoption of a single and stable currency (GOMIS-PORQUERAS; PUZZELLO, 2018).

² The beginning of this analysis takes place in 1993 because in previous years the number of countries in Latin America and the Caribbean that had data on their exports to the EU12 in the Comtrade database was not very significant.

synthetic control units for Chile and Mexico (hereinafter referred to as Chile Synthetic and México Synthetic, respectively), balanced panels are used, with data from the period 1980 to 2018 for Mexico, and from 2000 to 2018 for the Chile, given the availability of data and the fact that the two countries have joined the OECD in different years.

When defining the countries that formed the donor pool of Chile Synthetic and Mexico Synthetic, it is also taken into account the fact that they are classified as emerging countries or developing countries by the International Monetary Fund (IMF) and belonging to Latin America and the Caribbean. From this group, those countries that had all the information related to the variables used in the construction of synthetic control units for each country are selected. In the construction of Chile Synthetic, 15 countries participated in the pool of donors and, in Mexico Synthetic, 13 countries made up this group, using variables that make it possible to assess the economic fundamentals of countries from an internal and external point of view, namely: ratio between the deficit (surplus) in current transactions and the GDP, the ratio between direct foreign investment (FDI) and the GDP, the ratio between the international reserves and the GDP, the unemployment rate, the consumer price index and the GDP variation index. Table 3 presents the sources of all variables used in the work.

4. Results and Discussions

4.1 Analysis of the impacts of the loss of the GSP on Brazilian exports

In order to determine the effects of the loss of GSP benefits on Brazilian exports to the EU-12, a counterfactual analysis is carried out using the Synthetic Control Methodology (SCM). To this end, a synthetic control unit is built, whose exports have not lost the benefit of the European GSP for chapters 1, 2, 9,13, 16, 17, 18, 19, 20, 21, 22, 23 and 24 of SH2 in 2001, here called Synthetic Brazil. The combination of data from these countries seeks to reproduce the behavior of Brazilian exports if the country had not lost the benefit of the GSP. Thus, the pre-treatment characteristics of the Brazilian economy and those of the synthetic control unit in the period prior to the loss of the GSP by Brazil are shown in Table 4. The following countries and weights are included in the composition of Brazil Synthetic: Mexico (45.8%), Guatemala (23.9%), Colombia (20.4%), Saint Kitts (8.9%) and Saint Lucia (1.1%).

Table 4. Average values of covariates in Brazil and Synthetic Brazil in the period prior to the loss of the EU GSP (1993-2000)

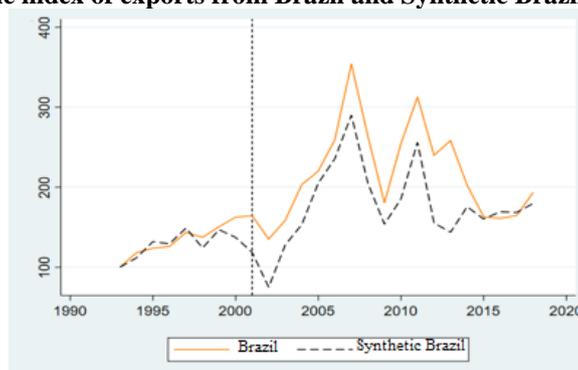
Covariates	Brazil	Synthetic Brazil
GDP per capita	4.269,72	4.043.64
Part. of Industry/GDP (%)	25,74	27,83
FDI/GDP (%)	2,23	2,72
Openness	18,52	18,61
Agricultural Exp. and Minerals / Total Exp. (%)	0,56	0,50
Total Exp. GSP2001/Total Exp. To UE (%)	0,35	0,36
Composition of Synthetic Brazil	Mexico: 45,8%; Guatemala: 23,9%; Colombia: 20,4%; Saint Kitts and Nevis: 8,9%; Saint Lucia: 1,1%.	

Fonte: Elaboração própria a partir dos resultados do SCM.

Figure 1 shows the evolution of the index of exports from Brazil and Synthetic Brazil in the period before and after 2001, when Brazilian exports lost the benefits of the European SGP for the chapters of the SGP2001 group. With the loss of these benefits, initially, there was a drop in exports of these chapters from Brazil to the EU12; however, it can also be seen that there was a steady recovery in the following years.

Following the SCM literature, the placebo test is performed to assess the robustness of the results found. This procedure can provide a distribution of the estimated effects of placebo treatment for all countries in the sample set, seeking to verify whether the empirical estimates found are statistically significant. They are called placebo effects because countries in the donor pool, by construction, have never tried the intervention. The test operates by iteratively applying the treatment of interest to all other control units in the donor pool, allowing the result for Brazil to be compared with all other estimated placebos. If the estimated effect for the Brazilian case (unit that underwent treatment) is extraordinarily large compared to the distribution of control units, it can be inferred that the treatment of interest had a significant effect. As mentioned above, in this study, countries with a very high RMSE are excluded from the placebo test, and countries with a RMSPE five times greater than Brazil's are excluded.

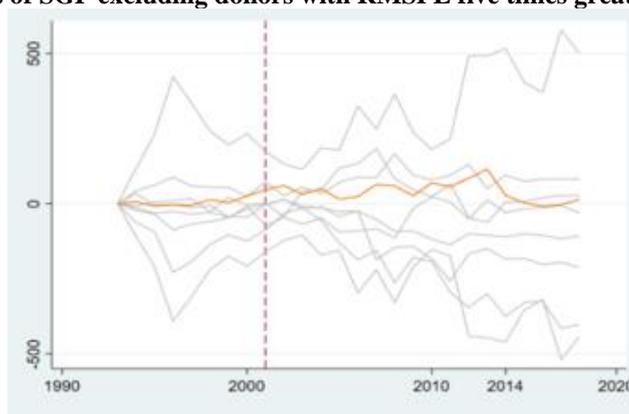
Figure 1. Evolution of the index of exports from Brazil and Synthetic Brazil to the EU12 (1993 = 100)



Source: Own elaboration based on SCM results.

That said, in Figure 2, the orange line denotes the estimated differences for Brazil and the gray lines denote the gap in exports between the countries in the control group and their respective synthetic versions. The results of this test suggest that, if the treatment were applied to all countries in the donor pool, the vast majority of them would have a greater reduction in the rate of exports than Brazil. This can be seen in the downward movement in the export index of the respective synthetic control units in these countries, once the loss of GSP benefits on their exports is applied. This seems to confirm that the impact of this process on Brazil's exports to the EU-12 was not significant over time.

Figure 2. Placebo test for loss of SGP excluding donors with RMSPE five times greater than that of the treated unit

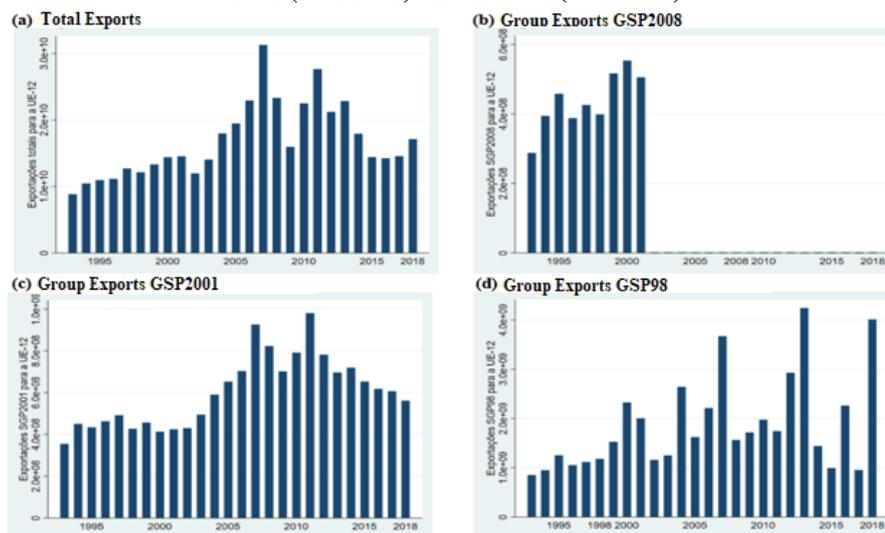


Source: Own elaboration based on SCM results.

The analysis of Brazilian exports to the European Union (EU) in more detail also gives clues that the benefits of the GSP may no longer be decisive in explaining a good part of Brazilian exports. Several products in the country lost such benefits in the recent period in the European market, especially in the scope of the revisions of 1995-1998, 1999-2001, 2006-2008 and, finally, in 2014, when there was a loss of GSP benefit for all chapters of SH2. In the period 1995-1998, were chapters 41, 47, 48, 49, 64, 65, 66, 67, 86, 88 and 89 of SH2 (SGP98); in 1999-2001, as already mentioned, were chapters 1, 2, 9, 13, 16, 17, 18, 19, 20, 21, 22, 23 and 24 (SGP2001); in 2006-2008, chapters 44, 45 and 46 (SGP2008); and, in 2012-2014, Brazil no longer had access to the benefit to export to the EU.

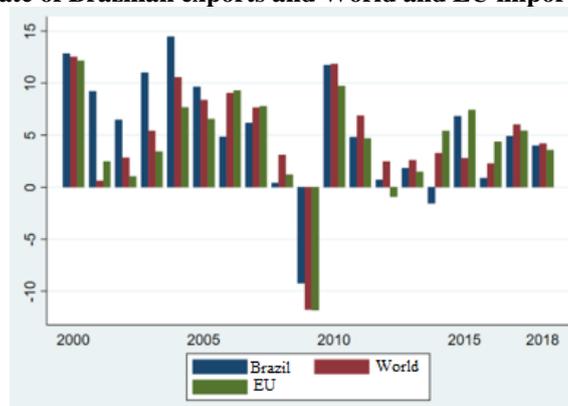
Figure 3 allows you to evaluate the results of this process. Through the panels (b), (c) and (d) of this Figure, it can be noted that, of the export groups SGP2008, SGP2001, SGP98, only SGP2008 had a significant drop in exports permanently over the years. Even so, this drop occurred in the early 2000s and not necessarily after the loss of SGP benefits - which occurred in 2008. With regard to exports by the SGP98 and SGP2001 groups, it is clear that, after the loss of SGP benefits, the total exported by Brazil to the EU12 increased [panels (c) and (d)], as did the total exported by Brazil [panel (a)], although with fluctuation over the years. In this perspective, the movement of total exports from Brazil to the EU12 seems to be much more related to the effects of other events than to the loss of the GSP. Figure 4 illustrates, for example, that part of the drop in total exports from Brazil to the EU12 in 2001, 2002, 2008 and 2009, 2012 and 2013 can be attributed to the reductions in the growth rate of world imports that took place in those years.

Figure 3. Evolution of exports from Brazil to EU12 – totals (EU12), HS2 chapters with loss of GSP in 1998 (GSP98), 2001 (GSP2001) and in 2008 (GSP2008)



Source: Own elaboration with data from United Nations, 2020.

Figure 4. Growth rate of Brazilian exports and World and EU imports – 2000-2018 (in %)



Source: Own elaboration with World Bank data, 2020.

In the early 2000s, the world economy was echoing the effects of the US electronic stock exchange boom (Nasdaq) and the terrorist attacks on New York and Washington in September 2001, which triggered an increase in risk aversion at a global level. At the end of that same decade, the world economy took a stronger blow, due to the crisis that started in the subprime segment of the US real estate market, with deterioration of liquidity and credit conditions on a global scale. In addition, the drop in Brazilian exports in 2014, combined with an increase in world and EU imports in the same year, suggests that the loss of GSP benefits for all Brazilian exports may have had a stronger impact, even though it has recovery from 2015, as shown in Panel (a) in Figure 3.

As seen in section 2, in practice the GSP seems to have relevance for Brazilian exports only when they are destined for the US market. To examine this issue in more detail, the breakdown of Brazilian exports to the US made under GSP in the period 2000 to 2018 is performed, and the results are shown in Table 5, which illustrates that, of the 15 chapters of SH2 with the highest values exported in 2018, which represent almost 80.0% of total shipments from Brazil to the US, the vast majority did not have a significant percentage of GSP use. Six of these chapters were responsible for 52.4% of these exports, but with percentages of use of the GSP between 0.0% and 0.6%. Also, by examining Table 2, it is verified that chapter 85 (Electrical machines, equipment and materials, and their parts; sound recording or reproduction apparatus, image and sound recording or reproduction apparatus on television, and its parts and accessories) had the highest percentage of exports benefiting from the GSP (42.5%), followed by Chapter 68 (Stone, plaster, cement, asbestos, mica or similar materials, with 26.4%) and by Chapter 28 (Inorganic chemicals; inorganic or organic compounds of precious metals, radioactive elements, rare earth metals or isotopes),

whose share in the total was 19.5%. These appear to be the SH2 chapters whose eventual loss of GSP benefits would be most detrimental to its exports to the US, but together they account for only 6.4% of total Brazilian exports to the US.

Table 5: 15 Main SH2 Chapters of Exports from Brazil to the US carried out with or without GSP benefits – Selected years (in %)

HS2	Description	2018		2015		2010		2005		2000	
		% Tot	% GSP								
27	Elaborated fuels, oils and lubricants	16.5	0.0	16.6	0.0	33.1	0.0	11.8	0.0	5.7	0.2
72	Cast iron, iron and steel	10.0	0.6	10.8	0.5	6.0	0.1	10.4	2.3	9.2	0.2
88	Aircraft and spacecraft, and their parts	7.1	0.0	11.0	0.0	3.0	0.0	7.4	0.0	10.6	0.0
84	Nuclear reactors, boilers, machines, mechanical apparatus and instruments, and their parts	6.7	10.4	6.1	10.2	7.3	13.7	10.4	15.8	9.1	23.0
47	Pulp of wood or other fibrous cellulosic material; paper or cardboard for recycling (waste and shavings).	4.5	0.0	3.9	0.0	4.0	0.0	2.2	0.0	3.4	0.0
44	Wood, charcoal and wood works	4.2	12.1	3.3	12.1	2.5	18.7	6.4	24.5	4.1	21.5
09	Coffee, tea, mate and spices	3.2	0.1	5.4	0.1	4.7	0.1	2.1	0.8	2.2	0.5
87	Motor vehicles, tractors, cycles and other land vehicles, their parts and accessories	3.2	14.4	2.0	27.5	1.8	35.6	5.4	42.2	4.5	57.0
28	Inorganic chemicals; inorganic or organic compounds of precious metals, radioactive elements, rare earth metals or isotopes	2.3	19.5	1.3	12.6	1.6	14.3	0.6	23.5	0.8	33.9
68	Works of stone, plaster, cement, asbestos, mica or similar materials	2.2	26.4	3.1	17.2	2.4	14.1	2.3	21.7	1.0	67.5
29	Organic chemicals	2.1	14.0	2.1	9.7	3.3	19.4	2.4	21.3	2.9	48.9
22	Drinks, alcoholic liquids and vinegars	2.0	5.9	1.9	7.1	1.1	9.8	0.4	4.6	0.1	8.4
71	Natural or cultured pearls, precious or semi-precious stones and the like, precious metals, metals clad or plated with precious metals (plaque), and articles thereof; jewelry; coins	2.0	5.1	1.1	7.3	1.2	19.4	1.1	14.1	3.3	4.7
85	Electric machines, apparatus and materials, and parts thereof; sound recording or reproducing apparatus, television image and sound recording or reproducing apparatus, and parts and accessories thereof	1.9	42.5	1.7	43.4	2.5	51.7	5.6	29.3	6.6	27.9
98	Other unspecified products	11.2	0.0	9.5	0.0	3.1	0.0	3.0	0.0	5.3	0.0
	Total (%)	78.9	-	79.8	-	77.7	-	71.6	-	68.8	-

Source: Own elaboration with data from USITC, 2020.

It should be noted that even those chapters with the highest percentage of exports benefiting from the SGP in 2018 had a drop in the rate of use of the program's benefits over the years analyzed. Chapter 85, for example, had 51.7% of its exports made under the GSP in 2010, a higher percentage compared to 2000 (27.9%), but lower compared to 2018 (42.5%). In the case of chapter 68, these percentages went from 67.5%, registered in 2000, to 26.4% in 2018. In this same line, 33.9% of exports in chapter 28 had benefits, in 2000, and 19.5% in 2018. It is also worth mentioning the reduction in the percentages of use of the SGP of exports in chapters 29 (Organic chemical products, which went from 48.9% to 14.0%), 44 (Wood, charcoal and works of wood, from 21.5% to 12.1%), 84 (Nuclear reactors, boilers, machinery, apparatus and mechanical instruments and their parts, from 23.0% to 10.4%) and 87 (Motor vehicles, tractors, cycles and other land vehicles, their parts and accessories, from 57.0% to 14.4%).

Figure 5: Export index and GSP share in Brazil's total exports to the US (2000-2018)



Source: Own elaboration with data from USITC, 2020.

It is not by chance that the share of exports made under GSP in total exports from Brazil to the US went from an average percentage of 15.0% in 2000 to around 8.0% in 2018. Brazil's export to the US appears not to have been significantly affected by this reduction. With reference to the year 2000, the index, as shown in Figure 5, reached a peak of 231.9 in 2012, it fell, but rose again, closing in 2018 at 224.5.

4.2 Analysis of the possible impacts of accession to the OECD on GDP per capita

The purpose of this section is to analyze the possible impacts of the accession of Mexico and Chile to the OECD (which occurred, respectively, in 1994 and 2010) on the evolution of the GDP per capita of each of these countries and, with this, to make inferences about the possible consequences of this event on the GDP per capita of Brazil, if the country becomes an effective member of the Organization.

Table 6. Average values of the covariates of Mexico and Synthetic Mexico in the period prior to accession to the OECD (1980-1993)

Dependent Variable: per capita GDP variation index		
Covariates	Mexico	Synthetic Mexico
Current account/GDP	-1.53	-2.57
FDI/GDP	1.10	1.04
Reserves/GDP	0.04	0.06
Unemployment Rate (1991-1993)	3.19	4.28
Consumer Price Index	6.09	24.17
GDP Variation Index	115.34	124.31
Composition of Synthetic Mexico	Guatemala: 47,9%; Panama: 25,7%; Colombia: 14,7%; e Brazil: 11,7%.	

Source: Own elaboration based on SCM results.

Tables 6 and 7 present the pre-treatment characteristics of Mexico and Chile, as well as their respective synthetic control units (Mexico Synthetic and Chile Synthetic). In the composition of Synthetic Mexico are Guatemala (47.9%), Panama (25.7%), Colombia (14.7%) and Brazil (11.7%). Regarding Synthetic Chile, the following countries are included: Panama (32.9%), Colombia (29.3%), Jamaica (18.9%) and Peru (18.9%).

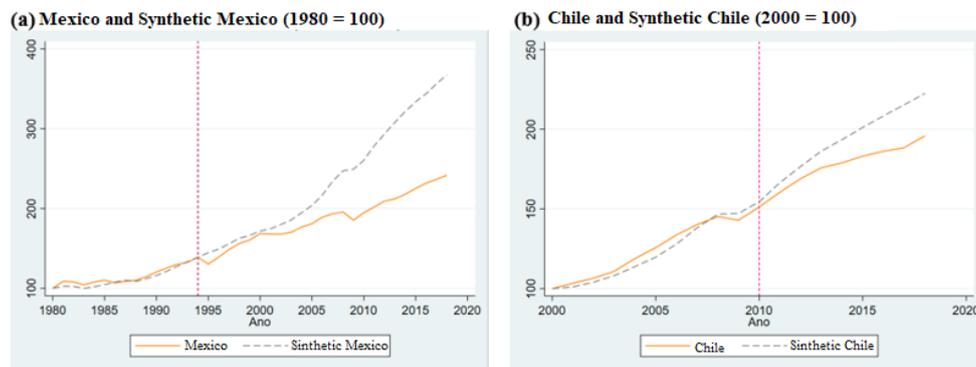
The next step for carrying out the SCM concerns the examination of the evolution of the GDP per capita of each country vis-à-vis its respective synthetic version. The results are shown in Figure 6, indicating that there does not seem to be a superior performance of the GDP per capita of Mexico and Chile after the accession of these two countries to the OECD, given the evolution of the indicators of the synthetic control units (México Synthetic and Synthetic Chile) was superior. Placebo tests also give clues in this direction, as shown in Figure 7. The gray lines show the difference in GDP per capita for each country in the donor pool and its respective synthetic version, while the orange line shows the results for Mexico [panel (a)] and Chile [panel (b)]. The signal is that, if the treatment was applied to the countries in the pool of donors (that is, if such countries became effective members of the OECD), the vast majority of them would present an evolution of the GDP per capita index higher than those of Mexico and Chile. In summary, all these results seem to lead us to believe that accession to the OECD did not generate a significant difference in the economic performance of these countries.

Table 7. Average Values of Covariates in Chile and Synthetic Chile in the Period Prior to Chile's Accession to the OECD (2000-2009)

Dependent Variable: per capita GDP variation index		
Covariates	Chile	Synthetic Chile
Current account/GDP	0.79	-3.90
FDI/GDP	6.33	5.10
Reserves/GDP	0.16	0.13
Unemployment Rate (1991-1993)	9.83	8.41
Consumer Price Index	3.33	5.11
GDP Variation Index	153.80	142.84
Composition of Synthetic Chile	Panama: 32,9%; Colombia: 29,3%; Jamaica: 18,9%; Peru: 18,9%.	

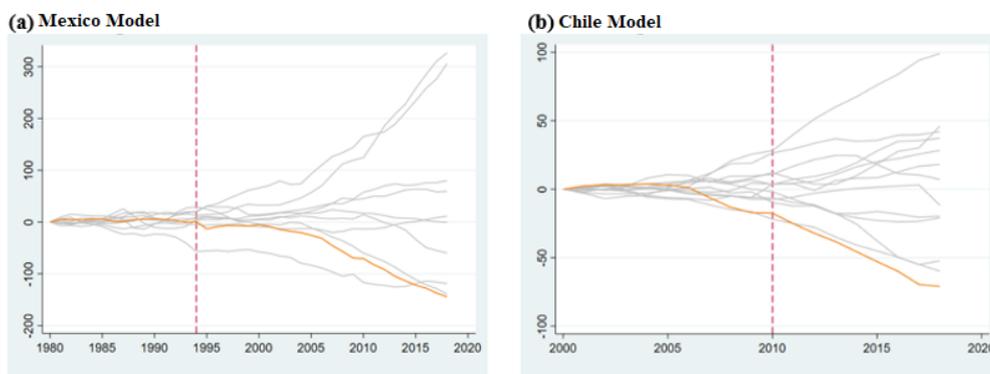
Source: Own elaboration based on SCM results.

Figure 6. Evolution of the GDP per capita variation index



Source: Own elaboration based on SCM results.

Figure 7. Placebo test excluding donors with RMSPE three times greater than that of the treated unit



Source: Own elaboration based on SCM results.

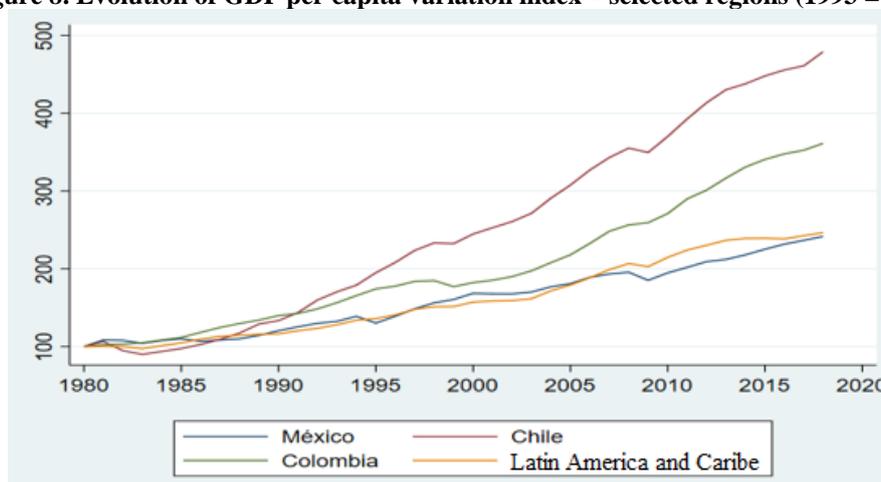
A hypothesis that can be considered to explain these results is that the possible benefits for countries' economies arising from their accession to the OECD do not necessarily occur after this fact, but may have started earlier, making later results smoother. Both Mexico and Chile started implementing measures that were in line with what is generally suggested by the OECD well before their accession to the Organization. In the case of Mexico, the process of opening up trade, liberalizing the financial market, ending industrial policy and reducing the size of the public sector in the economy began in the 1980s (MORENO-BRID, 2016). The country was one of the first in Latin America to adopt trade liberalization measures, especially after its entry into the GATT in 1986, drastically reducing barriers to imports, as in the case of licensing requirements for imports that were eliminated between 1985 and 1989 (ROS, 1993).

This measure was followed by others, which were implemented in the late 1980s, with the aim of promoting macroeconomic stabilization and increasing the participation of the private sector in the economy. In the case of privatizations, between 1982 and 1992, around 1,000 small, medium and large companies (such as commercial banks and the telephone company Telmex) passed from public to private control (CLAVIJO; BOLTVINIK, 2000). There was also liberalization of financial services, elimination of interest rate controls and a significant reduction in subsidies granted by the government on loans to the private sector, with the reduction of the role of development banks in the Mexican financial market (CLAVIJO; BOLTVINIK, 2000). Although it only came into operation in December 1994, the signing of the agreement that gave rise to the NAFTA (North American Free Trade Agreement) was carried out in December 1992, with a view to eliminating tariff and non-tariff barriers to trade, as well as ending the restrictions on foreign investments made between Mexico and its two other partners in the bloc (Canada and the USA). After the country joined the OECD, the adoption of measures defended by the institution continued. Also in 1994, the country's Central Bank became autonomous, adopting the inflation targeting regime; in 1995, the Mexican government took several measures to reduce the public deficit, starting a gradual transition towards a flexible exchange rate regime; and, in the beginning of the following decade,

subsidies were eliminated, and more state-owned companies were privatized (CÓRDOVA; PADILHA, 2016).

Regarding Chile, Bergoeing et al. (2005) draw attention to the structural reforms that took place in the country in the 1970s, aiming to increase the role of the market in the economy, under the influence, fundamentally, of Milton Friedman, who visited the country in 1975 and 1981 (EDWARDS ; MONTES, 2020). These reforms were initiated during the dictatorial government imposed on the country by the military regime in September 1973, and were continued after the resumption of the democratic regime in March 1990. They encompassed the liberalization of markets in order to minimize possible failures in the allocation of resources productive; public sector reforms aimed at achieving macroeconomic stability and improving its efficiency and that of the entire economy; trade reforms, encouraging exports and freeing up imports; social security reform, moving from a simple pay-as-you-go system to one based on individual capitalization; financial sector reform to improve the efficiency of financial intermediation; labor market reform to facilitate industrial restructuring and labor redistribution, which should take place from highly protected sectors that competed with imports to export-oriented activities; comprehensive privatization program; and social sector reforms to improve incentives for the production and delivery of social services (BERGOEING et al., 2005).

Figure 8. Evolution of GDP per capita variation index – selected regions (1993 = 100)



Source: Own preparation with data from the International Monetary Fund, 2020.

In short, if it is true that the implementation of the measures advocated by the OECD boosts GDP per capita growth, it may be that, since this movement was already taking place, there was not necessarily a leap in the indicator effectively after the accession of Mexico and the Chile to the Organization, which may explain the underperformance in relation to their respective synthetic control units. In Figure 8, it can be seen that the GDP per capita in Mexico and, above all, in Chile, has surpassed the average for Latin America and the Caribbean over the years. With regard to Mexico, the indicator was higher than those of all other regions analyzed in Figure 8 from 1993 to 2003, when it was surpassed by the Chilean index, but even so, it continued to outperform the other regions at least until 2009, the year in which the index for Latin America and the Caribbean surpassed it. Córdova and Padilha (2016) argue that the performance of the Mexican economy was affected by low productivity and the strong impact of the recession in the US economy in 2001, as well as the subprime crisis, given that, as is known, the Mexican economy is very integrated into the US economy due to NAFTA. In addition, the performance of the Chilean GDP per capita is impressive, especially after the beginning of the 1990s, when it surpassed the indicators of all the other analyzed regions, without losing any more position.

The hypothesis that possible benefits of accession to the OECD do not occur only after the realization of this event gains strength when analyzing data from Colombia, whose accession to the OECD occurred in 2020, but with the rate of variation of GDP per capita surpassing that of America Latin and the Caribbean for several years before that year, as shown in Figure 8. In the case of this country, as with Mexico and Chile, economic reforms were also implemented prior to its accession to the OECD. Costa (2018) shows that a labor reform was implemented in 1991, making the previous rules more flexible in

order to reduce the cost of labor in the country; in 1992, a process of greater economic opening began, with a significant reduction in import tariffs and a reduction in the requirements for import licenses; in relation to the exchange rate, as part of the economic opening process, flexibility measures were implemented, eliminating the exchange controls that had been in force in the country for 25 years. In this same period, financial reforms were also carried out, among which the reduction of barriers to the entry of new institutions in the sector, the reduction of the required minimum reserves and the liberalization of the interest rates practiced by these agents stand out.

Along the same lines, Adhikari et al. (2018) studied the effects of structural reforms (increased trade liberalization, privatization, reduced barriers to entry, labor market deregulation, changes in pension systems and tax reforms) on GDP per capita in New Zealand, Australia, Denmark, Ireland and the Netherlands, in the 1990s, and Germany in the early 2000s, with the use of the SCM, indicating that, for four of these countries, such reforms seem to have contributed to increasing GDP per capita compared to the respective control units. synthetic, but for two of them (Denmark of New Zealand) the results were not conclusive. Billmeier and Nannicini (2013) also used the SCM to investigate the impact of economic liberalization on real GDP per capita in a sample of 180 countries from 1963 to 2005, suggesting that economic liberalization had a positive effect in most regions. , although the most recent liberalizations, carried out in the 1990s and mainly in Africa, seem to have had no significant impact.

Having made these considerations, two important aspects should be suggested: (i) the implementation of economic measures along the lines of those recommended by the OECD does seem to stimulate the growth of GDP per capita in its member countries; however, (ii) these measures depend much more on approval by the legislature in democratic countries than necessarily on accession to the OECD, especially taking into account that Mexico, Chile and Colombia, in general, began to be put into effect well before their accession the organization.

5. Conclusion

This work contributes to the specialized literature by discussing the role of the GSP and the OECD in the growth of developing countries, with a counterfactual analysis carried out through the Synthetic Control Methodology (SCM). This method allows the construction of a control unit with a linear combination of comparison units that are more similar to the economy being studied, based on relevant variables for the analysis of the effects of the treatment that the country or region targeted by the study went through.

The results suggest that the loss of the GSP was not very relevant in explaining the oscillations of exports from Brazil to the EU12, which seem to be more related to movements in world imports. In addition, there are signs that the GSP has lost importance in explaining Brazilian exports destined for the US market over the years. It should be noted that the fact that Brazil declares itself as a developing country at the WTO does not guarantee preferential access to the US market, since the US Congress may, at any time, remove the country from its list of beneficiaries in a way discretionary, as did Canada, Japan and Europe. These results seem to provide an argument for those who argue that Brazil should give up its status as a developing country with the WTO in favor of US support for its accession to the OECD.

However, analyzing the cases of Mexico and Chile, the results of the SCM did not show that accession to the OECD has contributed to raising the per capita income of these countries differently after the occurrence of the event. In addition, there is evidence that the implementation of economic reforms aimed at stimulating and increasing the role of the private sector and, at the same time, reducing the State's weight in the economy, such as trade liberalization, privatizations, deregulation of the labor market, changes in pension systems and fiscal reforms, along the lines of what is advocated by the OECD, seem to contribute to raising the per capita income of these countries. It should be noted that the accession of countries to the Organization may create commitments and incentives for economic reforms to be carried out, but it does not seem to be a sine qua non condition for this to occur.

All other expected benefits depend on internal reforms, which, as the cases of Mexico, Chile and Colombia have shown, could be carried out without accession to the OECD, if there was an understanding in the Brazilian Congress on which policies are beneficial and necessary for the country. If this is true, it may not be worth it for Brazil to renounce its status as a developing country at the WTO in favor of its

accession to the OECD. Furthermore, specifically taking into account the cases of Mexico and Chile, it is worth saying that, despite having stood out in relation to the evolution of GDP per capita, this seems not to have acted actively to mitigate the social dissatisfaction that took place over the years, apparently resulting from the implementation of reforms that did not raise social indicators to the same extent as economic indicators, culminating in violent protests in both countries.

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