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A MERCOSUR development analysis: The effects of international agreements, and COVID-19 in the member countries

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This thesis is the final step of my studies, and it is the conclusion of two years of hard work, will and desire to understand well the things around me, to learn more about everything, and to be a better person.

Falëmnderit te gjithëve,

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Abbreviations

AA – Association Agreement
AECID – Spanish Agency for International Development Cooperation
ARG - Argentina
BOT – Balance of Trade
BRA - Brazil
CCM – Trade Commission of MERCOSUR
CMC – Common Market Council
CMG – Common Market Group
EIA – Economic Integration Agreement
EU – European Union
EUR - Euro
E&D – Emerging and Developing
FDI – Foreign Direct Investments
FTA – Free trade Agreement
FOCEM - Fund for the Structural Convergence of MERCOSUR
GDP – Gross Domestic Product
IMF – International Monetary Fund
IMP - Imports
IOM – International Organization of Migration
IPPDR – Institution of Public Policies on Human Right
LA/C – Latin America / Countries
LAFTA – Latin America Free Trade Association
LAIA – Latin America Integration Association
MERCOSUR – Market of South
NAFTA – North America Free Trade Association
NX - Exports
PAR - Paraguay
PARLASUR – Parliament of South
PICE - Programa de Intercambio y Cooperacion Economica
UK – United Kingdom
URU - Uruguay
US/ $ - United States / dollar
EU* - includes the first 15 member countries of EU, without Belgium and Luxemburg

Introduction

The Common Market of South America, or as known commonly, MERCOSUR, is a regional economic integration organization, established in 1991 by the Treaty of Asuncion and 1994 by the Protocol of Ouro Preto.

The member countries are countries of the Latin America, when the most influential and the most important are the State Parties, countries with full membership rights, Argentina, Brazil, Paraguay, and Uruguay.

In this study has been analysed mostly the economic aspects of the region but always considering the political events.

In the Chapter I, has been explained the reason why the MERCOSUR was created, some of the most important events, and the organizational structure of the bloc organization. Then has been made an economic analysis of the impact of the creation of the region integration organization, in the development of the countries, analysing the GDP, trade flows and FDI, and has been tried to explain certain events, like the economic shocks and crisis, in a timeline from 1991 to 2019. All the data used have been downloaded as raw data, mostly from World bank database, EUROSTAT database, IMF database, and then have been analysed through Excel and Gretl.

In Chapter II, some of the most important international agreements of MERCOSUR have been reviewed, focusing on the Free trade Agreement between EU – MERCOSUR. An economic analysis has been made using the trade flows of the full member countries of MERCOSUR and EU, in this analysis the Latin America region has been considered as well, to make a comparison between the bloc and the region's economic relation with the EU. Some data have been used to demonstrate the beneficials from this bilateral trade agreement.

In Chapter III, a gravity model of the economic integration has been analysed, to show the influence of the variables like the distance, the population, the income, shared variables like the common language, in the exports volume of a country in a bilateral trade. Brazil has been chosen to represent the MERCOSUR area, because of its large share of economy in the region, with some of the most important EU countries.

After the gravity model, another model has been used, the fixed effect model, to analyse for the differences between two model results.

In Chapter IV, the effect of the Covid-19 in the MERCOSUR area in the year 2020, have been commented, using some first statistical data.

In Chapter V, the conclusions.

Chapter I – MERCOSUR background

1.1. MERCOSUR creation

Southern Common Market, known as MERCOSUR, is a regional economic integration organization in South America which has been established by the Treaty of Asuncion in 1991, and Protocol of Ouro Preto in 1994.

The main purpose of those organization was the barrier-free trade between the countries which were part of them, but it did not go well, because those intra-regional barrier-free trade decisions were often in contrary with national politics member countries used to have. That is one of the reasons why all these organizations did not success on their purpose. There were two important associations before MERCOSUR, LAFTA, Latin American Free Trade Association and LAIA, Latin American Integration Association whose information and work were used later by MERCOSUR member countries on their bilateral trades. Brazil and Argentina for example, two of the main member countries, used all the LAFTA preferences on their bilateral trade and from 1960-1970 almost 80% of their trade was made under those preferences.

However the fact that the region has often been under geo-political tensions, the international environment that was not always on their side, countries that used to think in national level mostly, and the most important, the fact that their national development politics were very different from one another, made it not favourable for the regional integration initiatives to function well. In addition to all this in around one decade the region had to face up two very important economic shocks, the oil shock, and the external debt crisis of 1982, which were a very huge indicator in largely diminishing the intra-trade relations.

Even though this background does not seem like the best one to establish some important integration initiatives, the Argentine-Brazilian Programa de Intercambio y Cooperacion Economica (PICE) in 1986 firstly, the Buenos Aires Act of 6 June 1990 between Argentina e Brazil, in which Paraguay and Uruguay showed their interest in September, and the Treaty of Asuncion of March 1991 made it possible to create the MERCOSUR bloc, the Market of South.

Fig 1. A timeline of the most important events and organizations until the creation of MERCOSUR
Source: Excel data

Part of this organization are countries of the South America, divided in the full member countries, and the associate countries. Full members are Argentina, Brazil, Paraguay, and Uruguay. Associate countries are Bolivia, Chile, Colombia, Ecuador, Guayana, Peru and Suriname. There are two observer countries as well, Mexico and New Zealand.

Fig 2. The map of MERCOSUR countries
Legend: Brown – States Parties, Orange – Associate countries,
Source: MERCOSUR official website

During the years associate countries have tried to gain the full member spot, and other countries that were not part of the bloc, tried to be candidate member countries. However, if a member or associate country does not accomplish the bloc's regulations, then the other member countries can vote and decide to suspense its membership on the bloc. Example would be Venezuela which has been a full member of the bloc from 2006 but it has been suspended since 1 December 2016, because it failed to fulfil the organization's regulations, based on the second paragraph, Article 5, Protocol of Ushuaia. On the other hand, from 2015 Bolivia is a candidate to be a full member of the bloc.

There are some institutions which help the well-organization, the deadlines, and the decision-making process of the MERCOSUR.

- Common Market Council (CMC) which occupies for the political issues and decisions, is the highest authority of the bloc.
- Common Market Group (CMG) is an organization created by four full members, and four alternate members, of each Ministry of Foreign Affairs, Central Bank, and the Ministry of Economy, controls the daily work of the bloc. It has an executive role on the bloc.
- MERCOSUR Trade Commission (CCM) which is responsible for the administration of the common commercial policy instruments.

Throughout the years for facilities and to guarantee that the regional policies are being implemented in the right way there have been formed different permanent institutions in different 7countries like the MERCOSUR Parliament (PARLASUR), the Institute of Public Policies in the Human Rights (IPPDR), Fund for the Structural Convergence of MERCOSUR (FOCEM) etc.

There are some steps to follow for the countries to become part of the bloc, and to continue later with the process of accession, as decided by the MERCOSUR regulations. First the candidate country should submit a written request to the Council of the Common Market (CCM) through the Pro Tempore Presidency. Then the request will be discussed by the Common Market Group, which will negotiate about all the conditions through an Ad Hoc Group, created with members by both full member countries and associate ones. Once the request has been through this step, it is been sent to the Council of the Common Market to be approved. Approbation must be unanimous. Once the request has been approved, the protocols continue with an incorporation on the domestic legal of the new member country, and the States Parties.

Since the beginning the MERCOSUR's objective has been its regional economic development, through different policies and agreements. They have always looked forward to new investments from international potential investors, economic and political agreements with other countries from all over the world and other economic or political organizations too. During the years most of Latin America countries have been part of different regional economic and political unions and organizations, different integration initiatives. Unfortunately, most of these initiatives have not been very successful, and now days they are not operating any more.

The MERCOSUR area lies in most of the South America continent, with Brazil the largest country. Being so large geographically, the Bloc's area has different climate types, from Antarctic to tropical, but most of the population lives in tropical and subtropical areas. It is home of Amazonia rainforest, Amazonia river, some of the world's most important waterfalls, lakes, Andes mountains and much more.

The MERCOSUR bloc is home of about 554 million of people, which live mostly in biggest cities and capitals of both associate and member countries of the bloc. There are three official languages of MERCOSUR, Spanish, Portuguese and lately from 2006 Guarani too has been one of the languages of the bloc. Portuguese is the main spoken language of the bloc in a matter of population, but Spanish is the language spoken in most of the countries part of the bloc.

Language	Native speakers %	Countries where is the official language
Portuguese	71%	1
Spanish	26%	4
Guarani	3%	1

Tab 1. Official languages spoken within the MERCOSUR area
Source: MERCOSUR official website

Even though this integration organization is created thirty years ago, it does not have a common currency for the member and associate countries. It was first proposed Gaucho, by Brazil and Argentina as a common currency, but after the other member countries showed interest in the integration of the bloc, no further actions were made in the terms of the common currency. In 1994 Brazil proposed Brazilian real as a common trading currency to give a stop to the very frequent exchange rates, and since then there has not been any other proposal for another common currency.

MERCOSUR bloc has been classified as the 5th world economy for 2019, with around US$ 4.6 trillion of nominal gross domestic product GDP.

1.2. Motifs and reason why the MERCOSUR was created

Liberalization of the rules which stabilize the trade of good and production factors between two or more countries, part of a political-economical agreement means economic integration. Those kinds of agreements may have an undesirable output also, when because of them the trade between the countries part of the agreement and the countries that are not part of it, may decline. At the same time, when the accord proposed is acceptable, and brings benefits to both countries the import-export relations may as well rise. Countries which often try and make those trade benefits to each other through the integration organizations, are mostly in the same region, and have in common cultural aspects, language, beliefs. Examples would be the European Union, and the NAFTA.

With the same ideology, the countries of the South America decided to have their own integration organization, MERCOSUR. As claimed to their official website, the idea behind the MERCOSUR is a union of countries working as one, in such a way to secure the well-being of their people. Creating for their people the possibility to work, to study, to live, to travel with total freedom within the countries of the bloc. It would absolutely be a huge value of cultural, linguistic, religious, and ethnic diversity. As mentioned earlier there are three official languages, among others, and different ethnics, because of their European ex-colonial background, in the bloc cloud be found the Spanish, Portuguese, Italian descendants, as well as indigenous and African people.

It is considered nowadays as a union of countries that become stronger over time. With more than 15 million km^2, between soil surface and watery one, where the riches and natural treasures are not missing, the people living in the MERCOSUR area can decide where to retire without losing their contributions. The bloc is the most established commercial organization of the region and is one the most important economies of the world.

According to the MERCOSUR free trade agreement, formed by twenty-three Articles, the main reason this intraregional economic integration organization was created to provide the free barrier trade between the member countries, to create the possibility of working together in the economic point of view, to make it possible a further economic growth of the region, improving the lives of the people living in the area.

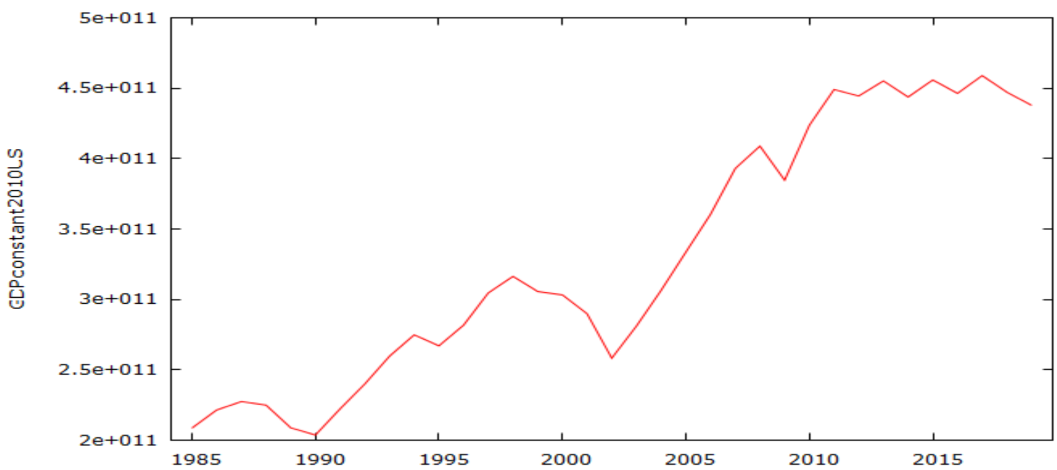
It considered the expansion of the domestic market, through integration would be a highly important factor on their economic development. One of the principal beliefs of the organization was that the well-organized use of each member country's natural resources, respecting their environment and through the right macroeconomic, international agreements, would possibly achieve their desired economic intentions. When MERCOSUR was first created, the regional integration organizations were rosing, so to give their own countries a fair possibility in this fast economic and political process, the union of their sources was the way to secure them a better chance in the international figure. The agreement mentioned the fact that the national politics should work in a way that the reasons and the purposes this agreement was being signed, would be achieved.

1.3. Economic impact of the creation of the MERCOSUR in the member countries

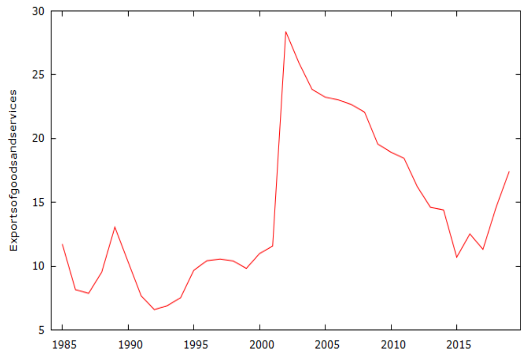
MERCOSUR area was created to establish the agreements of the free barrier trade between the countries of the region of the South America. To be able to see the economic impact, the creation of the bloc had on the member countries' economies, it is useful to look through the historical data of those countries. It has taken into consideration the State Parties, Argentina, Brazil, Paraguay, Uruguay, for a period from 1985 to 2019. It has taken into this first analysis only the full member countries, as it is going to check the impact of being part of MERCOSUR, from its beginning. The variables that have been chosen to look through are the GDP real, export and import as a percentage of GPD. Creation of a time series for those variables, allows to have a view of this economic development.

For this analysis Gretl program is being principally used, and after looking at the time series' graphs generated from the program, it can be easily to comment some economic development, and to try explain why a pattern may have a certain form.

After plotting the GDP data for Argentina, into a time series, the view of graph is like this:

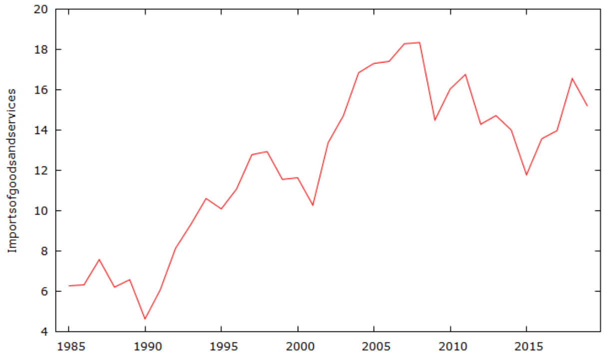


Graph 1. Argentina's GDP (constant 2010 US$)
Source: Gretl, Excel, World bank databank database



Graph 2. Argentina's Export as % of the GDP 1985-2019

Source: Gretl, Excel, Data source:

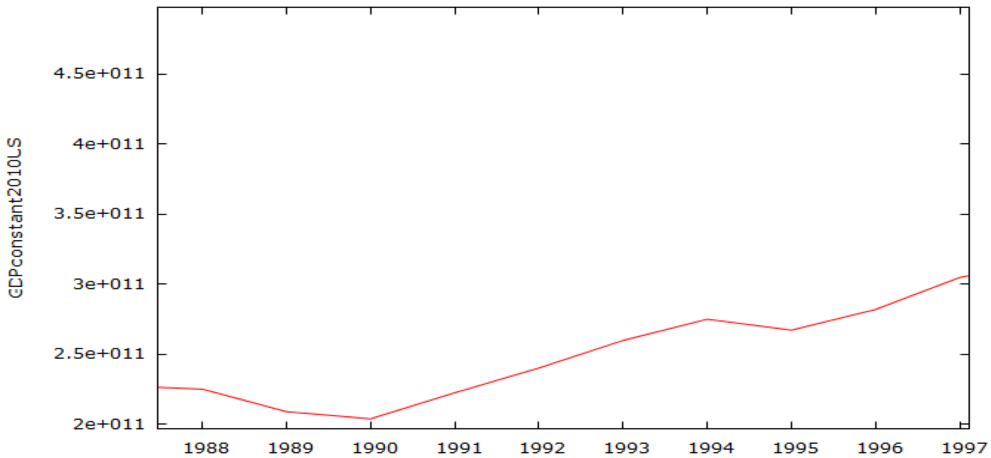


Graph 3. Argentina's Import as % of the GDP 1985-2019

Source: Gretl, Excel, Data source: World bank

It can be clearly seen in the graphic nr 1 that the GDP has been increasing significantly from the 1991, but it has some shock points when it goes down. In the first look from 1991 to around 2000 it is increasing, then it has a breaking point around 2002, to a faster increase until 2008-2009, and from 2010 to 2019, it seems to be constant. However, from the data going through the analysis, can differ the GDP that goes from $220 billion by the end of the 1980s, to around $410 billion by the end of 2020s. So being a member of the MERCOSUR area has been a positive impact on the economy of the country. The import and export patterns are quite like the one of the GDP, as the values creating the time series, are as % of the GDP.

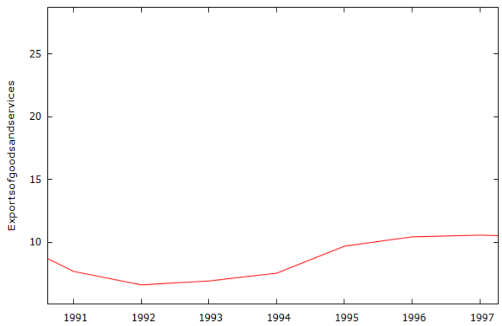
Looking into details the Argentina's pattern could be curious to explain why that pattern looks like that.



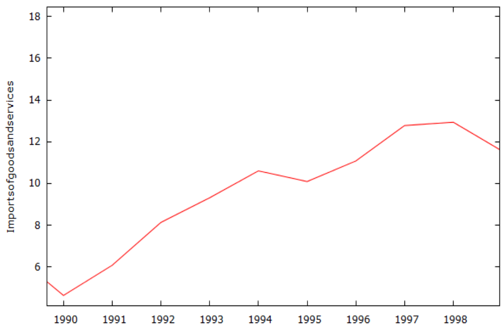
Graph 4: Argentina's GDP pattern, 1988-1997
Source: Gretl, Excel, Data source: World bank databank

From the graphic can be identified that the 1990 has the lower GDP value, with only $203 billion, and it can be explained by the economic and political crisis Argentina was facing. From 1970s to the late 1980s Argentina was going through a lot of political changes, and

very difficult economic phases. It is the period known as stagnation. It went from a military dictatorial country to a republic with Raul Alfonsin as President in 1983, but even though this might be a positive development, at that moment the country had a lot of economic problems. With a chronic inflation rate which went up to 1000%, a foreign dept which tripled in less than three years, and with the peso losing value due to the hyperinflation, Argentina changed its currency to the new Argentine pesos. The country asked for a dept from the International Monetary Fund, which at first was not approved. Soon after Brazil, Mexico, Colombia, United States, and Venezuela led to Argentina $600 million, and it was shortly followed by IMF with another dept. A new currency followed the Argentina pesos, the Argentina austral. Although it may have been a positive moment in the economic pattern, it was brief as Argentina failed to pay its own dept, leading to a deeper economic crisis. On 1988 they tried to open to a free-market reform, and presented the Primavera Plan, which would adjust some fiscal policies, but the plan failed, and the country was in a deep hyperinflation again, and food shortage which led to protests. In 1989 Menem was the new President, and by the 1990, the hyperinflation achieved more that 12000%. That is the big shock on the pattern achieved from the data put into the analysis. The new government presented an emergency plan, part of that were the partial privatization of state-owned companies, move which lead to a little improvement with the prices falling. To stimulate the economic growth and to adjust the hyperinflation, there was a new policy presented. First, they made a monetary reform, where the Argentina austral were changed to pesos, and as a balance there was a currency board, where a peso was equal to a dollar.
Graphically can be seen that the GDP increases, export increase, imports too, first at a smaller value compared to exports, than higher. The overall view after 1990 is altogether positive, and Argentina was having an economic growth.

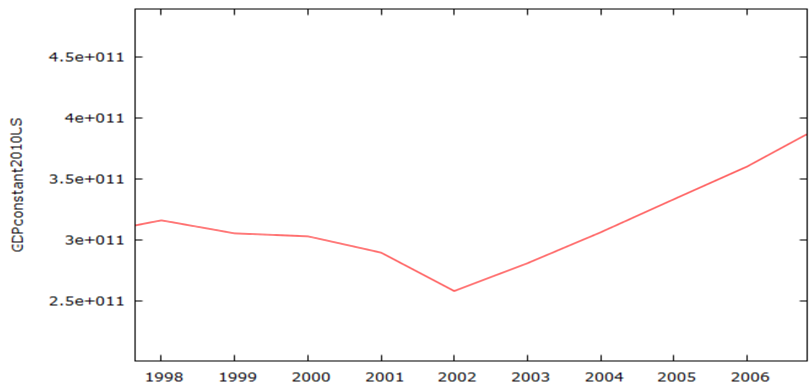


Graph 5. Argentina's exports as a % of the GDP, 1990-1997
Source: Gretl, Excel,Data source: World bank databank



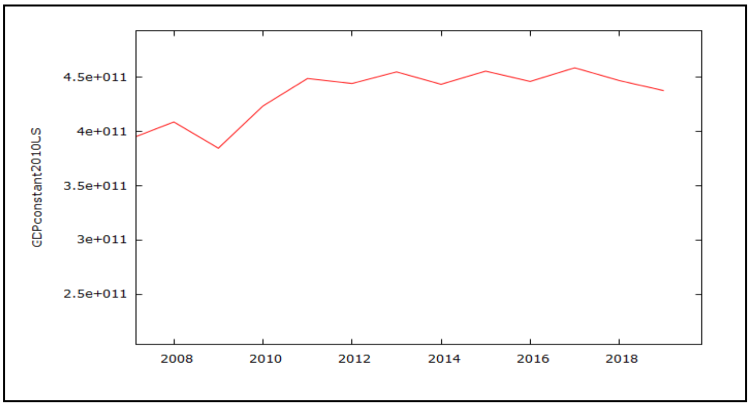
Graph 6. Argentina's imports 1990-1997
Source: Gretl, Excel, Data source: WB databank

After facing the stagnation and opening to the free-market reforms, it looked like positive winds were above Argentina's economy, but unfortunately from 1998 to 2002, the country faced a great depression. The great amounts of foreign dept, and the fixed exchange currency with US dollar, were not the best scenario for the country. Therefore, in 2002 Argentina was in a great economic crisis and they decided to change the fixed exchange rate from 1:1 to 1 peso - 1.4 $.



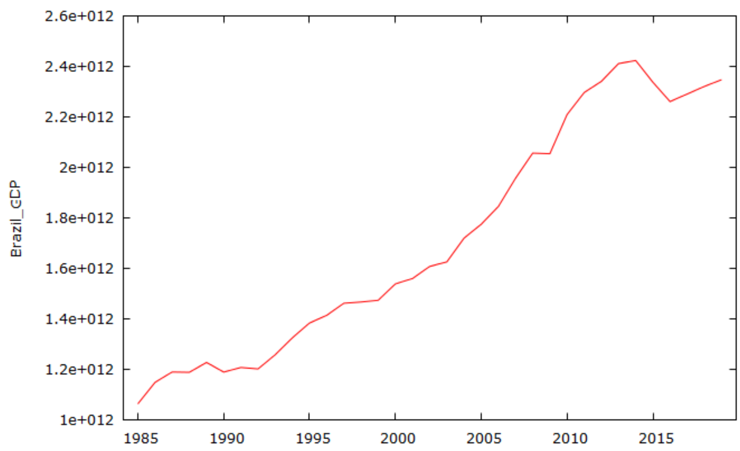
Graph 7. Argentina's GDP, 1998-2006
Source: Gretl, Excel, Data source: World bank databank

Right after the economy started to flow until 2008, when it started to have a downfall, with its new peak on 2009, but at this moment other countries around the world were facing with an economic crisis, due to bad depts and bad investments. From 2010 to 2019, the graphic shows up and downs, with a small frequency.



Graph 8. Argentina's GDP 2008-2019
Source: Gretl, Excel

After looking at Argentina's different economic phases, as a peculiar case, it takes into analysis, Brazil, Paraguay, and Uruguay. Brazil is the largest economy of the region, with almost double GDP compared the rest of the countries of South America. It has also the largest surface and population.



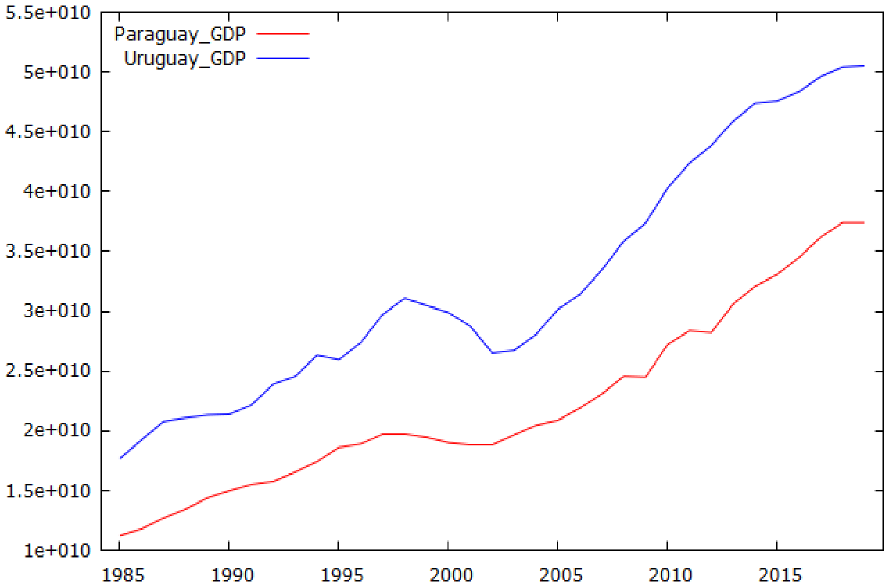
Graph 9, Brazil GDP (constant 2010 US$), 1985-2019
Source: Gretl, Excel, Data source: World bank databank

The pattern received for the GDP constant 2010 US$ data for Brazil, shows however a continually increasing line, that goes from US$ 1.06 trillion in 1985, to US$ 2.34 trillion in 2019. There is a decreasing from 2011, with a peak in 2015. That's because the Brazil economy depended a lot in its exports of products such as soybean, sugar and iron ore to the huge demand coming from China. However, the prices of those products started to decrease, bringing the downturn of Brazil economy. The export of goods and services for Brazil through the years has a regular up and down line, with its main downfall on 2004.

Graph 10. Brazil exports (% of GDP), 1985-2019
Source: Excel, Data source: world bank databank

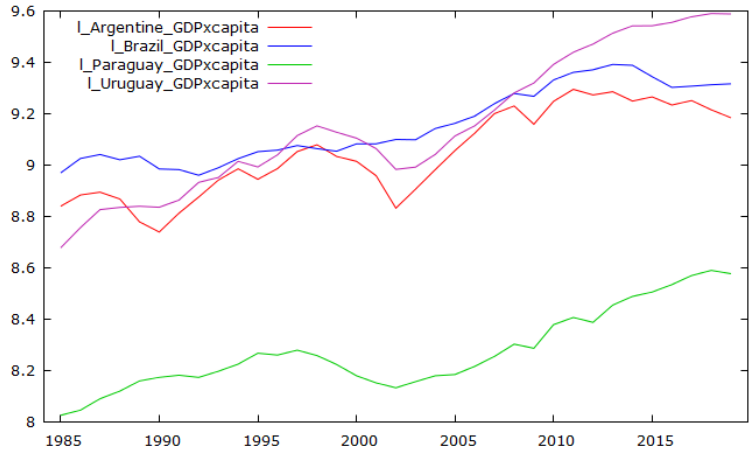
Brazil is the 7th largest economy of the world, and it remains the largest economy of the Latin America, as well as the largest importer of the intra-region trade. The country's alone GDP is about 40% of all MERCOSUR' GDP, data taken from Excel.

Paraguay and Uruguay share some very similar patterns when it comes to GDP, however, Uruguay has a higher positioned curve due to its higher GDP.



Graph 11. Paraguay and Uruguay's GDP (constant 2010 US$), 1985-2019
Source: Gretl, Excel, Data source: World bank, databank

It can be seen from the graph that the Uruguay's GDP is higher than the Paraguay's one, it is the double compared to the one of Paraguay's, but the pattern they follow have quite the same shape. The most interesting point is the breaking point of 2003, period in which the world was facing a global financial crisis, and the graphics show that the State Parties of MERCOSUR area have all been affected.
To complete this analysis, it can be useful to look at the log of the GDP per capita of the four countries taken into study to have a better picture of the economic growth of those countries after their full membership on MERCOSUR area. Using log of the GDP per capita gives an idea of how prosperous a country has been in terms of real GDP of each citizen individually, to be able to say how their economic growth has influenced their people.



Graph 12. Log GDP per capita of Argentine, Brazil, Paraguay, Uruguay, 1985-2019
Source: Gretl, Excel, Data source: World bank, databank

From the graphic can say that in terms of real growth, Argentina, Brazil, and Uruguay have very similar shapes. There is Brazil which has a more consistent curve, with less breaking points, and Argentina with more drastic view than the others. Paraguay and Uruguay have their similar growth lines, but with Paraguay at the lowest rate of growth. Overall, can be said that after the creation of the MERCOSUR bloc, all member countries have experienced significant economic growth. They all have faced difficulties, mostly by their political and financial backgrounds. The most visible breaking point has been the global financial crisis of 2002-2008, which the countries of the bloc could not avoid, mostly because a large amount of their GDP comes from exports, and another important variable in their revenue is the lending from important global monetary institutions, or other organizations, and other countries.

Year / Country	FDI (% of GDP) 1991-2000	FDI (% of GDP) 2001-2010	FDI (% of GDP) 2011-2019
Argentina	28,2341978	20,6581698	15,7337
Brazil	19,3398578	27,2303121	33,25739
Paraguay	16,3209174	8,24087634	11,96297
Uruguay	6,66668087	44,55055	38,45982

Tab 2. State Parties FDI inflows as % of GDP,
Source: Excel

Another indicator of the impact of the integration in the MERCOSUR area are the Foreign Direct Investments. FDI is almost a perfect indicator of this argument as fare as it is purely an entry on the GDP, from the outside of the country.
The values show however that the FDI has submitted changes due to the economic crisis the countries have faced, but the share of the FDI is significant and after each breaking moment, there is an increasing of the values in each country.
It is interesting that it goes in a positive relation with the country measures, and population, bigger the country, bigger the quantity of the FDIs on that country.
The share of 28% of FDI of Argentina in 1991-2000, with the amount of around US$ 20.590 million, is smaller than the share of 16% of FDI of Brazil, with the amount of around US$ 52.325 million, which in value is quite the double of Argentina, same as their GDP.
Can be said that the integration into the bloc, has brought its own economic and politic benefits to the member countries, but smaller the country and more difficult it seems to be to have higher profits and benefits. That said, the integration on the bloc has a positive outcome, keeping in mind the fact that the biggest investors are from the intra-region, and the free barrier trade and accords have had an important impact on improving those relations and collaborations.

Chapter II – MERCOSUR and the international integration

2.1. MERCOSUR' most important international agreements

The Common Market of South, from its beginning has had as a main objective to expand the economic relations of the member countries, and to create as more important trading opportunities as possible.
This may be an early objective, but the bloc has been passing through severe economic crisis for a long period, and from 2005 to 2015 it has been focused more in its intra-region trade and collaboration.
Although this new objective, for the bloc to achieve their earlier goal, and to sign an economic or political agreement with other organizations or other countries, there are some procedures to follow. There are some institutions, which one of their exclusive roles are to control, and suggest solutions about different international agreements.

- Common Market Council is the most important organ when it comes to international agreements. It works as a legal person on the name of all the other countries and negotiates and signs agreements with international organizations, on the name of MERCOSUR.
- Common Market Group is the executive organ of MERCOSUR, and when delegated by the CMC, negotiate in the name of MERCOSUR about the international agreements.
- MERCOSUR Commerce Commission analyses common trade agreements and makes proposals to CMG, and keeps track of how the intra-region agreements, or with international organizations and other countries are applied inside the bloc.

In 2014 the State Parties through CMC Decision No.23/14, approved the new MERCOSUR International Cooperation Policy. On 30 years of MERCOSUR existence, the bloc has signed

around 48 international agreements. The main investors and international trade partners, from extra-region have been United States, European Union, in particular way countries like Germany, Spain, Italy, Intra-American bank of development, Mexico, Russia, China, Japan, and Turkey.
The different agreements that the bloc has approved and taken into consideration, are not only of economic profile, but different agreements about the human rights, environments, schooling, and education, researching and development, youth programs and exchanges.
It is important to remind that the region has been through a lot of political changes, and social changes which have affected their social life, so human right programs and agreements have been an important point of the development.
Being home of the biggest forests, and a lot of endemic species, environmental agreements have been necessary too. Adding here the global warming and climate conditions which lately have been a very important object of discussion and a very important issue of the present and the future. One of the latest developments about the topic, the Amazonian forest's fires, which went on for a long period of time through 2019-2020, causing a lot of damage to the area, environmental and economic too.
Some of the thematic areas whose nature is not only of economic aspect are focused on:

- Gender quality, with the financial support and technical supervision of Spanish AECID
- Development of biotechnologies, with the financial support and supervision of the European Union
- Improvement of the free movement of the citizens of the bloc, as well as taking care of their human rights, with the collaboration of the International Organization of for Migration
- Going eco-green and advising and promoting the energy efficiency of the household appliance, with the supervision and the technological support of the Germany
- Health agreements, training the professionals on improvement of the transplantations, with the support of Pan American Health Organization, and World Health Organization
- Bilateral trade agreement with India, to promote the development of the trade and investments

Some ongoing projects are:

- Science, technological innovation with partner country Germany, running period 2015-2019
- Institutional strengthen, partner country Italy, running period 2019
- Regional social policies with partner organization UNFPA, running period 2019-2020

While some of the organizations that the MERCOSUR has signed trade agreement may be interested only on the economic aspect of the bloc, example would be NAFTA, others are interested not only on the economic aspect, but on the political one as well, example would be the EU. EU is considered an important economic partner, but the negotiations have been going on for about 20 years now, and only by 2019 MERCOSUR bloc and EU achieved an accord.

Chapter III – MERCOSUR and European Union

3.1. The free trade agreement between the MERCOSUR and the EU

One of the most important international partners of MERCOSUR is the European Union. This for different reasons but, starting from the point where, then called European Economic Community (now EU), has been an inspiration on the creation of the South America integration bloc, from its structure and organizational form. Moreover, the MERCOSUR region is important for other international integration organizations and catches their attention mostly for their natural resources.

EU has been interested in bilateral trade agreements with MERCOSUR since its beginning, and it has had trade agreements with the States Parties individually, with Argentina in 1990, Paraguay in 1992, Uruguay 1994, and Brazil in 1995. The negotiations to make a barrier free agreement between EU and MERCOSUR has an integration organization started in 1999. It would be not only an economical agreement, but a political one too, as both the integration organizations are of regional, economic, and politic influence. The agreement was looking forward to achieving barrier free trade, or reduced barrier trade, mostly on agricultural goods, but as well in automobile industry, pharmaceutical and luxury goods. Nevertheless, the negotiations failed first in 2004, as both sides did not agree in the proposals they made. Their individual ambitions about the liberalization of the trade tariffs were on different levels.

As quoted on EU's "Comprehensive Free Trade Agreement with MERCOSUR" on May 2016 document, the European Union was going to gain from this agreement:

- Access to a new and larger market, with MERCOSUR bloc being the 5th biggest world economy, and a population of approximately 250 million inhabitants

MERCOSUR area is being one of the most important trade partners for EU, with Brazil only being the 14th largest exporter partner and the 10th trade partner between 2014-2015. The bloc is enlisted as one of the biggest agricultural export markets for EU, and the largest export market for fertilisers, and on the first ten destinations for EU exports of pharmaceutical products, chemicals, and machineries.

- Based on Eurostat data, the EU could save more than US$ 4 billion on trade taxes

The products that are being exported extra-EU are subject of high tax tariffs, principally because some the category of the goods that are exported are chemicals, machineries, technological goods, cars, and other industrial goods. Removing or lowering those tariffs would bring a positive result in terms of numbers and could possibly increase the amount of good traded between the two organizations.

- Create the possibility of convenient prices to raw products and materials

One intriguing possibility for EU is the access to raw materials with competitive prices. One of the goods that is imported to Eu from MERCOSUR is meat and its under-products, and have it exported to EU with lower prices, would increase the competitiveness of EU on international market.

- Give the EU the priority to become most competitive in the MERCOSUR's area market

EU being the first to achieve non barrier, or barrier reduced tariffs from MERCOSUR, would give the goods imported from the EU, the priority on MERCOSUR's market, becoming the most competitive extra-partner.

- New possibilities for the EU products to become more competitive

With the reduced tariffs, the EU could export to the MERCOSUR market more products that belong to high tax category goods, like cheese and other dairy products, wine, pork and prosciutto, chocolate.

- An increasing interest in the FDIs

With reduced tariffs, or with no barriers on investments and assets, the agreement would be probably favourable in increasing the number of FDIs, in both areas, EU and MERCOSUR.

- European companies having access to an equal treatment as the MERCOSUR region's companies

The European companies after the agreement between EU-MERCOSUR should be treated equally when it comes to be a bidder for suppling MERCOSUR public institutions. Public infrastructure is one of the highest government expenditures on the bloc, and giving the EU companies the chance to bid equally as the local companies is important.

The negotiations in concluding the trade-free agreement were suspended in 2004, and between 2006 and 2007 EU made public a sustainability impact assessment and studies about the agriculture, forests, and automobile. In 2009 the EU shared a study about economic development, environmental issues and social aspects, however they did not take into consideration the latest changes in MERCOSUR area, nor the trade flow between them, so until 2010 no progress was made in the open and still standing agreement. In 2010 the negotiations were re-opened, in the summit of Madrid, but soon after come to a standstill point again after the fact that the policies in Brazil and Argentina were showing interest into a south-south, intra-region accords, Paraguay's suspension by the bloc in 2012, and Venezuela's ascension.

Through 2015-2016 the political changes in Argentina and Brazil, with now a new positive intention for the business, made possible for the EU and MERCOSUR to re-launch their negotiations on their yet to conclude trade-free agreement. EU offered their proposals and offers, with agriculture remaining the main point of the argument.

Until 2018 very little progress has been made, in some specific areas, like the trade of the cars, car's parts, some dairy and meat products, especially markets which EU was more interested, but still the two parties do not have their trade agreement concluded. Around that time, EU was achieving other assessment agreements with other countries, such as the political agreement with Mexico in 2017, and the launching of negotiations to modernise the AA with Chile.

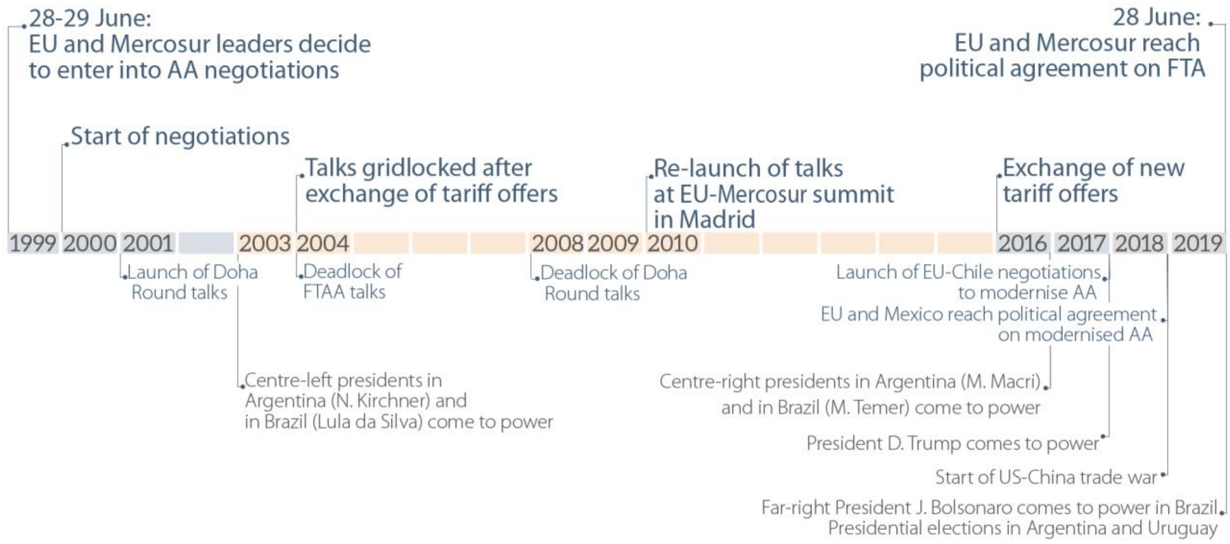


Fig 3. Important moments and events during the negotiations process through EU-MERCOSUR-4 trade agreement Source: ESRP

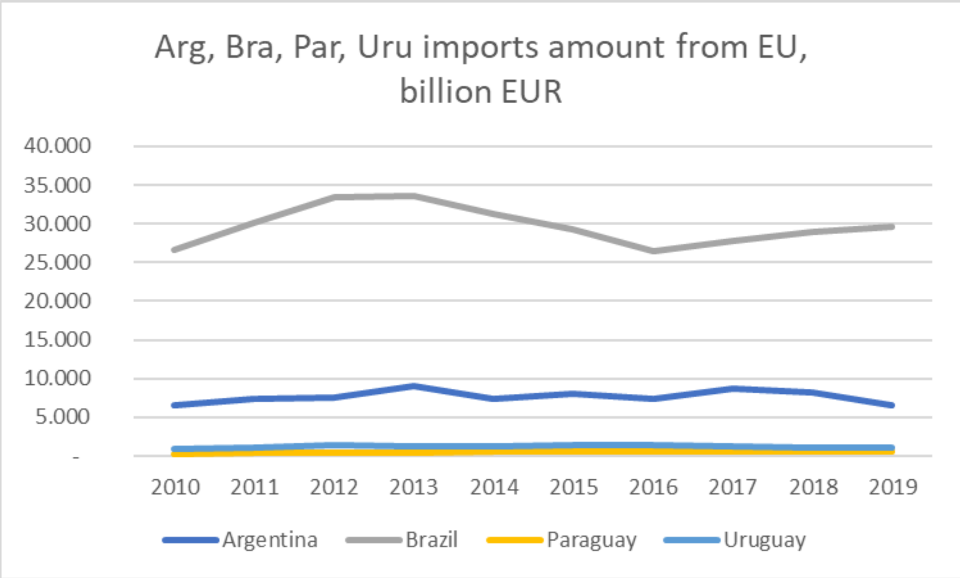
The global situation was being changeable at moment of speaking, and new challenges were being showed ahead. The competition between US-China trade market, called a trade war and the political changes on the EU with the decision of the UK to go out of the EU, through the Brexit, as well as the political changes on the MERCOSUR-4 area with the election of Bolsonaro as President in Brazil, and the new elections in Argentina and Uruguay, urged the EU and the MERCOSUR to achieve a deal on 28 June 2019.

Brussel, 28 June 2019, the EU, and the MERCOSUR-4 finally after 20 years made it possible to strike a deal. The deal will now create the largest barrier-off free trade area, in terms of population, and the new market created would be almost one quarter to the world's GDP, as EU alone is the second largest economy in terms of nominal value, with about US$ 15 trillion for 2020 (data extracted from EUROSTAT).

Before further going on this analysis it can be interesting to see how the numbers and the graphs looked on the trade between the two blocs, before the FTA. The data taken into study has been extracted by EUROSTAT database, so the currency here is in million euros, and it sees the trade flows, the import, and exports of all products, between MERCOSUR-4 and EU.

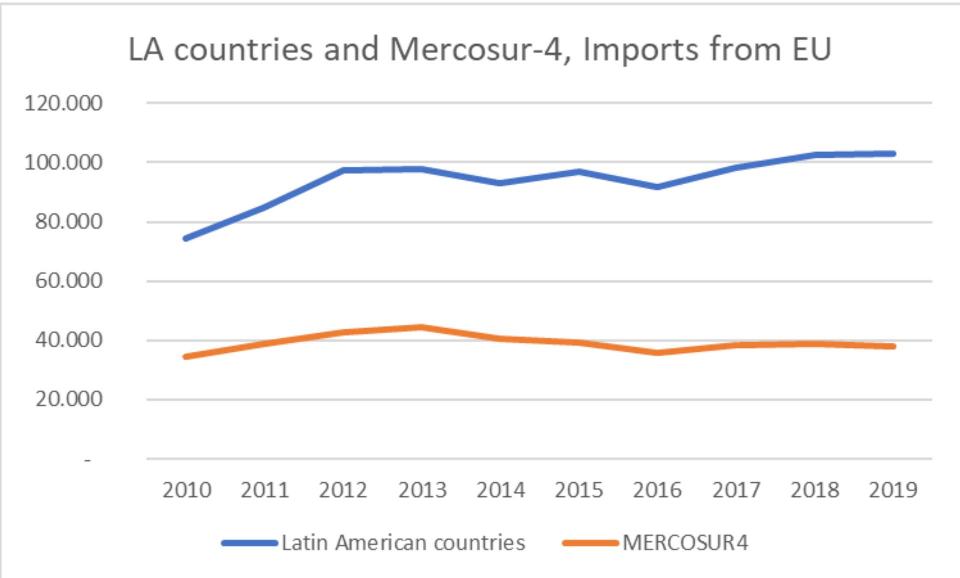
The Latin America's countries have been selected too, to help with the view of how important the MERCOSUR area in the trade balance of EU is. The LA countries include all the MERCOSUR area countries, so the MERCOSUR is part of the Latin America and EU trade balance. Through this analysis could be able to tell how much of the Latin America trade share is MERCOSUR-4, while the State Parties are taken into analysis alone, and the total of their amounts has created another variable, the MERCOSUR one. The years that the data are taken into consideration are from 2010 to 2019. The amount of imports from MERCOSUR to EU is the same as the amount of exports from EU to MERCOSUR, so that what would be the exports amount from EU, is the import amount for the MERCOSUR.

It is to be expected that the most important country in trade balance would be Brazil, for its dimensions and importance in the global market as well. Brazil is considered the largest economy of the region, and one of the biggest partners of EU in Latin America.



Graph 13, Argentina, Brazil, Paraguay, Uruguay Imports amount from EU
Source: Excel, EUROSTAT database

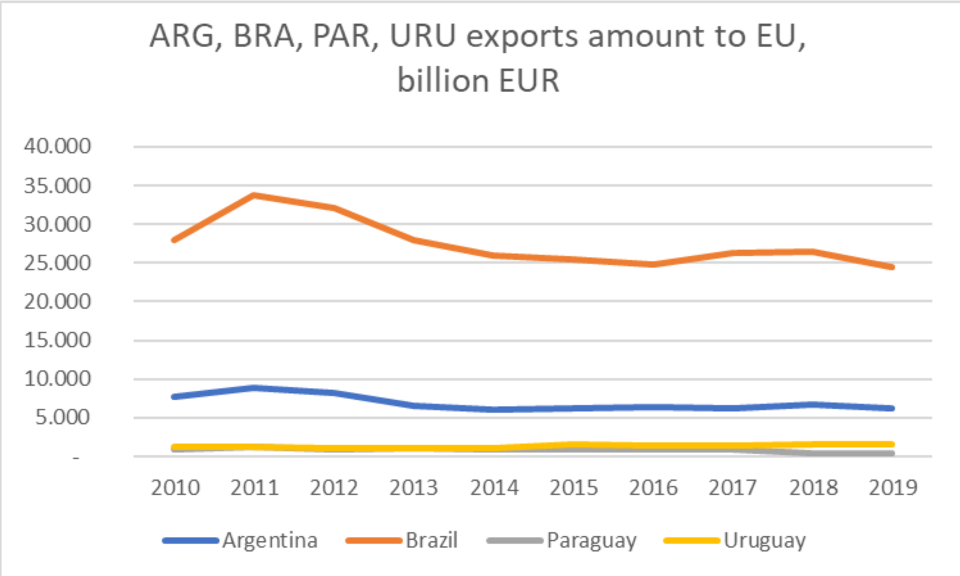
The first graphic about the imports amount in billion EUR, of all goods and services, of Argentina, Brazil, Paraguay, Uruguay, shows something that was expected. Brazil imports amount is higher than other three countries, its import amount is almost 5 times larger than the one of Argentina, Paraguay and Uruguay taken together. The country is the 13th larger partner of EU, and the larger of the MERCOSUR area.
The curves have their peak in 2013, with Brazil imports of goods and services from EU of around EUR 35 billion, Argentina EUR 9 billion, Uruguay EUR 1 billion, and Paraguay only the amount of EUR 457 million. When it comes to Latin America Countries, and MERCOSUR-4 comparison of imports amount the view received is like this:



Graph 14. Latin America countries and MERCOSUR-4, amount of imports from EU, billion EU
Source: Excel EUROSTAT database

It can be identified that the Latin America countries share a much larger amount of imports from the EU, with their highest amount on 2019, of EUR 109 billion, meanwhile MERCOSUR-4 have their largest share on 2013, with approximately EUR 44 billion. in 2013 the MERCOSUR-4 have had more importance to the EU in the terms of import amount, it was around half the amount of all Latin America countries import amount, which raged at EUR 97 billion in 2013. However, in 2019, the MERCOSUR' imports amount has been decreased to EUR 37.7 billion, or about one third of all the Latin America imports amount. That can be as a consequence of the new agreements EU has signed with other Latin counties outside the MERCOSUR, like Mexico and Chile.

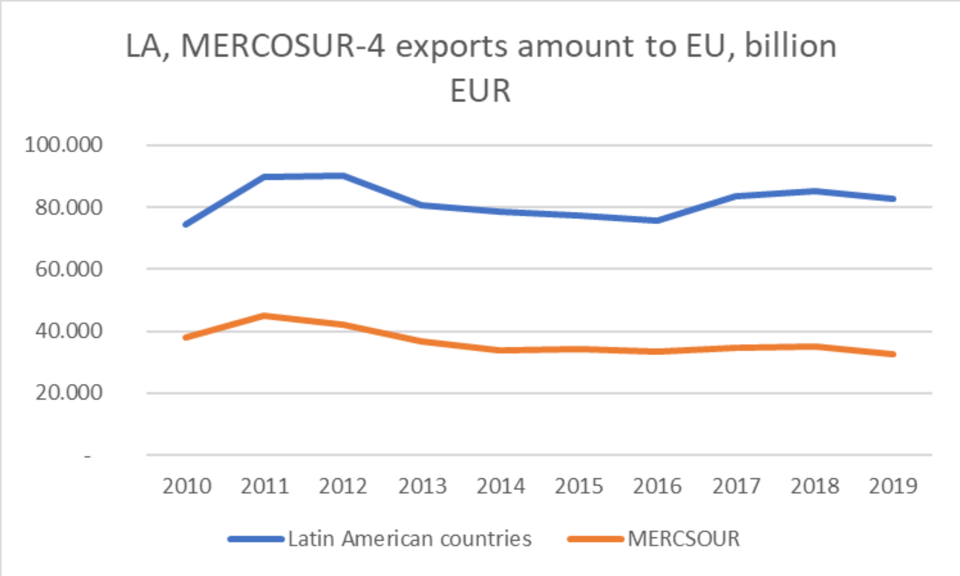
The next point to be seen is the amount of exports MERCOSUR-4 have experienced through the last ten years, and the view achieved from the data that have been put under analysis is this one:



Graph 15. Argentina, Brazil, Paraguay, Uruguay exports amount to EU, billion EUR
Source: Excel, EUROSTAT database

Once again, Brazil is the leading economy, with the largest amount of exports to EU, being followed by Argentina, however with a much smaller export amount, and Uruguay and Paraguay being very little amounts, almost flat merely reaching EUR 1 billion.
For the exports amount the peak is in 2011, with Brazil at about EUR 34 billion, and Argentina almost EUR 9 billion.

Comparing again the Latin America countries and MERCOSUR-4, can be said that the pattern for the Latin America countries has two peaks, one on 2012, and again on 2018, on the other hand, the MERCOSUR-4 has its increasing on 2011,which can be understandable because Brazil, which has the biggest share on the exports if the MERCOSUR has its own peak in 2013, but after that the pattern goes quite flat, and decreasing in 2018.

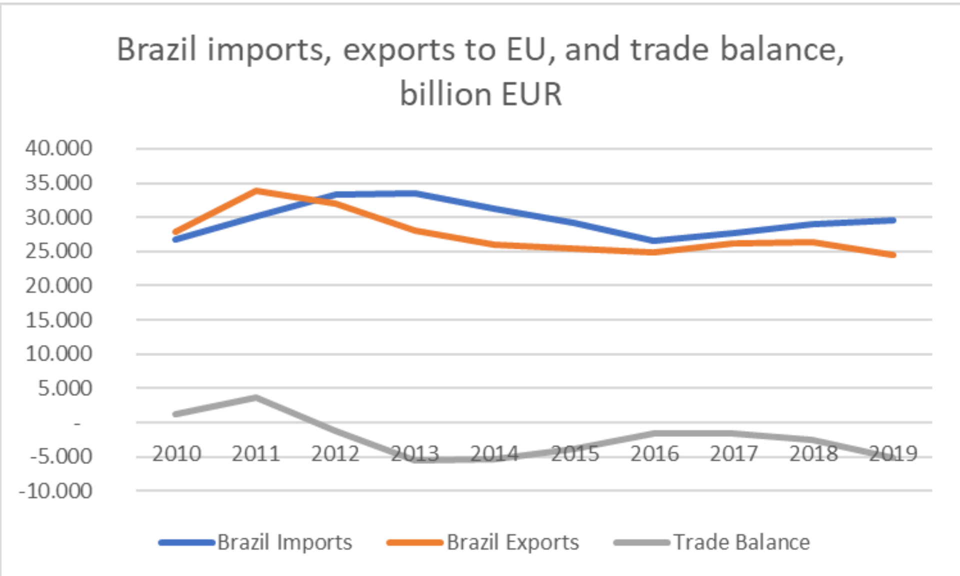


Graph 16. Latin America countries and MERCOSUR-4, amount of exports to EU, billion EUR
Source: Excel, EUROSTAT database

At this point could be interesting to see how the trade balance goes for MERCOSUR-4 and Brazil specially. The used formula is Balance of Trade equals to Exports subtracted Imports:

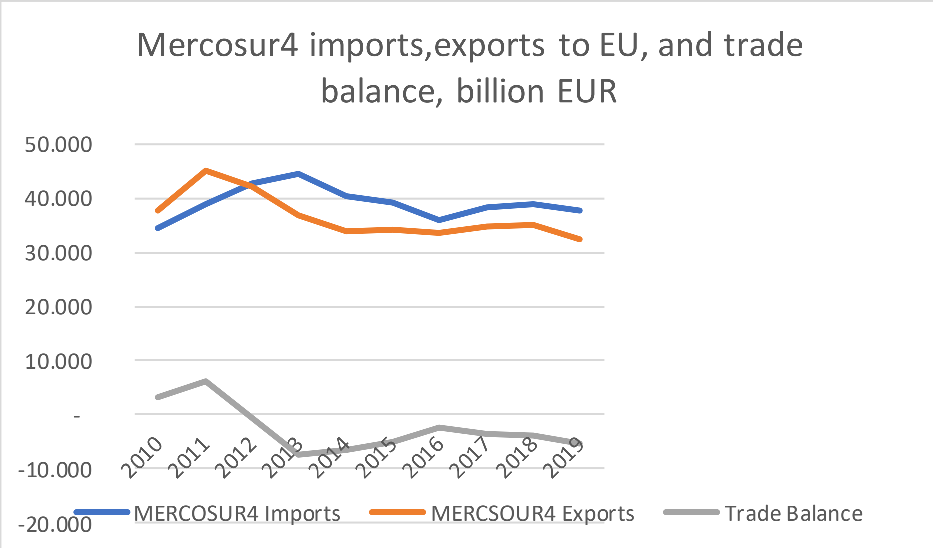
BOT= NX-IMP

The Balance of Trade which has been reported in this analysis takes into consideration the amount of import and export between MERCOSUR and EU, only two integration organization blocs, so the results does not necessary be valid for the rest of the exports and imports for the country, so a trade surplus here, does not mean that the general trade balance for that year has been positive. EU is not the only economic partner of MERCOSUR; this is only a partial result of the total trade balance.



Graph 17. Brazil imports, exports amount to EU, and the trade balance in billion EU
Source: Excel, EUROSTAT database

The trade balance account shows that Brazil has had a trade surplus in 2010, 2011, with EUR 3.7 billion, when it has had its highest amount of exports to EU, and has its lowest point, the biggest trade deficit in 2013, with EUR 5 billion, when it has its peak in imports amount. The country has another important trade deficit of EUR 5 billion in 2019.
Brazil has been classified the third country in the world for the trade deficit. It is important to remind that the trade balance deficit on Brazil account, is a trade surplus on EU trade balance account. That is one of the results that makes Brazil an important trade partner to EU. It is crucial to recall that this analysis has been made for the trade of all the goods and services, and the type of the goods that brazil imports from EU are products that have high customs tariffs, like automobile, pharmaceutical and chemical products along with others.

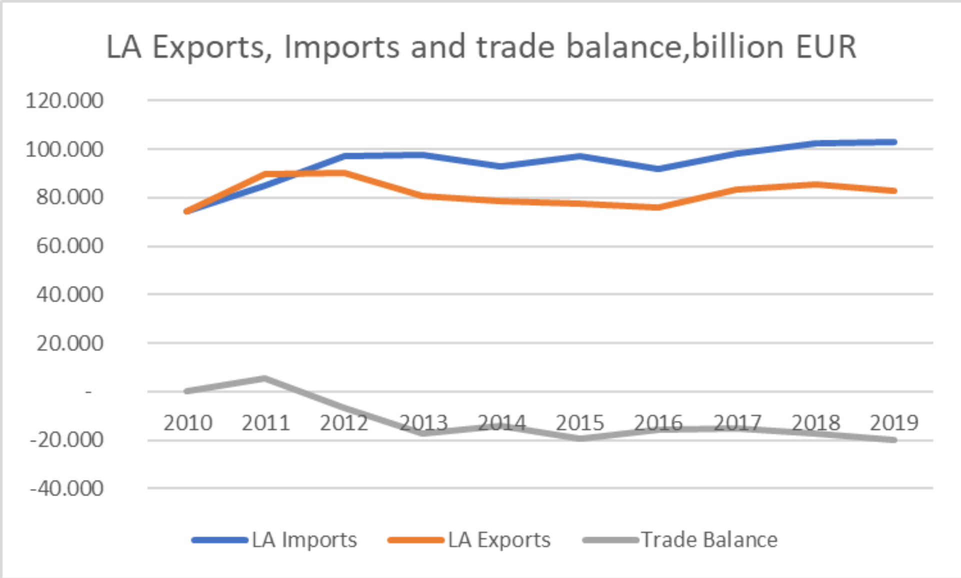


Graph18. MERCOSUR-4 imports, exports amount to EU, and the trade balance, in billion EUR
Source: Excel, EUROSTAT database

Similar pattern to the one of Brazil alone, is the pattern on the graphic of the trade balance of the MERCOSUR-4. Mainly for the reasons mentioned before, that Brazil is its larger economy and has the biggest share on the trade market, so it is normal to appear similar. The highest point of the trade balance surplus is in 2012, with an amount of EUR 6 billion, and the highest trade balance deficit is right after in 2013, with an amount of EUR 7 billion.

Those results once again show the importance of a Free Trade Agreement between the two blocs, and all the possibly positive results that could be achieved when liberating the tariff barriers that make it more difficult to experience higher trade balance.

It is curios the fact that when applied, similar result to the one of MERCOSUR-4 and Brazil, come even for the rest of Latin America countries. Nevertheless of the fact that the exports amount have been increased after the 2013 crisis, and it is going smoothly and constant until 2019, the trade balance shows a big trade deficit, because the proportion of growth of the imports is much higher than the one of the exports, and actually the imports amount has its largest share in 2019.



Graph 19. Latin America imports and exports amount, and the trade balance, billion EUR
Source: Excel, EUROSTAT

The LA region has its highest trade balance surplus in 2012 with an amount of EUR 5 billion, while MERCOSUR had an amount of EUR 6 billion, but other countries like Mexico have imported a larger amount of goods from EU, decreasing the level of the LA's BOT.
La has its highest trade balance deficit in 2019, with an amount of EUR 20 billion.

The new FTA would bring some changes in the trade of the goods, it would reduce the tariffs on the imports from the EU to 91% on the course of ten years, for most of the products, but others would need a longer time to adapt and to have reduced tariffs, up to 15 years.
As reported in the European Union report of the MERCOSUR-EU FTA, the main beneficial would be for the EU industrial exports, as for cars, parts for the cars, machineries, shoes and other high end fashion products like leather and different luxuries textiles, chemicals and pharmaceutical.

« Market access for EU cars, car parts and machinery

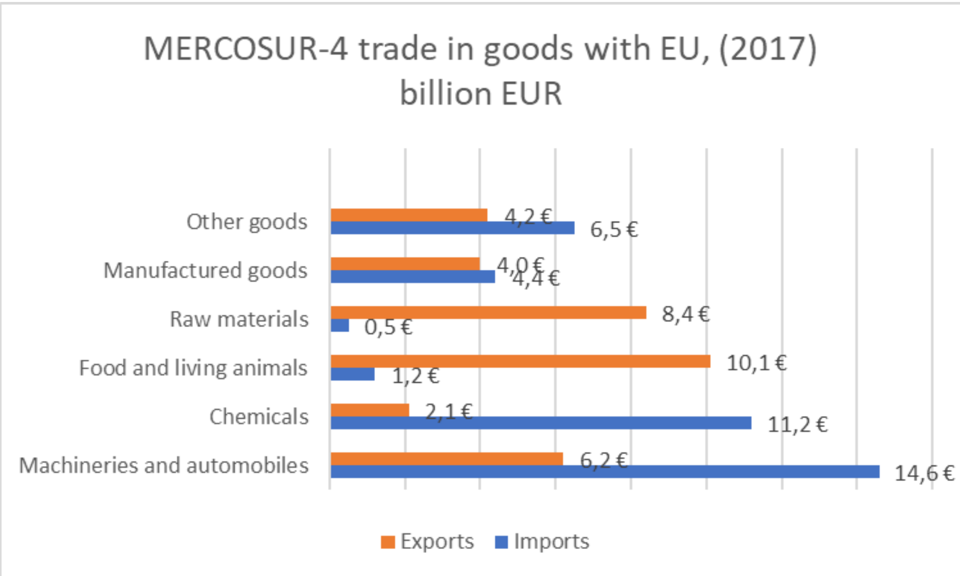
MERCOSUR would fully liberalise imports of **passenger cars** from the EU over 15 years in a non-linear manner. For a seven-year grace period a transitional quota of 50 000 units would be opened that would have an in-quota rate of half the MFN duty (35 %). Afterwards, duties would be phased out more quickly. Tariff lines on **car parts** would be liberalised mostly within 10 years (82 % of tariff lines covering 60 % of EU exports to MERCOSUR with a further 30 % of additional exports liberalised over 15 years). For EU **machinery**, 93 % of exports would be fully liberalised, mostly within 10 years (67 % of exports to MERCOSUR).

Source: European Commission, 1 July 2019 »

The FTA would be beneficial for food and drink products exported from the EU, products which are subject to high tariffs, like cheese, wine, meat.

Another point of the agreement is the farmer's support, which would be in the form of the financial help with a budget up to $1 billion, to help the farmers adjust the problems that may be caused by the liberation of the tariffs at first.
Other products that would be beneficial from the FTA, are the beef export from MERCOSUR to EU, especially from Argentina. MERCOSUR countries would be allowed to export up to 99.000 tons of beef to EU, both ways, like fresh meat, or frozen one, and until now it has been a high tariff product.
Sugar, especially from Brazil, the bloc would be allowed to export up 180.000 tons to the EU tariff-free.
Poultry, the bloc would be allowed to export up to 180.000 tons of chicken meat, tariff-free.
Honey, the new FTA would allow MERCOSUR to export up to 45.000 tons of honey tariff-free to the EU.
Rice, up to 200.000 tons would be allowed to be exported to the EU tariff-free.
Ethanol, which is a very important products because of its use, the FTA would give the possibility to the MERCOSUR to export up to 650.000 tons of ethanol, when 400.000 tons would be for chemical use, and could be exported tariff-free in about five years, and the remaining 200.000 tons would that be for all purposes, including the production of the fuel, would have a reduced tariff, paying only one third of the actual tariffs.

Through the FTA, the both organizations would guarantee to the one-another the intellectual property rights. This is mainly because a lot of the products that would be beneficial to the agreement and are on the category of the high tariffs, belong to the special European brands of wine, cheese, beer, prosciutto, and similar products. MERCOSUR would protect those brands, and the FTA has the largest number of the protected European product's brands than any other agreement before. EU would guarantee the same for authentic and all other intellectual property rights for the products coming from MERCOSUR.
Environment is another concern of the FTA, so all the objectives and the offers made by both blocs have been taken into consideration respecting and giving the right importance the environment.



Graph 20. Mecosur-4 trade in goods with EU, 2017, billion EUR
Source: Excel, EUROSTAT database

3.2. The Gravity model of economic integration

It is accepted that the international economic integration agreements affect the economic growth and the development of the countries included in it.
Since the economic integration agreement, EIA, between MERCOSUR and EU is an object of interest not only for the two bloc, but for the rest of the world as well, especially when it becomes the biggest bilateral trade market, in the thoughts of population numbers.
It is useful to make an empirical analysis and demonstrate what kind of relationship is there between the volume and the direction of the trade, and what are the potentials of trade from this bilateral international integration trade agreement for the two blocs, especially when they are in different economic development phases.
The standard gravity model is then augmented by some variables, in order to see if these are significant and relative to the model or not.
The gravity model on the international flows has been first used by Tinbergen (1962) and Poyhonen (1963). It has been the most used type of model to analyse the empirical results of international movements, like migration or international trade. According to this model, the amount of exports from one country to another are explained by different variables like the their GDP, their population, their geographical positions and the distances from other countries, as well as other variables likes language, culture which are considered dummy variables on the model.

the first time the product differentiation and made the first attempt to create an equation from the model with those new variables. Bergstrand (1985-1989) used the model to analyse the monopolistic model. In 1985, Helpman and Krygman, used the increasing return to scale to try and explain the gravity model. Deardroff in 1995 proved that the gravity model was right for a lot of models and could be explained by the bilateral trade. In 2003, Anderson and Wincoop used a non-linear system of equations, to understand the change of prices with trade liberalization. In 2009 Bergstrand and Baier used the log-linearization of this system of equations, to make it simple. Other studies have been made, putting into account the welfare, elasticities fix-trade price and variable-trade prices.

However the generalized gravity model of trade, shows that the volume of exports between two countries *i* and *j*, X*ij,* is a function of their income, their population, distance between them, and a some other dummy variables like language, being part of ex-colonies or shared culture.

The simplified model used for this analysis is:

$$X_{ij}=\beta_0\, Y_i^{\beta_1}\, Y_j^{\beta_2}\, N_i^{\beta_3}\, N_j^{\beta_4}\, D_{ij}^{\beta_5}\, A_{ij}^{\beta_6}\, u_{ij} \qquad (1)$$

Where the X_{ij} is the expresses the volume of exports between two countries, and where Y_i (Y_j) indicates GDPs of the exporter (importer), N_i (N_j) are populations of the exporter (importer), D_{ij} measures the distance between the two countries most important economic centers , A_{ij} represents any other factors aiding or preventing trade between pairs of countries, and u_{ij} is the error term.

Another method of the formulation of equation (1) uses per capita income instead of the population,

$$Xij= \gamma_0\ Y i^{\gamma_1}\ Y j^{\gamma_2}\ C i^{\gamma_3}\ C j^{\gamma_4}\ D ij^{\gamma_5}\ A ij^{\gamma_6}\ uij \qquad (2)$$

Where C*i* (C*j*) are the GDP per capita of exporter (importer). The two equations are equivalent so their coefficients can be expressed as:

- $\beta_3 = -\gamma_3$
- $\beta_4 = -\gamma_4$
- $\beta_1 = \gamma_1 + \gamma_3$
- $\beta_2 = \gamma_2 + \gamma_4$

The second equation is mostly used when the gravity model is applied to estimate bilateral exports for specific products (Berstrand, 1989), while the method used on the equation (1) is mostly used to estimate aggregated exports (Endoh, 2000).

For estimation purposes, model (I) in loglinear form for a single year, is expressed as:

$$\ln X ij = \beta_0 + \beta_1 \ln Y i + \beta_2 \ln Y j + \beta_3 \ln N i + \beta_4 \ln N j + \beta_5 D ij + \beta_6 \ln I i + \beta_7 \ln I j + \sum_h \delta_h P_{ijh} + u ij$$

Where the $\sum_h \delta_h P_{ijh}$ is the sum of the dummy variables of the bilateral trade, P_{ijh} has the value of one when the conditions are satisfied, and 0 when the conditions are not satisfied.

This analysis dummy variable is the common language, which is satisfied as a condition if the trade partners share the same language, (1 for Portugal, 0 for the rest of the countries)

The Ii (Ij) variables represent the infrastructure of the exporter (importer) country, as suggested by Bougheas in 1999, the coefficients of this variable β6, β7 can have a positive correlation with the volume of the exports, due to the fact that better roads, better transportation and delivery ways would shorten the times of delivery, and can allow a country to export, import more, in shorter times, and probably with shorter costs as well.

It is expected that the coefficient β_2 results positive, because of the fact that a country with higher incomes is expected to export more. Same is expected for the coefficient β_1 since a country with higher incomes is expected to have the possibility of the production of more goods and services, making it possible for the country to export more. About the population coefficients β3 and β4 it depends on the economy of scale, because it is expected that a big country exports and imports more than a small country, however it can be changeable in the matter of years due to the amount of the exports and imports, because a big country can export less than a small one depending in its production, and its consume, so those coefficients are expected to be both positive or negative.

B5 however can be negative because for higher distances, the exports between two countries can be lesser than the one between two countries geographically nearer, the transport costs and the delivering times can affect this result.

Into this analysis are taken into consideration 15 countries, EU and Brazil, in for a period of 10 years, from 2010 to 2019.

The countries that have been taken into analysis are, Austria, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherland, Portugal, Spain, Sweden, United Kingdom. Even though UK is not part of the EU anymore, this analysis takes a survey until 2019, period in which UK hold a full member status.

For the MERCOSUR, only Brazil is taken into consideration, as it is the largest country of the region, with the largest share of trade in the MERCSOUR bloc, as showed in earlier analysis.

The variables that have been analysed through the gravity model, with the mean of an OLS analysis are the volume of the exports for Brazil, expressed with lnTRADE as dependent variable, and the rest of them as independent variables.

The null hypothesis is that the volume of trade of one country, in this case Brazil, is not dependent by the independent variables.

To manipulate a little bit the data to have a simple view, the infrastructure variable has not been taken directly from the database, this data was missing, so it has been calculated as the

Infrastructure = ln (GDP of the partner countries) * (distance in km from partner country and Brazil) / (GDP of the world in that year)

Another variable that has been created is the lnTRADE, which would be the ln of the Trade itself, the trade here is different from the trade balance, as in this case it is the sum of export and import:

lnTRADE = ln (NX to Brazil + IMP from Brazil)

It is important to mention that the exports are not the total amount of exports of the partner country, but only the amount of exports that has been exported to Brazil.

Into the analysis is a new variable called Scale, which is the scale of the population, to check the relation between the number of populations of the partner countries in EU, with Brazil's amount of export.

Scale = Ln (Pop Brazil * Pop of the partner country)

The dummy variable is language, which has the value of 1 only for the countries which have Portuguese as the official language, and only Portugal has this value.

Distance is another used value, which expresses the distance in km from the most important center of the partner countries in Europe, to Brazil.

The last added value is the GDP distance, which is expected to be positive, because it takes into consideration the GDP per capita, and a higher income country is expected to consume more, to import more, as well to product more and export more. This variable has been calculated by using the GDP per capita of brazil, and GDP per capita of the partner country,

GDP distance = ln (Max (GDP per capita of Brazil ; GDP per capita of the partner country) – MIN (GDP per capita of Brazil ; GDP per capita of the partner country))

After completing the calculations on Excel and selecting the variables, a simple OLS panel analysis has been runed on GRETL.

Model 1: Pooled OLS, using 130 observations
Included 13 cross-sectional units; Time-series length = 10
Dependent variable: lnTRADE
Beck-Katz standard errors

	Coefficient	Std. Error	z	p-value	
const	13.2351	11.1615	1.186	0.2357	
Distance	−0.00027528	4.98082e-05	−5.527	<0.0001	***
Infrastructure	1.54534	0.281175	5.496	<0.0001	***
Scale	−0.364052	0.281906	−1.291	0.1966	
Langauge_dummy	1.57879	0.0942096	16.76	<0.0001	***
GDP_Distance	0.321012	0.224653	1.429	0.1530	

Mean dependent var	7.977598	S.D. dependent var	1.289788
Sum squared resid	35.74443	S.E. of regression	0.536900
R-squared	0.833436	Adjusted R-squared	0.826719
F(5, 12)	4008.868	P-value(F)	6.72e-19
Log-likelihood	−100.5379	Akaike criterion	213.0758
Schwarz criterion	230.2810	Hannan-Quinn	220.0669
rho	0.927593	Durbin-Watson	0.147250

Null hypothesis: The volume of exports does not depend on the variables of the partner countries.

Tab.3 Gravity model of the amount of exports between Brazil and EU* countries.
Source: Excel, Gretl, Source of data: IMF database, World bank databank

The results of this first analysis show that three of the coefficients of the independent variables are very significant, the Distance, the Infrastructure, and the Language. The r-squared and the adjusted r-squared shows that around 82.6% of the of the data fits the model and can be explained by those results. All the variables are in their logarithm form, except for the dummy variable and the distance.

However in this gravity model of an economic integration, the distance coefficient has a negative sign, which means that the distance is negatively related to the volume of exports, it can be read that for each km added to the distance between two countries, the amount of the exports diminished with 0.002 units in *"ceteris paribus",* with the p-value < 0.0001, the null hypothesis can be refused the amount of exports of Brazil does depend on the independent variables. Actually, this is not unexpected, for that that it is normal to have maybe more trade relations with the countries near in distance. The goods can be delivered faster and cheaper, so this value of the coefficient is not strange.

The infrastructure is positively related, meaning that for each amount of infrastructure added, it can be a new road, a new way of transport, delivery, the amount of exports of Brazil increase with 1.54 units in "*ceteris paribus",* with the p-value < 0.0001, the null hypothesis can be refused, the amount of exports of Brazil depends on independent variables.

The scale has a negative sign and is negatively related to the exports volume of the Brazil, and it can be understandable, because the population of a country which consumes and imports more than its amount of exports, gives this result. It can be seen in some pages before that Brazil has a negative trade balance, which means that it imports more than what exports, and the increasing number of populations, can be an explanation to that. This negative coefficient can be interpreted, as for each new human born, the amount of exports decreases with 0.3 units in *"ceteris paribus",* with a p-value = 0.19, the null hypothesis can be accepted, the volume of the exports does not specifically depends on the number of populations. This result according to the model, is not significant.

The dummy variable's coefficient and the GDP distance (the income), are both positively related, which means that for each country that speaks Portuguese, the amount of exports with that country increases with 1.57 unit, in *"ceteris paribus",* with a p-value < 0.0001 the null hypothesis can be rejected, the amount of exports depends in the common cultural elements among Brazil and other countries.

About the GDP distance variable, it is positively related with the depended variable, which mean that by an increase of one unit of the GDP distance variable, the amount of exports increases by 0.3 unit in *"ceteris paribus".* But with a p-value of 0.15 the null hypothesis can be accepted, meaning that the amount of exports for Brazil, does not depend on the GDP of the partner country.

To try to understand better the result, and to see if there is any changes with the coefficients if another model is used, in Gretl, in panels run the fixed or random effects model.

Model 2: Fixed-effects, using 130 observations
Included 13 cross-sectional units Time-series length = 10
Dependent variable: lnTRADE
Beck-Katz standard errors

	Coefficient	Std. Error	z	p-value	
const	206.972	26.5180	7.805	<0.0001	***
Infrastructure	−0.552301	0.252117	−2.191	0.0285	**
Scale	−5.61880	0.748320	−7.509	<0.0001	***
GDP_Distance	0.474605	0.284519	1.668	0.0953	*

Mean dependent var	7.977598	S.D. dependent var	1.289788
Sum squared resid	3.744727	S.E. of regression	0.181242
LSDV R-squared	0.982550	Within R-squared	0.491808
Log-likelihood	46.10506	Akaike criterion	−60.21011
Schwarz criterion	−14.32956	Hannan-Quinn	−41.56731
rho	0.286985	Durbin-Watson	1.245020

Tab 4. Fixed effect model, on the amount of exports between Brazil and the EU* countries
Source: Excel, Gretl, Source of data: IMF, Word bank databank

After performing the new analysis, with the fixed effect model, the results seem to be a little more promising, here do not have the dummy variable, language, and the distance on km, due to the exact collinearity.

It is interesting how infrastructure got a negative coefficient in the second test, so it is negatively related to the amount of exports, meaning that for each unit of infrastructure added, the export amount diminished with 0.55 unit, in *"ceteris paribus",* and with a p-value of 0.028 the null hypothesis get rejected, meaning that the volume of exports depends on the independent variables. Infrastructure is a significant variable.

Scale has a negative coefficient again, so it is negatively related to the export value, and again can be explained that for each human born, the volume of exports decreases with 5.6 unit in *"ceteris paribus",* with a p-value < 0.0001 the null hypothesis can be rejected, meaning that the amount of exports of Brazil, depends on independent variables. In this model the variable is a very significant one.

The GDP variable has a positive coefficient, meaning that it is positively related to the dependent variable. With an increase by 1 unit of the GDP distance, the amount of the exports increases by 0.47 unit in *"ceteris paribus".* With a p-value of 0.09 the null hypothesis can be rejected, meaning that the amount of exports of Brazil does depend on the independent variables. The variable is weakly significant.
With two models performed have similar results, and can be said that with the help of the gravity model of economic integration, it can understand which variables are important, and what type of relation or correlation have with the dependent variable, which in this study is the amount of exports of Brazil.

Both the analysis shows a positive relation with the importer and exporter income, as it was expected, to have a positive impact on bilateral trade. The population have negative coefficients in this analysis, but it can be explained, because this result does not depend only on the population, but on the dimensions of the country too, and in its rural and urban land, and other factors.
Infrastructure has two different results in the tests, and this can be due to the fact that a larger sample of observations could prevent a better result, but infrastructure is a very important variable for the reasons mentioned before.
The common variables, or the dummy variables are extremely important when it comes to international trade, because the business language, knowing the culture of the business partner, sharing history or interest can always have an positive impact on reaching common interest agreements.

When signing an integration agreement there are of course the beneficial points for each country, but through an OLS analysis, we can understand in which way this agreement may change the economy of a country, and more precisely have some results, in how much this country can be effected.
This analysis however is not fully complete, because there are a lot of ither variables that can affect the prosperity of the trade between two countries, but this is just an example of how a gravity model works, and to try to understand how the FTA between EU and MERCOSUR

can be affected by different variables. It can be easier than to offer solutions, or improvements when something unfortunately goes wrong.

Chapter IV – COVID-19 in the MERCOSUR area

4.1. Some of the economic effects of the pandemic in the MERCOSUR area

Covid-19 has been by far the most dangerous crisis after the World-war II. The pandemic has been, and still is, not only a terrible medical condition, which took the life of a very large number of people but has been a serious economic problem too. It began on September 2019 ion China, but unfortunately the world was not ready to face an adversary like that.
When the first infected were diagnosed in Italy, a lot of the people did not even care, or thought that it would have been a simple virus, which would have been gone as suddenly as it came.
Covid-19 hit right after a period of recovery after the crisis of 2003 and 2008, it was a prosperous time for the economy, the trade flows were going up, the labour market was back again, there were an increasing in the supply of goods and services as consequence of the increased demand. The countries GDP-s in general were higher, a higher income means more investments, a higher number of employments, more money on the consumers tasks, more consume and it goes like that in circles.
But Covid-19 resulted a highly contagious virus, and most of the world had to face total lockdowns, or at least partial ones, for a whole year and it still is not over. The students were not able to go to schools and universities, people started working on smart-working, from home, travellers that could not travel, bars and restaurants that were closed, or partially closed, and adding to all this hospitals that were full of infected people, and an always increasing number of deaths, it continues to be maybe the most difficult health and economic situation that the world has faced after the Great Depression.
In the last 100 years the world has faced different health situation, like the Spanish flu, SARS, H1N1, Kong flu, Ebola, which have had economic effect due to the lack of mobility, the reduction in the labour force, and the increasing amount of savings because of the uncertainties.
From February to March, covid-19 had already made its first economic damages, in China the exports fell with 17%, while the imports fell with 4%. In US the exports fell with 4% in the same period, and US in the first period of the pandemic, was not in total lockdown, and the industries continued to work. However, the county was not unaffected from the pandemic.
The MERCOSUR countries tried to be prepared with the measures since from the begging of the pandemic in February, with first partial lockdowns, of 14 days and after the first lockdown the governments decided to prolongate the isolation period until the end of April. Segmentation was used for the type of industries that were allowed to continue working, like the food industry, the construction, health institutions, medical clinics and dentist, and some professions like accountants and law workers. During the summer the lockdown were a little

easier, as the countries were not in full lockdown, the people could go out, and travel but only under social distancing.
Social distancing is still a must for the MERCOSUR countries, especially after the increasing numbers of infected on October and the new variant of virus, the British virus, a variant of covid-19, was identified in Brazil in December.
With all the precautions and the measures, the numbers of infected people and the deceased ones were huge,

Covid-19	Infected	Deaths
Argentina	1613911,00	43163
Brazil	6000000	190000

Tab 5. Nr of people infected and nr of deaths because of Covid-19, BRA and ARG
Source: Excel

In the Latin America countries and especially in the MERCOSUR area, it could be expected to be a difficult situation, because as the bloc has showed in the past, crisis, or different economic shocks has always influenced the region. Remind here the crisis of 2003, the one of 2008-2009, and 2013.
The region has mostly developed the agriculture, production of soybean, rice, beef; and it can highly be under a crisis because the exports volume for 2020 has been decreased for most of the countries, and the fact that a lot of transport means have been less frequent than before, with higher costs, the farmer may have no possibility to export.
The tourism is another important chain of the economy of the bloc, with its beautiful nature, ocean, waterfalls, mountains, forests, archaeological sites, that have been visited less from tourists during 2020 because of the lack of the flights, very hight ticket prices, or the limited number of hotel rooms.
Tourism is not important only for the touristic cities and villages, but because that period more employees are needed so people can be transferred from one city to another to work, and with the movement restrictions and covid-19 rules, people have had it difficult to create a better income.
From the data extracted from the IMF, Brazil has had a real GDP growth rate of -4.5%, while in 2019 it had a real growth of +1.6%, and for the 2021 it has an estimation of a real growth of +3.6%, which is 1.5% less than what it was estimated in 2019.
Argentina on the other hand has had a real growth of -2.3% in 2019, and a real growth of -10.5% in 2020. The country is experiencing already a downfall, and during the covid-19 crisis it has been deeper. In 2021 the expected real growth is +4.3%
Emerging markets and developing economies have experienced a real growth of +5.1% in 2019, and a real growth of +5% in 2020. The group has an expected real growth of +4.2% for 2021. The MERCOSUR countries are part of the emerging and developing economies.

%real GDP growth	2019	2020	2021
Argentina	-2.3	-10.5	4.3
Brazil	1.6	-4.5	3.6
E&D markets	5.1	5	4.2

Tab 6. The real GDP growth (%) for ARG, BRA, Emerging and developing countries.
Source: IMF data

The unemployment has been another concern for the bloc during Covid-19, as in 2020 Brazil alone experienced an increasing of the unemployment, the indicator jumped from 5.3% that was in 2012, to 11.3% in 2020, the highest since the 2000^{th}.
The general government dept has jumped from 89.5% of the GDP in 2019, to 101.2% of the GDP in 2020. An estimation from the IMF database predicts that the dept will grow.
Investments are another sector of the economy that has been affected by the pandemic, in Argentina for 2020 the FDI fell with 37%, which is extremely bad, especially because the investments are one of the most important pillars of the economy.
In terms of exports, in the LAC the exports fell with 1.4% in 2020, after an increasing of 0.5% the previous year in 2019. But in the MERCOSUR countries the variation of the exports were not much different from the previous years. Brazil for example had no significant changes in the trade balance because of the main products that it exports, like corn, iron, that balanced the drop in the volume of the oil production and exports. Argentina on the other hand has had an increased value of exports, to 5%, mostly because of the goods exported, which are agricultural products and some machinery parts.
Uruguay's exports fell with 11% because of the typology of the products, leather, meat, wood, wool. Paraguay too registered a downfall of 7% on its account of exports, because of the reduced production and exportation of soybean.
Venezuela had highest of the dropping level, because of the lack of production of the oil, the exports of the country fell with 37%.
For the reason of the previous low economic growth in the region, the countries had difficulty to create a reserve found for the times of emergency and this worsen even more the situation of the MERCOSUR-s countries, and to the Latin America's countries in general, the pattern is similar to all the region.
During the pandemic the government have announced some aid fund packages, Brazil around US$ 20 billion, and Argentina around US$ 11.1 billion, in order to help the most needed categories, the ones that lost their jobs during the pandemic, the ones that had an considered reduction of their incomes, as well as buying machineries for the hospitals, and medicines as well.
The pandemic has been a difficult hit for the MERCOSUR member countries, and with the economic situation that they were facing before, and the economic crisis that has already began, the difficulty to pay their depts, the reduction of incomes from their most important sectors, agriculture and tourism, Brazil is going to be in a stagnation state, with very slow growth rate, and the rest of the bloc already at an economic breaking point, there would be needed more than luck to have a fast comeback in wanted economic levels.
The FTA with EU should continue to go ahead, even though during the 2020 with the pandemic situation going one, nether of the blocs has been able to take advantage from the newly achieved agreement of 2019. But this may be the moment with Europe in a recovery phase, despite the fact that the trade balance with the MERCOSUR was already in a recension before the pandemic.
The Asian countries together with China seems to have recovered from the big shock, especially China, and that market can be a big opportunity of trade and development. The international integration may be the answer.
However, the MERCOSUR countries in their political and economic union, have principally developed intra-regional economic agreements, so maybe another step to be taken is to

evaluate the economic damage this pandemic has brought, and start to help one-another, just like the EU countries have done during this pandemic and more.

Conclusions

To sum up this economic development analysis about the MERCOSUR area it can be said that the region has a lot of economic potential, and the bloc until now has shown more aspects of on intra-region organization, this maybe because as noticed even in other integration organizations, and economic unions, it is easier to collaborate with other countries which are geographically near to each other.
MERCOSUR area has had a lot of difficulties because the region has faced a lot of economic and political crisis, from its earlier creation in 1991 until 2019.
The countries like Argentina have faced severe economic crisis, with incredible values of hyperinflation, to remind here the 1990th when the inflation rate went up to 12000%, and the lack of the ability of paying foreign depts, which leaded to periods when the IMF was not willed to led the money to Argentina.
Then there are the crisis of 2002, 2008 , 2014 which for the fragile economies like the ones of the MERCOSUR area, were devastating, countries in stagnation phases like Brazil, or in regression like Argentina and Venezuela, which has been suspended until an indefinite amount of time because failed to reach the expectations on the accords of the bloc.
The nature of the economy of the member countries, and the associate countries, is mostly agricultural goods like soybean, sugar, coffee, honey, meat products like beef, oil and metal, but the industry is less developed in mechanics, chemicals, pharmaceutical.
Brazil is the largest economy of the region, and the 7th world economy, and yet, according to the data analysed in this study when it comes to trade balance, Brazil and the rest of the bloc have a negative result, so a trade deficit, due to the larger amount of imports compared to exports. The bloc has been opened to the international integration agreements, even though not always the negotiations have been fast enough, remind here the negotiations with EU, about the free trade agreement, which needed more than 20 years to finally be signed in 2019. EU has always been an important economic partner of the bloc, and Brazil is one of the main importers of EU's goods and services, so the FTA could be really important and beneficial for both sides, with an enhancement in the trade flows, increased collaboration, and a positive impact in the economy in general.
One interesting part of this study has been the gravity model and the fixed-effect model which results were important, because demonstrated that the amount of exports of MERCOSUR, is significantly related to the partner countries variables, like the population, the infrastructure, the incomes and the common shared characteristics, like language or history, results that were to be expected.
About the COVID-19 and the effect in the MERCOSUR area, it is to no surprise that the pandemic has been a very difficult economic situation, for almost all the countries of the world, maybe worse than the Great Depression, and it would be hard for the MERCOSUR bloc to go out of this situation, especially when the countries were experiencing a regression before the pandemic itself. Regardless from the situation, it can always be a solution, and the type of the economy and relation that the MERCOSUR member countries had before, may help in this case, working together in a south-south strategy. However, the international integration agreements, not only with EU, but with Asian countries as well could be a possible solution to recover from this deep, yet to be fully understand crisis.

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