

HOW HAVE THE MACROECONOMIC VARIABLES EVOLVED IN AUSTERITY? HAS THE RIGHT OR THE LEFT PLAYED A DECISIVE ROLE ON THIS?

Name: Iulian Ciubotaru

E-mail: AL362019@UJI.ES

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Tutor: Juan Carlos Cuestas Olivares

Abstract:

In this paper we will look at how macroeconomic variables have evolved in times of austerity and see if it has affected the country in general that governs on the right or on the left in times of austerity. The countries chosen for the study are the GIIPS that had the worst impact of the debt crisis. We will carry out the study beforehand by analysing how the variables have changed in the countries and by consulting the documents, data, articles, etc, that have been published. The other study is based on a VAR model, which will allow us to obtain how the GDP varies in relation to increases in the debt and thus check the differences when the right or left governs.

Keywords: Austerity, GIIPS, VAR, Debt.

JEL Classification: C32, E23, E21, E62, H63.

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1-INTRODUCTION.

At the beginning of the decade of the 21st century, most of the countries of the European Union were going through a period of economic expansion. In the USA, high economic growth and macroeconomic stability led most banks to grant all the loans that people asked for. In August 2009, the Dow Jones index fell sharply, experiencing the sixth largest drop in history. On the other hand, on the other continent, the disarray suffered by the European bond market, a concern that began in 2009 with Greece, challenged Europe's economies to sink, especially those in the South, and would destroy or call into question the credibility of the euro, leading to increased doubts about the capacity of the entire European banking system. Therefore the whole of Europe was hit hard by the credit crunch and the decline in international trade, due to the lack of confidence of investors in the European market. Therefore, the real European crisis started in 2010 with the deterioration of public finances, thus starting the crisis of the Eurozone.

In most of the Eurozone countries and especially in the Southern European countries, they had great economic, social and political difficulties, etc. Stimulated by the recession that began in 2010, they created an unstable environment. The GIIPS (Ireland, Greece, Spain, Italy and Greece), were the ones who had the worst impact, since their accounts presented high debts at that time and also with the recession, a moment of insecurity began in the different countries. In Europe there is a Stability and Growth Pact (SGP), where countries are required to ensure that their deficit accounts do not exceed 3% of the deficit and 60% deficit/GDP. These countries managed to overcome these limits and had certain difficulties in recovering and that is why the TROIKA had to intervene. The TROIKA is made up of 3 institutions, the European Commission, the European Central Bank and the International Monetary Fund. Lapavitsas and Flassbeck(2020) commented that if the GIIPS did not comply with the austerity measures and other adjustments, they would be offered the possibility of leaving the European Union if the situation worsened. This option was not realized as the countries met the targets, but there were some discussions about the countries' exit, especially with Greece.

In each of these countries, different political parties, left, right and even independent, were governing. Mark Blyth (2014) comments that the parties on the left have played a harmful role in the development of GDP in previous periods of austerity, and due to their previous decisions and during the crisis have led to the intervention of the troika with the austerity measures. On the other hand, the right-wing parties have been strengthened by the austerity measures. The work will show how austerity has influenced macroeconomic variables and whether there are differences between the right and the left.

Therefore, this work is organized as follows. First, a review of the literature is carried out to understand what austerity is and how countries vary when measuring by increasing taxes or decreasing public spending. Second, an analysis will be made of the troika austerity measures implemented in each of the GIIPS and how macroeconomic variables have evolved in austerity. Thirdly, an econometric model will be executed, using the VAR model, which the starting hypothesis will be, if the left party has had a more positive impact on the GDP than the right party. And finally a conclusion.

Therefore, the objectives of this work are the following:

- ❑ To understand what is the term for austerity.
- ❑ To see how an economy varies with a rise in taxes or a fall in public spending
- ❑ How the GIIPS economies have responded during the crisis.
- ❑ Because austerity has indeed triumphed in Germany
- ❑ How has it affected the country's GDP whether a country governs on the right or the left

2- WHAT IS MEANT BY AUSTERITY.

Today, there are a large number of definitions to explain what austerity is, one of which is best understood as follows, Blanco and et al(2016) argue that austerity is a form of optional deflation by which the economy enters into a succession of adaptation based on decreasing wages, lower prices and lower public spending, all aimed at one objective: that of achieving the restoration of competitiveness indices, something whose earliest achievement requires the cutting of state budgets and the reduction of debt and deficit.

Various opinions, among which Strober's (2015) comments that austerity is a word that people connect with pain, anguish, poverty, etc. In the economic aspect he is focused on solving the problems of the deficit. Austerity has to be implemented as soon as possible to prevent the situation from worsening and the consequences from getting worse.

Romo(2011) stated that the crisis of 2008 is mainly due to these causes, the subprime mortgages initiated by the American real estate bubble stimulated a global financial and banking crisis, its shock was harmful in the macroeconomy, since it loosened investments and therefore increased unemployment and private debt. Subsequently, in 2010 in Europe, the finances presented deficits in most of the countries of the Eurozone. Those with the highest deficit/GDP were the GIIPS. Greece was the first country to show the worst signs of this crisis. The governments concerned about the situation decided to ask the troika for help to prevent the situation from worsening, and introduced a series of austerity measures to enable them to deal with the non-payment of their public accounts.

Austerity could be done in three ways, by reducing public spending, by increasing taxes, or by a combination of both. Morgan and et al (2014) commented that many economists and studies stated that adjustments made by lowering expenditures are much more effective than increasing taxes, since expenditures reduce debt and increase investor confidence much sooner than taxes. However, these same studies showed that reducing the deficit through austerity was inefficient and what caused the situation to worsen through these decisions. Alesina and et al(2019) also state this position.

Normally, fiscal policies can be accompanied by complementary policies to make their impacts and decisions much more efficient than if only fiscal policy is carried out alone. Alesina and Giavazzi(2020) comment that monetary policies can be very effective through interest rates and the exchange rate, the problem is that this time interest rates were close to zero, therefore such policies did not have much influence. Another complementary policy is, for example, the reform of the labour market or the fight against tax fraud.

Therefore, austerity is directly related to a country's deficit. In the Stability and Growth Pact it was commented what the limits of deficit and debt to GDP have to be, for a country to perform well. González (2011) argues that the public deficit is one of the terms that provides us with the most information about the country, in order to know its real situation. It is true that there is not much to worry about if a country has a high gdp debt, since it is normal that in times of crisis it is larger than normal, but it is expected that in times of expansion these will recover thanks to economic growth. What is really worrying is when a country presents a high and constant debt/GIP. The beginning of the end of the deficit was in the Maastricht Treaty where the limit of 3% of the deficit and 60% of the GDP was set. Then it was the Stability and Growth Pact (SGP) ,1997, aimed at the performance of healthy public finances, in order to establish prices and permanent growth. In 2005, after several debates on the credibility of the SGP, a series of changes were made, which continued to focus on meeting the objectives and equal treatment. Some of the changes they made with respect to the SGP and this reformed SGP are as follows:

	STABILITY AND GROWTH PACT	REFORMED STABILITY AND GROWTH PACT
Limit values	Deficit 3% GDP Debt 60% GDP	Deficit 3% GDP Debt 60% GDP
Deficit zero	The objective was zero deficit or surplus in the medium term	Target zero disappears. They could have a deficit up to 1%

Preventive phase	Identical for all countries	Obligation to cut public deficit during economic boom
Medium-term obligation	Identical for all	Based on national debt and growth potential
Relevant factors	The only possibility of exceeding 3% without penalty was to suffer a recession of 2% of GDP for one year	Growth potential, negative growth or prolonged period of very low growth. R&D and innovation policies. Fiscal consolidation effort. Social security

Table 1: Stability and Growth Pact.

Own elaboration.

Wren-Lewis(2016) therefore argues that economic crisis decreases the total amount of demand in an economy. Central banks should intervene to soften the impact of austerity. The bank could introduce small interest rates to stabilize demand. But if interest rates approach zero, this will lead to a deeper crisis, like the Great Recession. The goal of banks in lowering interest rates is to motivate more spending and less saving. A concern for a country in crisis is when consumers, faced with the uncertainty of the moment, decide to save more money, thus consuming less in the economy, and all this leads to a deeper crisis than before. Governments in times of crisis, have to encourage consumers to consume. Alesina and Giavazzi (2010) conclude that there are three reasons why austerity may have been more damaging than it seemed at the beginning, firstly, austerity was initiated in the midst of a deep crisis, secondly, monetary policy could not follow the adjustments and finally, austerity was applied simultaneously in the different countries of the European Union.

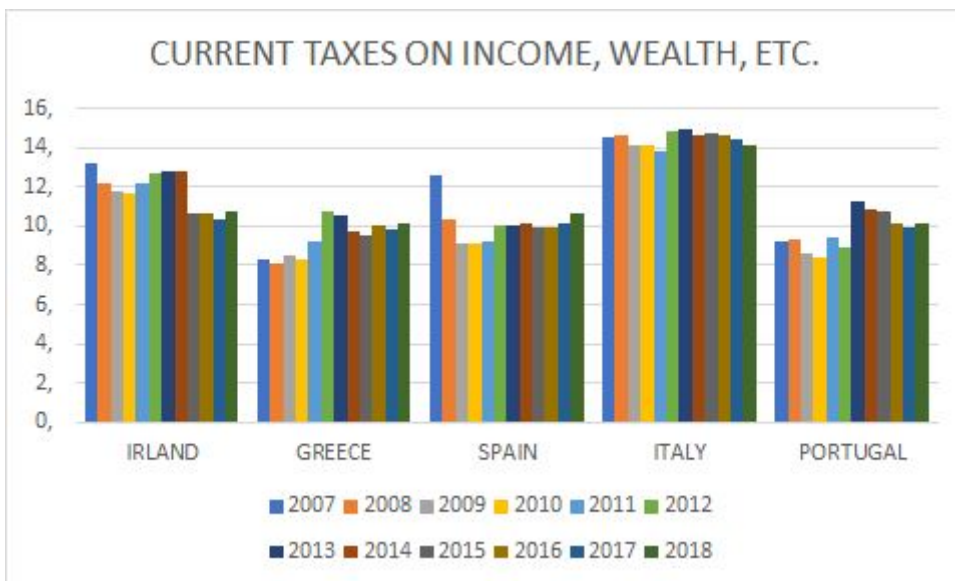
A study will then be carried out to see what the similarities and differences are when a country decides to apply austerity by increasing taxes and when this is done with a decrease in public spending.

2.1 AUSTERITY WITH TAX INCREASES.

Alesina and Giavazzi(2020) argue the differences that occur in an economy when a tax increase is applied. When taxes are increased, disposable income decreases and therefore consumption, production and private income are reduced. When the government decides to increase taxes, this leads to a lack of confidence in investors. Another problem in this regard is the expectations of the future that contribute to investors' decisions. Through tax increases, it is claimed that there is great concern about whether the problem will be reduced and that is why investors and creditors, faced with this concern, invest less and lend less money, as they are worried that they will not be able to borrow all the money.

Velázquez and González (2016) commented that there are different assumptions about how taxes influence an economy and a country. On the one hand, the Keynesian model states that if the horizontal aggregate supply curve is taken into account, a rise in taxes encourages a fall in private consumption and production. On the other hand, the Ricardian model, when there is a tax increase, it is thought that the economy does not suffer any modification, because when the country had the deficit in previous times, the intermediaries, concerned about the situation, decided to pay more attention to the deficit and increased their savings, therefore when the government increased taxes, they had already anticipated this increase and would not suffer the consequences of these modifications.

De la Torre (2014) argues in his book that, in a country there are different types of taxes, for example personal income tax (IRPF) which is when a person acquires money in return has to make the payment of this tax, these are direct taxes which directly affect what a person earns or his wealth. In addition there are indirect taxes, the best known is the Value Added Tax (VAT), ie when someone buys something has to pay a VAT rate, depending on the country this tax varies. For example Italy was one of the countries that applied more VAT. There are also taxes on certain products, alcohol, tobacco, gasoline, etc.



Graph 1: Current taxes on income, wealth, etc.

Own elaboration. Source: EUROSTAT.

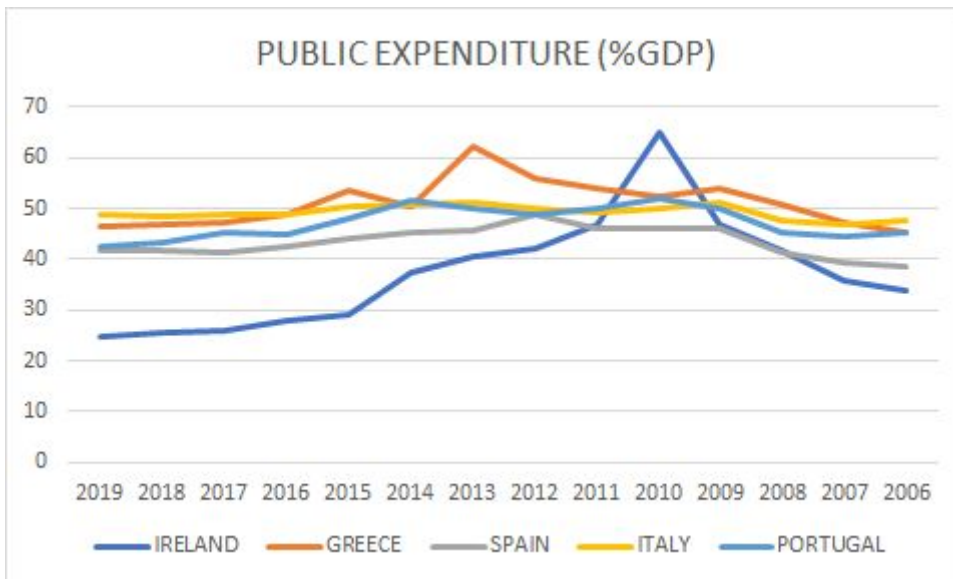
The graph shows how the current taxes on income, wealth, etc. have been in the GIIPS from 2007 to 2018. It can be seen that Ireland and Italy have the highest taxes, Italy is considered the country with the highest taxes of the 5 countries. On the other hand, Greece is one of the countries with the lowest taxes, considering that Greece is the country that was in the worst situation and with such low taxes explains its slow recovery, since the tax adjustments hardly applied any changes. The tax is one of the main revenues of the state, therefore the government of Italy has to pay much more debt than the other countries and in particular interest on the debt. Currently, if you look at the EUROSTAT data on indirect tax, almost all countries have it set at around 21%. Since taxes change the corresponding prices in the economy, they affect the decisions of all people in society, both individuals and companies, impacting their well-being. Stuckler and Basu (2013) argue that international empirical evidence consistently shows that there are detrimental effects between taxes and growth.

2.2 AUSTERITY WITH REDUCED PUBLIC SPENDING.

Baker (2010) establishes that when there is a drop in public spending, this leads to a decrease in consumption in an economy and investment, this is introduced in a circle that is repeated more and more times, and in the end the country's GDP decreases,

because consumption and investment play a very important role in a country's future. This results in the private sector being able to make better use of assets. This decrease will lead to lower interest, therefore the private sector will be able to take advantage of the situation to increase, what promotes is an increase in national investment and therefore improvements in the trade balance. Therefore when prices in our country fall, exports increase, this will lead to economic growth, since one way to increase a country's growth is through exports. In addition, low interest rates at the time of the crisis will lead to increased investment and domestic consumption. Since with low interest rates, credits are easier to acquire and this encourages companies to ask for more credits to invest in their companies and thus encourage their growth and which will lead to more job offers. Spending cuts as opposed to tax increases indicate that future taxes will be lower on a permanent basis. Therefore people will feel happier and more secure as they will have more money by not paying such high tax rates. Alesina and Giavazzi(2020) comment that a country can make different cuts in different areas in a country, for example; reductions in pensions, subsidies for businesses, R&D spending, unemployment benefits, etc.

The study carried out by Alesina and Giavazzi (2020) concludes that a reduction in expenditure of around 1 percent of GDP leads to a reduction in total production of less than 0.5 per cent of GDP. Moreover, the impact is not very long-lasting, and after a few years, production levels tend to be higher than before consolidation. On the other hand, when austerity is implemented with higher taxes, these are associated with a more significant and prolonged deterioration in output. A rise in GDP of around 1 percent causes total growth to fall by 2-3 percent. On the other hand, by lowering expenditure, the pace of the increase in public debt is reduced. However, a tax increase has a malignant effect on the economy. The growth tries to make a more significant decrease and as the GDP forms the denominator, the ratio of the debt/GDP , the final conclusion has to be a greater increase of the indebtedness.



Graph 2 : Public Expenditure(%GDP)
Own elaboration. Source: EUROSTAT

With regard to total expenditure as a percentage of GDP it can be seen that since the implementation of austerity measures, countries have made cuts in public spending. Therefore, a decrease in spending has had a negative effect on GDP. But as can be seen from the above explanation of how this affects spending in an economy, the consequences are not as serious as they seem. If the OECD data are taken into account, most of these countries have expenditures below the European Union average, so it could be said that the high debt is not due to high public expenditures, but rather to the economic decisions of the different political parties. Stuckler and Basu(2013) add that decreases in public spending will have negative effects on society, as they increase social polarization and inequality of opportunities. In other words, cuts in public spending mean cuts in people's rights.

3. As has been the intervention in the different countries of the GIIPS

Next, as the objective is to analyze how austerity has influenced the GDP of the GIIPS, the next step is to look in detail at each of the countries, and see how GDP and the main macroeconomic variables have evolved.

Navarro (2012) argues that one of the biggest problems explaining the financial recession of the GIIPS , is the one pointed out by their governments, since they have

spent more than they could, that is, they have lived beyond their means. This was one of the reasons for the Troika's intervention in these countries and also for the intervention of the German government. This hypothesis of Navarro's is in doubt, since if seen in the data of the accounts of these countries in 2007, almost none of them had deficits in their accounts, but rather the opposite, there were surpluses. The problem really appeared in the 2010 crisis where they all had high debts. The problem with austerity is that when it is established at a time when the crisis is very high, the situation becomes even worse, as the consequences of austerity will increase the crisis and uncertainty for a period of time. The well-known TROIKA is composed of the three most important institutions, the European Commission, the European Central Bank and the International Monetary Fund. Navarro (2012) believes that the troika has played a very important role in the GIIPS. Since these countries did not comply with the requirements of the Stability and Growth Pact, they needed the troika's intervention so that they could face the crisis and increase their economic growth. Heiner and Lapavitsas (2015) comment that the main support provided to the GIIPS through the troika was the following:

- the ECB provided solvency to the banks to avoid the collapse of the banking system.
- necessity credits were ceded to the States to avoid defaulting on payments.
- austerity policies were implemented in the GIIPS to consolidate its public finances and reduce its public deficit.
- deregulation and privatization were promoted.
- the structure of the State was considered to be tenacious rules to tighten discipline in public finances.

3.1 Greece

Heiner and Lapavitsas (2015) commented that Greece was the first country in Europe to ask the troika for help. They met and discussed what financial assistance would be given to them. They met and discussed what financial aid would be given to them, since there was a doubt about whether to restore the public debt or offer them a monetary rescue.

Callan, Tim et al(2011) argue in their article that Greece at the beginning of the decade was going through a moment of economic expansion. As of 2009 the country began to

show the first symptoms of the crisis. Its accounts at that time were a deficit of 15.4% and a deficit/GDP of 126.8%, which was well above the standards they had to meet. The government, faced with such an uncontrolled and worrisome situation, had to intervene through austerity measures. Some of the changes that were introduced were, implementing new types of taxes, cuts in pensions, decreases in salaries, increases in indirect taxes. Another problem faced by Greece was the young population, as they would leave the country in search of better opportunities for their future, as the opportunities were minimal due to the situation.

GROWTH RATE (%)	2009	2010	2011	2012	2013	2014
PER CAPITA GDP GROWTH RATE	-4,49	-5,31	-9,01	-6,21	-6,65	0,37
GROWTH RATE OF PER CAPITA CONSUMPTION	-0,57	-6,99	-11,05	-7,76	-4,73	1,38
TAX BALANCE AS %GDP	15,14	11,2	10,28	8,89	13,16	3,59
COST OF DEBT (INTEREST RATES)	4,37	4,35	4,68	2,6	2,25	2,08
SHORT-TERM INTEREST RATE	1,23	0,81	1,39	0,57	0,22	0,21
LONG-TERM INTEREST RATE	5,17	9,09	15,75	22,5	10,05	6,93
CPI(2010=100)	1,2	4,61	3,28	1,49	-0,93	-1,23

EVOLUTION OF THE NOMINAL EFFECTIVE EXCHANGE RATE	1,85	-3,56	0,76	-2,48	2,5	3,21
REAL EFFECTIVE EXCHANGE RATE DEVELOPMENT	1,41	-0,69	0,59	-3,11	-1,38	-1,64
EXPORT VOLUME GROWTH RATE	-20,48	4,75	0,03	1,17	1,5	7,46
GROSS PUBLIC DEBT TO GDP RATIO	126,7	145,9	171,94	159,48	177,57	179,83

Table 2: Evolution of Macroeconomic Variables Greece

Own elaboration. Source: OECD, OECD, ECONOMIC OUTLOOK

Therefore, the crisis in Greece was mainly damaged by three shocks: a sovereign debt crisis (investors were beginning to have no confidence in the solvency of the State), a banking crisis (with fear of the insolvency of the country's main financial institutions, which had an increase in the volume of Greek public debt on their balance sheets) and a sudden stop in the country's access to international financing. And all these problems are reflected, when observing the ratios of public debt/GDP, since they present very high figures and with few signs that they are going to decrease in the short term. In this period, the left-wing party was in charge, so this is a first symptom that they did not have favorable results, since they did not manage to improve the country's situation and accounts.

3.2 Ireland

Kamal and et al (2014) comment in their book that the global crisis began to have its first effects on the Irish economy between 2007 and 2008, as the increase in Ireland's

memberships wore down, leading to a beginning of consumer distrust. Alesina and Giavazzi(2020) commented that the crisis was due to the bursting of the real estate bubble, as in the Spanish case. The banks were facing a complicated situation and the government had to save them. Ireland had a high level of public debt due to these problems. In 2009 the first austerity measures were taken in the country through tax increases, revenues increased with these taxes, and in the following years public spending cuts were implemented. Although the financial crisis caused a difficult situation in the country and especially in the banking sector, macroeconomic variables recovered quite well in the years of austerity. It can therefore be said that austerity did succeed in this country.

GROWTH RATE (%)	2008	2009	2010	2011	2012	2013	2014
PER CAPITA GDP GROWTH RATE	-5,11	-7,65	-0,75	2,29	-0,54	0,01	4,31
GROWTH RATE OF PER CAPITA CONSUMPTION	-2,67	-7,08	-0,1	-1,51	-1,68	-0,57	0,78
TAX BALANCE AS %GDP	7,01	14	32,55	12,7	8,15	5,81	4,12
COST OF DEBT (INTEREST RATES)	2,87	3,38	3,76	2,94	2,96	2,93	2,84
SHORT-TERM INTEREST RATE	4,63	1,23	0,81	1,39	0,57	0,22	0,21
LONG-TERM INTEREST RATE	4,55	5,23	5,99	9,58	5,99	3,83	2,26
CPI(2010=100)	3,97	-4,58	-0,95	2,55	1,68	0,5	0,2

EVOLUTION OF THE NOMINAL EFFECTIVE EXCHANGE RATE	4,39	1,77	-4,46	0,79	-3,75	2,98	1,02
REAL EFFECTIVE EXCHANGE RATE DEVELOPMENT	4,12	-4,81	-7,08	0,16	-4,62	1,54	-0,92
EXPORT VOLUME GROWTH RATE	-0,89	-4,07	5,97	5,33	4,57	1,11	11,88
GROSS PUBLIC DEBT TO GDP RATIO	42,42	61,7	86,33	109,67	119,57	119,61	105,42

Table 3: Evolution of Macroeconomic Variables Ireland.

Own elaboration. Source: OECD, OECD, ECONOMIC OUTLOOK

Investment and exports seem to have been the keys to economic recovery. As investment declined previously but then progressively recovered. The volume of exports continued to grow year after year. The debt-to-GDP ratio, which had risen to 120 per cent in 2012 as a result of the bank rescue, fell to 105 per cent in 2014, a good sign that consolidation was effective in reducing debt. In Ireland, if it focuses on the political parties, it is true that the left has played a decisive role, as it was they who had the worst debt performance, but it is also true that it was they who led the country's recovery. In the econometric model the final movement of the GDP in the face of an increase in the debt will be observed, and it will be verified if it has had a positive or negative role for the economy.

3.3 Italy

Factotum (2015) comments that Italy continued the evolution of the other countries, and in 2008 the country worsened significantly. With a public debt that already exceeds 100%. Italy during this time was receiving financial support from Germany and France. Alesina and Giavazzi(2020) commented that after the crisis of 2007 and 2007 Italy was heading towards a slow but growing recovery. In this case, interest rates on 10-year government bonds rose to less than 7 percent. In 2011 through the technical government that started to govern in 2011, one of its objectives was the austerity policies that had been recommended by the EU. These policies were implemented through a series of measures. Fifty-five percent of the adjustments were in revenue increases and 45 percent in expenditure reductions. Markets responded favourably and the interest differential paid on debt was halved. Some measures were: (i) labour market reform; (ii) increased tax burden; (iii) tax increases; (iv) reduction of public expenditure.

GROWTH RATE (%)	2009	2010	2011	2012	2013	2014
PER CAPITA GDP GROWTH RATE	-6,25	1,19	0,46	-3,34	-2,15	-0,74
GROWTH RATE OF PER CAPITA CONSUMPTION	-2,11	0,76	-0,25	-4,57	-3,23	-0,06
TAX BALANCE AS %GDP	5,27	4,25	3,49	2,99	2,95	3,03
SHORT-TERM INTEREST RATE	1,23	0,81	1,39	0,57	0,22	0,21
LONG-TERM INTEREST RATE	4,31	4,04	5,42	5,49	4,32	2,59
COST OF DEBT (INTEREST RATE)	4,31	4,04	5,42	5,49	4,32	2,89

CPI(2010=100)	0,75	1,53	2,7	3	1,21	0,24
EVOLUTION OF THE NOMINAL EFFECTIVE EXCHANGE RATE	1,92	-3,91	0,49	-2,32	2,62	2,28
REAL EFFECTIVE EXCHANGE RATE DEVELOPMENT	0,78	-4,15	-0,05	-1,89	1,48	0,03
EXPORT VOLUME GROWTH RATE	-19,76	10,75	5,93	1,99	0,74	2,35
GROSS PUBLIC DEBT TO GDP RATIO	112,62	115,53	116,5	123,36	129,04	131,7

Table 4: Evolution of Macroeconomic Variables Italy.

Own elaboration. Source: OECD, OECD, ECONOMIC OUTLOOK

The austerity measures came into force in 2012, and in conjunction with other reforms introduced by the previous government, several measures were implemented that have affected macroeconomic variables to some extent well, as they show signs of recovery. Per capita output growth declined to a low of -3.2 percent in the second quarter of 2012, which remained negative until 2013, two and a half years after the introduction of the austerity programme. With regard to the political parties, the left has been in charge from 2006 to 2013, so it can be said that they are somewhat to blame for the country's economic crisis, since they were in charge at the start of the austerity.

3.4 Portugal

Barradas and et al(2017) stated that similar austerity measures were implemented in Portugal as in the rest of Europe. Portugal suffered a sub-dep up, i.e. a sudden collapse in foreign funding to the public and private sectors. Its economy went very badly and the austerity programmes mobilised measures close to 17 percent of GDP.

Alesina and Giavazzi(2020) comment that financial costs remained high for more than two years, with some episodes of extreme stress. Factotum (2015) comments that the first austerity measures were implemented in the country in 2010, through reductions in public spending and increases in taxes (VAT). In 2011, the first IMF aid worth 78 billion euros was received. This led to a significant decline in the value of public debt bonds and an increase in interest rates to 17%.

GROWTH RATE (%)	2008	2009	2010	2011	2012	2013	2014
PER CAPITA GDP GROWTH RATE	0,05	-3,12	1,84	-1,7	-3,71	-3,58	0,73
GROWTH RATE OF PER CAPITA CONSUMPTION	1,22	-2,46	2,32	-3,52	-5,24	-3,46	1,9
TAX BALANCE AS %GDP	3,77	9,81	11,17	7,36	5,61	4,83	4,46
SHORT-TERM INTEREST RATE	4,63	1,23	0,81	1,39	0,57	0,22	0,21
LONG-TERM INTEREST RATE	4,52	4,21	5,4	10,24	10,55	6,29	3,75
COST OF DEBT (INTEREST RATE)	3,96	3,77	3,24	3,97	3,84	3,32	3,39
CPI(2010=100)	2,56	-0,84	1,39	3,59	2,74	0,27	-0,28
EVOLUTION OF THE NOMINAL EFFECTIVE EXCHANGE RATE	1,54	0,9	-2,24	0,33	-1,43	1,77	1,18

REAL EFFECTIVE EXCHANGE RATE DEVELOPMENT	-0,06	-0,65	-2,13	0,86	-1,08	-0,2	-0,71
EXPORT VOLUME GROWTH RATE	-0,32	-10,8	9,09	6,8	3,35	6,21	3,32
GROSS PUBLIC DEBT TO GDP RATIO	71,67	83,61	96,18	111,39	126,22	129,04	130,59

Table 5: Evolution of Macroeconomic Variables Portugal.

Own elaboration. Source: OECD, OECD, ECONOMIC OUTLOOK

This table shows that after the 2009 crisis, Portugal's macroeconomic variables recovered in 2010, but worsened again in the coming years until 2014. GDP per capita growth recovered with ups and downs, per capita consumption recovered in a similar way, etc. Consolidation efforts were not sufficient to stabilize the debt-to-GDP ratio, which increased from 96 percent in 2010 to 130 percent in 2014. Portugal has been the country that has allowed more years of party rule, the left in this country has not played as negative a role as in the others. Since it has been the right that has been in charge since 2006. Therefore, they have been the ones who have received the worst impact on the economic growth of the country. Because today the debt is still very high.

3.5 Spain

Spain was one of the countries most affected by the crisis. Navarro (2012) comments that both right and left governments have often been concerned about the need to cut spending, as they were afraid that the security of the financial markets could not be restored and therefore the rescue would be carried out by the troikar. But even with the fear that was there, in the end Spain was rescued. Rafini and et al (2015) comment that in Spain the political crisis is the same as the economic crisis, although it has not yet reached the point of becoming an institutional crisis as in Greece. Alesina and Giavazzi(2020) argue that before the crisis Spain had achieved very high growth

compared to other countries due to the housing bubble. With the bursting of this bubble, the banks, above all, suffered great losses and the population had certain obstacles to face the payments of the mortgages. The economy entered into a deep crisis and continued until 2013. Unemployment increased because the construction sector generated a lot of jobs, and this has continued to this day, where there is still a high rate of unemployment. The problem in Spain, is that when the rescue took place, this money was paid into the Spanish government instead of the banks, so the debt increased further. rescue took place, this money was paid into the Spanish government instead of the banks, so the debt increased further.

GROWTH RATE (%)	2007	2008	2009	2010	2011	2012	2013	2014
PER CAPITA GDP GROWTH RATE	1,75	-0,53	-4,47	-0,41	-0,99	-2,18	-0,87	1,66
GROWTH RATE OF PER CAPITA CONSUMPTION	1,26	-2,29	-4,51	-0,17	-2,42	-3,03	-1,94	2,67
TAX BALANCE AS %GDP	-2	4,42	10,96	9,39	9,42	10,3	6,79	5,8
SHORT-TERM INTEREST RATE	4,28	4,63	1,23	0,81	1,39	0,57	0,22	0,21
LONG-TERM INTEREST RATE	4,31	4,36	3,97	4,25	5,44	5,85	4,56	2,71
COST OF DEBT (INTEREST RATE)	2,81	2,92	3,38	2,93	3,27	3,59	3,43	3,14
CPI(2010=100)	2,75	3,99	-0,29	1,78	3,15	2,42	1,4	-0,15

EVOLUTION OF THE NOMINAL EFFECTIVE EXCHANGE RATE	1,24	1,9	1,37	-3,03	0,53	-2,01	2,29	1,77
REAL EFFECTIVE EXCHANGE RATE DEVELOPMENT	1,39	1,6	-0,34	-2,97	0,5	-2,29	1,54	-0,53
EXPORT VOLUME GROWTH RATE	7,93	-0,85	-11,7	9,01	7,13	1,17	4,21	4,07
GROSS PUBLIC DEBT TO GDP RATIO	35,59	39,47	52,78	60,14	69,4	85,7	95,46	100,4

Table 6: Evolution of Macroeconomic Variables Spain.

Self-production. Source: OECD, OECD, ECONOMIC OUTLOOK

In 2013, the main changes to the tax measures fell on the revenue side: increases in excise duties and VAT. Between 2009 and 2012 the nominal effective exchange rate declined by 4 percent and then recovered largely. It therefore did not play a major role in improving the economy's performance under austerity. The deregulation of the labour and product markets did help. In 2014 the recovery was more vigorous and since then Spain has grown twice as much as the other eurozone countries. Consumption and investment followed similar trends. In short, the austerity plan did not succeed in reducing the debt, since at the end of 2014 they had a very high public debt/GDP ratio. Until 2011, the left-wing party was in charge, and this was one of the culprits of the high debt and the economic crisis, as it was they who led the country into this situation, since it is not possible for a country with a great economic expansion that they were going through at the beginning of 2000, to find themselves in this situation.

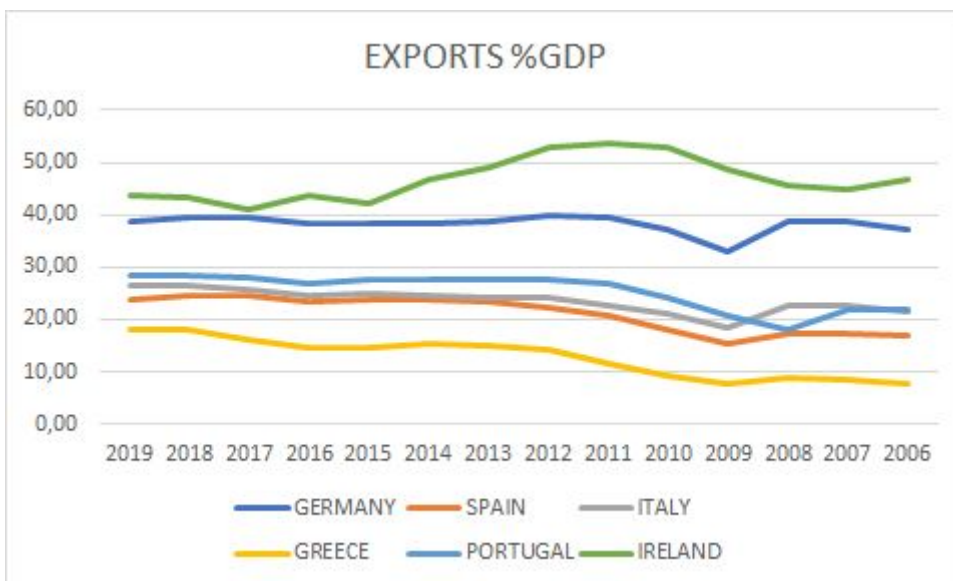
Among all the countries that have implemented austerity and in which it has greatly influenced the decisions that have been taken regarding the GIIPS troika rescues.

Lapavitsas and Flassbeck(2020) comment that Germany has been the main winner with this crisis, as it has become the main exporter and provider of financial capital.

4 GERMANY MODEL TO FOLLOW

There are many debates today that ask why austerity has triumphed in Germany and not in the GIIPS. Eichhorst and et al(2015) argue that Germany has been a special case of the Eurozone, in 2008 when the recession started, it recovered very quickly through fiscal policies. It also managed to obtain lower levels of unemployment than before the crisis, the average growth rate being the highest in Europe. Germany stands out because of its high exports to countries that were struggling in the economic accounts at the time. Crespo and Rodriguez(2016) argue that the economic crisis has caused great concern in the countries of Southern Europe. Governments are concerned about how to restore the economy to promote growth. One formula is an internal devaluation of the economy to increase GDP growth. Lozano(2018) comments that exports are considered the main engine of growth for a country. An alternative to carrying out an internal devaluation of a country was through a decrease in the prices of national goods so that exports could be increased. Since the euro could not be devalued, the GIPS chose this procedure.

Below is a table to see how the exports of these countries and Germany have been.



Graph 3: Exports %GDP

Own elaboration. Source: OECD

This graph shows how the GIIPS, with the exception of Ireland, are relatively low in their exports-to-GDP accounts compared to Germany. It can be seen that during the crisis these countries began to improve these accounts a little, but there are no major changes. As mentioned above, exports in a country are very important for GDP growth. And here can be seen how Germany is among the countries with the highest exports in Europe and all this with austerity policies since 2000. So you cannot say, that a country is in recession or crisis because of austerity, because taking the example of Germany, it shows that austerity can even be positive for a country if it is implemented in an efficient way and at the right time. At the time of the victory of the Christian Democratic Union of Germany in 2005, which is considered a centre-right party has been governing all this time. Since the focus of the work is on whether the left has had a positive or negative influence on GDP, Germany is a first sign that the right has performed better than the left government.

One of the reasons why Germany has been successful during the crisis is because they have been applying austerity policies since 2000, so they were prepared to be able to overcome the crisis by far as they had been "suffering" in the previous years while the countries of the South were with very high public expenditure during the years prior to the crisis.

5 POLITICAL PARTIES

The analysis of the electoral effects of austerity is important because it is a common argument against adjustment policies that they amount to a kind of political suicide. In reality, this is not entirely true. Since analyzing the most aggressive corrections, there is no evidence to support this argument that austerity always suffers at the ballot box. Therefore, once this is taken into account, the focus will be on checking how the GDP has evolved in times of austerity, for the country in general and for moments of the right and left. Lapavitsas and Flassbeck(2020).

Bobbio (2015) argues that right and left are two antithetical terms that, for more than two centuries, are commonly used to designate the conflict between ideologies and

movements in which the universe is divided, eminently conflicting, of thought and political actions.

Moltó(2011) comments that it has always been argued that the rise in spending is on the left and the fall is on the right. And this is where the work is focused. The question is whether it has been more or less detrimental for a country to govern on the right or on the left in terms of its GDP in times of austerity.

Lapavitsas and Flassbeck(2020) argue that the left has not been able to cope with the recession. They believe that the crisis could have been resolved without causing a split in the population. Those on the left wanted to establish at the same time the reconstruction of the debt, the abandonment of austerity and the continuation of the political framework. This was practically impossible and that is why the left has been quite criticised. On the other hand, it is believed that the right wing has emerged as the winner from this debate. On the other hand, many studies show that implementing austerity policies does not necessarily translate into poor electoral performance. (2020) Alesina and Giavazzi.

The following is a look at which parties have been governing in the GIIPS during the time interval from 2000 to 2020

GREECE	DURATION	PRESIDENT'S NAME	POLITICAL PARTY	POSITION
	1995-2005	Konstantinos Stefanópulos		RIGHT-CENTER
	2005-2010	Prokopis Pavlópuos	ND	RIGHT-CENTER
	2010-2015	Karolos Papoulias	PASOK	LEFT-CENTER
	2015-2020	Vasiliki Thanou	INDEPENDENT	
	2020-ACTUALY	Katerina Sakellaropoulou	INDEPENDENT	

IRELAND	DURATION	PRESIDENT'S NAME	POLITICAL PARTY	POSITION
	1997-2004	Mary McAleese	FIANNA FAIL	RIGHT-CENTER
	2004-2011	Mary McAleese	INDEPENDENT	
	2011-ACTUALY	Michael D.Higgins	LABOUR PARTY	LEFT-CENTER

ITALY	DURATION	PRESIDENT'S NAME	POLITICAL PARTY	POSITION
	1999-2006	Carlo Azeglio Ciampi	INDEPENDENT	
	2006-2015	Giorgio Napolitano	DEMOCRATS LEFT	LEFT-CENTER
	2015-ACTUALY	Sergio Mattarella	INDEPENDENT	

PORTUGAL	DURATION	PRESIDENT'S NAME	POLITICAL PARTY	POSITION
	1996-2006	Jorge Sampaio	PARTIDO SOCIALISTA	LEFT-CENTER
	2006-2016	Anibal Cavaco Silva	PSD	RIGHT-CENTER
	2016-ACTUALY	Marcelo Rebelo	PSD	RIGHT-CENTER

SPAIN	DURATION	PRESIDENT'S NAME	POLITICAL PARTY	POSITION
	1996-2004	Jose Maria Aznar	PP	LEFT
	2004-2011	Jose Luis Rodriguez Zapatero	PSOE	RIGHT-CENTER
	2011-2018	Mariano Rajoy Brey	PP	LEFT
	2018-ACTUALY	Pedro Sanchez	PSOE	RIGHT-CENTER

Table 7 : List of Presidents

Own elaboration. Source: COUNTRIES WEBSITE

From the following table, it can be seen that during the time of the crisis, there have been certain political changes, in Greece being the most outstanding case, there have been certain modifications which make it difficult to normalize the situation in this country. The political changes every 2-3 years are not very favourable for the economy. On the other hand, in countries such as Portugal and Ireland, a certain period of time (10 years) has been left for one party to govern and then the other party has been removed. This allows the government to implement their ideologies in the country and see if they have really achieved improvements in the economy.

6 ECONOMETRIC MODEL

After checking which political parties ruled in which countries, the following is a step-by-step explanation of the data, both in terms of obtaining the data and processing it, in order to obtain the results that will allow the construction of an economic model with which to make estimates of these effects.

6.1 VARIABLES USED.

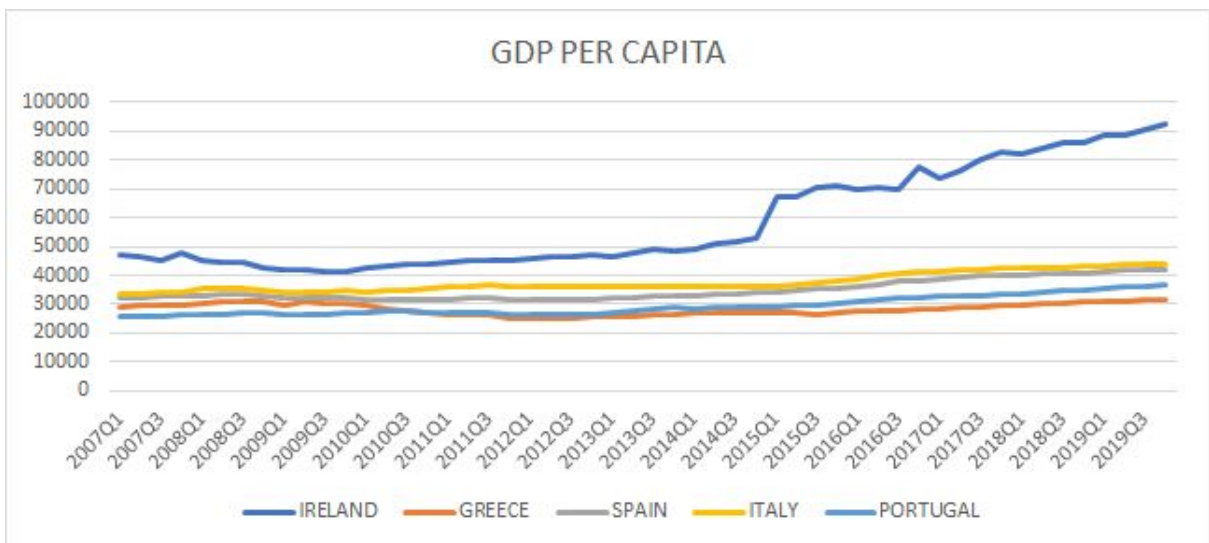
For this study, a series of economic variables have been chosen that are representative of the economies of the GIIPS, constructing different time series from various statistical sources and using quarterly data for each of the countries. The data obtained begin in the first quarter of 2000 and end in the fourth quarter of 2019.

The variables that have been used for the estimation have been:

-GDP per capita

Callen(2008) comments that GDP is an economic indicator that measures the relationship between a country's income level and its population. This is done by dividing the GDP of that territory by the population.

The first variable studied is the GDP per capita of the different countries, as this is the main measure used to measure a country's wealth. The data obtained are from the OECD website. Quarterly data has been chosen in order to obtain a more detailed analysis. The following is a presentation of the data from the beginning of the austerity to see how it has evolved.



Graph 4: GDP PER CAPITA

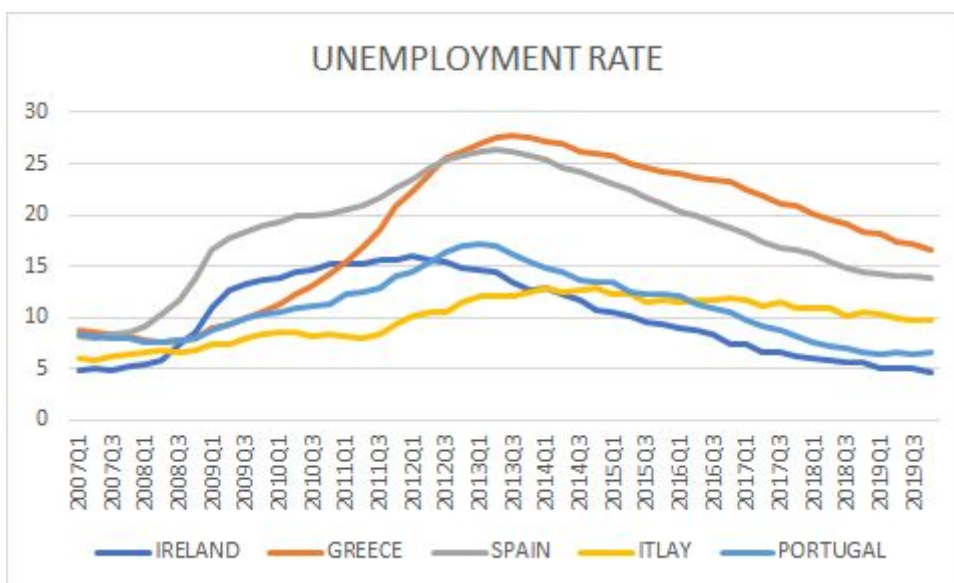
Own elaboration. Source: EUROSTAT

This graph shows that in the period of austerity it shows a slight fall, which later on has recovered and grown. The country that stands out most from the rest is Ireland. It has a very high GDP per capita compared to the rest of the countries. Ireland is therefore one of the countries that has best recovered from this crisis.

-The unemployment rate

Pugliese(2000) argues that the unemployment rate is a measure of the percentage of the total labour force that is unemployed, but actively seeking employment and willing to work.

The second variable chosen is the unemployment rate of the GIIPS economies. This is a very important indicator and it is usually related to the economic situation in a country, i.e. in periods of recession the unemployment rate is relatively high and in periods of expansion it decreases. The data obtained are from the Eurostat website. The evolution of the unemployment rate in the different countries can be seen below:



Graph 5: Unemployment Rate

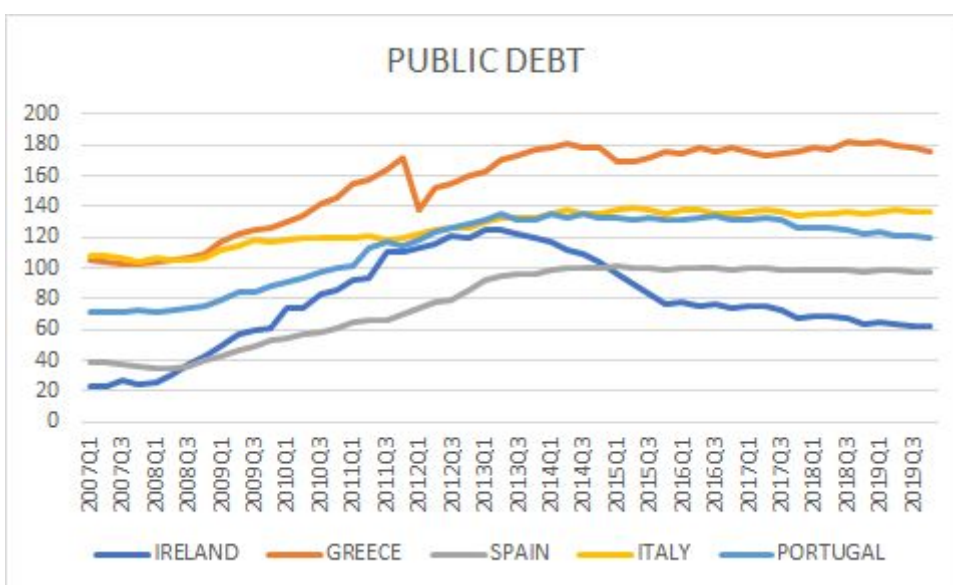
Own elaboration. Source: EUROSTAT

In this case it can be seen that one of the most affected components of the economy in times of austerity has been unemployment. Since in most countries they present relatively high numbers. Spain and Greece are the countries with the highest unemployment in these periods of time. The countries have gradually been reducing unemployment but there are still countries like Spain that continue to have a high unemployment rate.

-Public debt

Guillamon and et al(2011) comment that public debt is defined as all debt owed by a State to individuals or other countries. They constitute a form of obtaining financial resources by the State.

The third variable that will be analyzed is public debt, since it is very important in our case, the problem of the GIIPS was a high public debt and that is why austerity measures were implemented. There is empirical evidence that a high level of public debt negatively affects the country's economic growth. Therefore, one of the objectives of all countries is to obtain a low public debt and close to that established in the SGP. The data are obtained from the Eurostat website, in quarterly format.



Graph 6: Public Debt

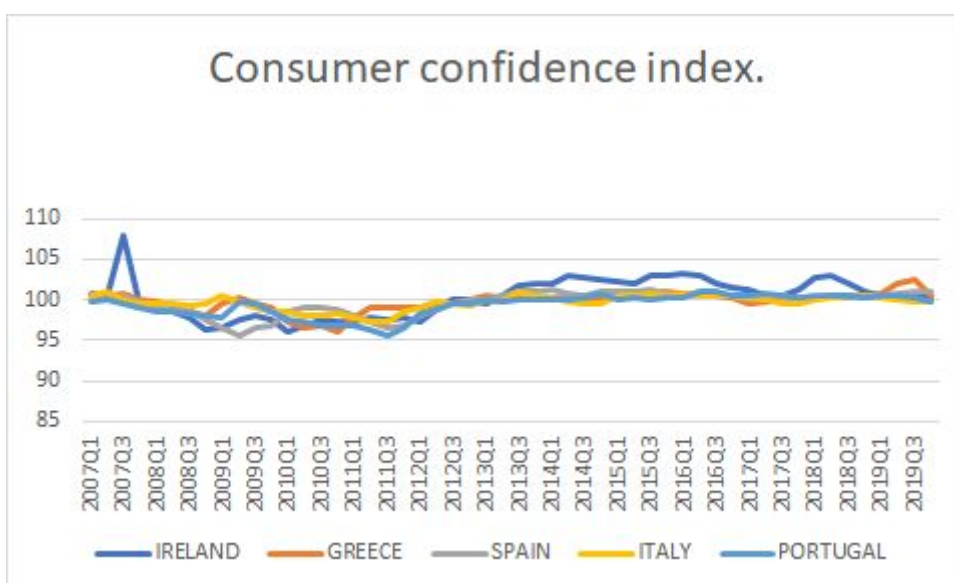
Own elaboration. Source: EUROSTAT

Public debt was a serious problem for the GIIPS. This graph clearly shows how countries during periods of austerity presented very worrying data. Since none of them complied with the SGP. Some of them, such as Greece and Italy, even doubled their compliance. Ireland is the only country to date that complies with the SGP. And that is why its GDP per capita is high and its unemployment rate is low. Therefore the objective of austerity was to lower public debt was of great importance, since Ireland is the best example for everyone. Castillo and Archilla (2012) add that a high public debt over a period of time is not bad since it can help increase the country's GDP, investment, etc. However, a high and persistent public debt is bad.

-Consumer confidence index.

Julio and Grajales(2011) argue that it is an index that allows to approach the intentions of the consumers' expenses asking them about their current perception and their future expectations for their country's economy. Those countries that present indexes above 100 mean that their consumers are optimistic about the situation, and those that present below are pessimistic.

The fourth variable to be analyzed is the Consumer Confidence Index (CCI). This indicator does not provide how future consumption and household savings will evolve. An indicator above 100 indicates an increase in confidence and values below 100 indicate a pessimistic attitude towards the future evolution of the economy. These indices are usually obtained through national surveys of citizens. One of the objectives of a country is to obtain an index above 100, as this will positively affect a country's economy. If consumers have a high consumption, this will have positive consequences for the economy, as all economic indexes will grow and the country will enter an expansion. On the other hand, in periods below 100, when consumers have doubts and uncertainty about the future, they do not consume and save more, which affects a country negatively. A recession is coming, which may be deeper if this CCI remains consistent in the fall. Data are obtained from the Eurostat website on a quarterly basis. The following graph shows how this index has evolved over the period of study.



Graph 7: Consumer Confidence Index

Own elaboration. Source: OECD

It is verified that the descent of the ICC coincides with the time of recession, and at the time of the implementation of the authority. At that time, people were in a state of panic and uncertainty about the future of the country. Since they observed that the situation was not improving and in addition with the austerity the recession became deeper. A high CCI would cause the country to recover, since consumer confidence and above all investor confidence play a very important role in the recovery. As the years have gone by, this index has been recovering, and is already above 100 in most of the GIIPS. Therefore taking care of this index is very important.

-Political parties

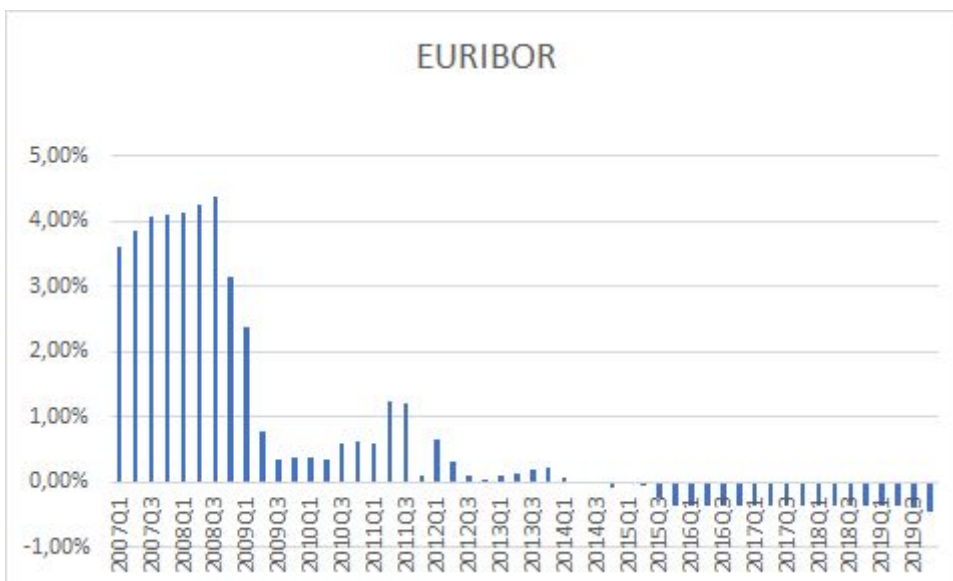
The next variable is the government, which is a dummy variable, which takes the values of 0 when the right governs and 1 when the left governs. To obtain the data, the previous table has been used to present the governments that have been in power during the last years. This variable has been selected because the interest is to check whether the government on the right or on the left has influenced the GDP per capita. After observing the hypotheses and approaches of the different authors that have been read so far, it is thought that the left has had a negative role in the era of austerity, as its governments have been making different unnecessary expenditures and have been governing badly, which has led to the situation in which the troika intervenes. Many authors confirm that the left has been harmed by the 2010 crisis.

In order to establish this variable in our database, three databases have been previously developed for the same country. The first is the country in general, where all the values have been established without taking into account the political party. For the right-wing parties, a separate database has been elaborated, where in the periods that the left has ruled, a 0 has been set in all the values of the variables and only the values of right-wing times have been left. For the left party, the same procedure has been carried out, only the values of left times have been left, and a 0 has been put in right times.

- Euribor

García Aranda(2011) comments that the Euribor is the interest rate applied to operations between banks in Europe, that is, the percentage that a bank pays as a rate when another bank lends money to it.

In times of austerity, this rate has been at an all-time low. The purpose of this decision was to encourage institutions to offer loans and credits on more advantageous terms to businesses and individuals in order to foster economic activity and reduce unemployment. The problem with austerity was that, since these interest rates were so low, they could not be lowered further and therefore could not have a major impact. If the interest rate was at 5% and then dropped to 4%, the effect would be more relevant. The data from the Euribor website has been obtained. Below we can see how the Euribor has developed over the years.



Graph 8: Euribor

Own elaboration. Source: EURIBOR

It can be seen that the Euribor has had a decreasing trend. Especially the fall occurred in the last quarter of 2009. With the entry of austerity, the Euribor decreased to a large amount. Even in the years of austerity, the rates were negative. This means that banks are paying each other to hold money because they do not release their liquidity to customers. These negative Euribor situations positively affect people with a mortgage.

6.2 DATA PROCESSING.

Once all the variables to be used in the model have been explained, the next step is to explain how the data that will allow to obtain the effect of austerity on our macroeconomic variables will be treated. For this purpose, work is going to be done with the statistical analysis and econometric model estimation software Gretl.

Before proceeding with the analysis of the VAR model, it is necessary to check whether the variables are stationary or unit-rooted. It is important to obtain that the variables are stationary, since they help to have a much more efficient prediction and impulse response function. A time series is stationary when its distribution and parameters do not vary with time, that is, the mean, the variance, etc. They are constant over time. For this the Dickey-Fuller contrast will be used. This is a single-root test that statistically detects the presence of stochastic tendency behavior in the time series of the variables by means of a hypothesis contrast.

HO: The series has at least one unit root

H1: The series is stationary

To obtain the stationary variables, we must add to the logarithms and first differences variables. Later, the Dickey-Fuller contrast is performed. And it is checked if the null hypothesis can be rejected and therefore the variables are stationary. In the work, first differences have been established in all the variables of interest, since the objective is to analyze the short-term effect in the GDP.

AUTOREGRESSIVE VECTOR MODEL (VAR)

Auto-regressive vectors (VAR) are introduced by Sims(1980) in the 1980s for simultaneous equation estimation with the purpose of improving the empirical analysis of economic relations, providing a successful technique for making forecasts of systems of interrelated time series variables where each variable helps to forecast the other variables. In fiscal terms, VARs were first introduced in the works of Blanchard and Perotti. The VAR model consists of defining the relationship of a set of variables called endogenous as a function of a given number of their own delays and of delays of other exogenous variables. Therefore, each variable depends on a constant, its own delays and the delays of the other variables of the vector. The simplest VAR model with two endogenous variables and one exogenous variable could be expressed as follows:

$$Y_t = C_1 + \sum \alpha_{1n} Y_{t-n} + \sum B_{1n} X_{t-n} + \sum \pi_{1n} Z_{t-n} + \epsilon_{1t}$$

$$X_t = C_2 + \sum \alpha_{2n} Y_{t-n} + \sum B_{2n} X_{t-n} + \sum \pi_{2n} Z_{t-n} + \epsilon_{2t}$$

Y_t : It is the value of the first endogenous variable at instant t.

X_t : It is the value of the second endogenous variable at instant t

Y_{t-n} : It is the value of the variable Y in the period t-n

X_{t-n} : It is the value of the variable X in the period t-n

Z_{t-n} : It is the value of exogenous variable Z in the period t-n

ϵ_{1t} : This is random disturbances with conditioned hope equal to zero

Equation 1: Var model with two endogenous and one exogenous variable.

In Perez(2014) explanation of each parameter of the model's functions, it can be seen that concepts such as endogone variable, exogenous variable or delay variable appear. In the model, GDP per capita, public debt, consumer confidence, unemployment and Euribor will be used as endogenous variables. The VAR, in the model will be used to obtain a simulation of the effects of a shock in the GDP, which is obtained through the construction of impulse-response functions. The evolution of macroeconomic variables, specifically GDP, will be checked in the face of a public debt shock when either the right or the left governs.

In order to carry out the model, the general model of the country will be estimated beforehand, without taking into account. In this way it will be possible to verify the differences that exist when governing only on the left and right with the country in general. As mentioned above, to introduce the political party it will be done in the following way:

- For the right: only the values of these will be represented and the parties of the left will be put zero (in their respective database).
- For the left: only the values of these will be established and a zero will be set for the values on the right (in their respective database).

Then through Cholesky you will get the order of the variables, as it is very important to establish a proper structure, as the results can be modified according to the order of the variables you choose. The variable of interest to study is the GDP. The following order has been chosen for the estimation of the model. Unemployment, consumer confidence, GDP, public debt and Euribor. Stiglitz and Guzman(2016) argue that this order has been established due to the importance that these variables have in an economy and above all in times of austerity. In this case, GDP will not react at moment 0, because a period of time is needed until the effect of the debt shock on GDP is observed.

- Eduardo and et al(2012) comment on the Okun Law. There is a two-way causal relationship between unemployment and economic growth. The logic of the model states that higher unemployment today translates into lower growth tomorrow. An increase in unemployment translates into lower wages and a drop in aggregate demand. Low revenue due to low employment translates into high public spending due to unemployment insurance.
- Vázquez(2010) argues that the consumer confidence indicator has played a very important role in economic growth. Since the current crisis has significantly reduced consumption and with it economic growth. Already consumption depends on CCI and this depends on expectations and its current propensity on the economy, therefore in an environment of instability and dubious expectations, will cause CCI to be low and with it consumption.
- Dominguez (2013) argues in the paper by Reinhart and Rogoff 2010 that while the link between economic growth and debt appears relatively weak at normal debt levels, growth rates for countries with public debt above 90% of GDP decrease by one percentage point. In the GIIPS model, it has a high debt, therefore the link between economic growth and debt is strong. High levels of debt can squeeze out economic activity and business dynamism, thus

damaging growth. As Domenech concludes (2013), fiscal stimuli today to increase economic activity has the cost of lower economic growth tomorrow.

- Sanchez(2018) argues that Euribor is a widely used interest rate as a reference for bank credits or loans, including mortgage loans. This is the cost of money for financial institutions. Negative Euribor, as has been observed over the last few years, has negative symptoms in an economy as it makes money lose value and makes it difficult for banks to lend money because it is not profitable for them to do so. The banks are the ones that have been harmed by these negative rates. And as everyone knows, banks play an important role in the functioning of the economy and growth.

First of all, the number of optimal delays for each of the countries must be specified, that is, until which delay the representation of the VAR is statistically significant, since it is not possible to identify infinite parameters. This is obtained by means of so-called "information criteria". Gretl proposes three different information criteria: the Akaike criterion, the Schwarz Bayesian criterion and the Hannan-Quinn criterion. The optimal lags have been chosen according to Akaike's criterion.

	<i>GREECE</i>			<i>IRELAND</i>				<i>ITALY</i>		
	GENERAL	RIGHT	LEFT	GENERAL	INDEPENDENT	LEFT	RIGHT	GENERAL	INDEPENDENT	LEFT
Criterion Bayesian o de Schwarz	-28,89*	-6,90*	-3,61*	-22,82*	-14,75*	-7,50*	-5,46*	-32,33*	-9,82*	-6,99*
	-28,07	-6,75	-2,55	-22,02	-14,62	-6,15	-5,42	-31,37	-8,64	-6,52
	-27,36	-5,45	-1,15	-21,97	-13,28	-5,95	-4,92	-30,65	-7,62	-6,25
	-26,52	-5,29	-1,22	-21,82	-12,26	-5,24	-4,25	-30,26	-6,52	-6,15
Criterion Akaike	-29,95	-7,82	-4,62	-23,81	-15,42*	-6,51	-6,14*	-33,08	-10,14	-6,95
	-29,98*	-8,05*	-4,80*	-23,89*	-14,26	-7,52*	-5,95	-33,12*	-10,95*	-7,10*
	-29,52	-7,92	-4,52	-23,26	-13,52	-6,92	-5,25	-32,24	-10,52	-6,95
	-29,13	-7,58	-4,21	-21,15	-13,2	-7,04	-6,15	-33,17	-9,53	-6,25
Criterion Hannan- Quinn	-29,57*	-7,95	-4,27	-23,14*	-15,77	-5,89	-6,05*	-32,90*	-9,75	-6,72
	-28,52	-8,20*	-4,50*	-22,52	-16,52*	-6,95*	-5,52	-32,83	-9,85*	-7,20*
	-27,54	-7,57	-4,21	-21,59	-10,52	-5,42	-5,92	-32,52	-9,52	-6,45
	-27,25	-7,96	-4,13	-20,14	-12,96	-6,12	-5,26	-31,55	-9,12	-6,14

	<i>PORTUGAL</i>			<i>SPAIN</i>		
	GENERAL	RIGHT	LEFT	GENERAL	RIGHT	LEFT
Criterion Bayesiano de Schwarz	-30,82*	-10,56*	-13,28*	-24,92*	-14,49*	-13,36*
	-29,56	-9,78	-12,53	-24,35	-13,54	-12,15
	-28,52	-8,52	-12,13	-23,72	-13,12	-11,16
	-28,12	-8,21	-11,53	-23,07	-12,99	-10,25
Criterion Akaike	-31,96	-11,52*	-14,35	-25,56	-15,23	-14,32
	-31,95*	-11,2	-14,50*	-25,80*	-16,50*	-14,90*
	-31,17	-10,59	-14,21	-24,96	-16,26	-13,52
	-31,28	-10,5	-13,95	-24,93	-15,46	-13,59
Criterion Hannan-Quinn	-31,14*	-11,27	-19,93*	-25,33	-13,58	-13,65*
	-30,56	-10,82*	-13,55	-25,05	-14,13*	-12,15
	-30,29	-10,12	-12,96	-24,73	-14,16	-11,25
	-29,52	-10,02	-12,29	-24,32	-13,92	-10,12

*Table 8: Criteria for choosing the optimal number of delays. The number of lags is chosen according to " * " (in the work the criterion of Akaike has been chosen).*

6.3 EMPIRICAL RESULTS

Therefore, the variables to be used in the model are in first differences with logarithms and the optimal delays used for each country vary according to the criteria of the Akaike's Criterion for each of the countries (optimal lags between 1, 2 and 3 were obtained). The results obtained in the different countries using the impulse response function are presented below. Each country is analysed separately to see how a public debt crisis affects GDP per capita. Three models will be made, one for the country as a whole and then for each of the parts. In this way it will be possible to compare the results obtained and see which party has better results.

The confidence interval to be used for all countries is 68%. In the model all the shocks start from quarter 1, since as Blanchard and Perotti comment in their studies, the fiscal authorities take at least one quarter to take measures to make the cycle move before the political changes.

► GREECE

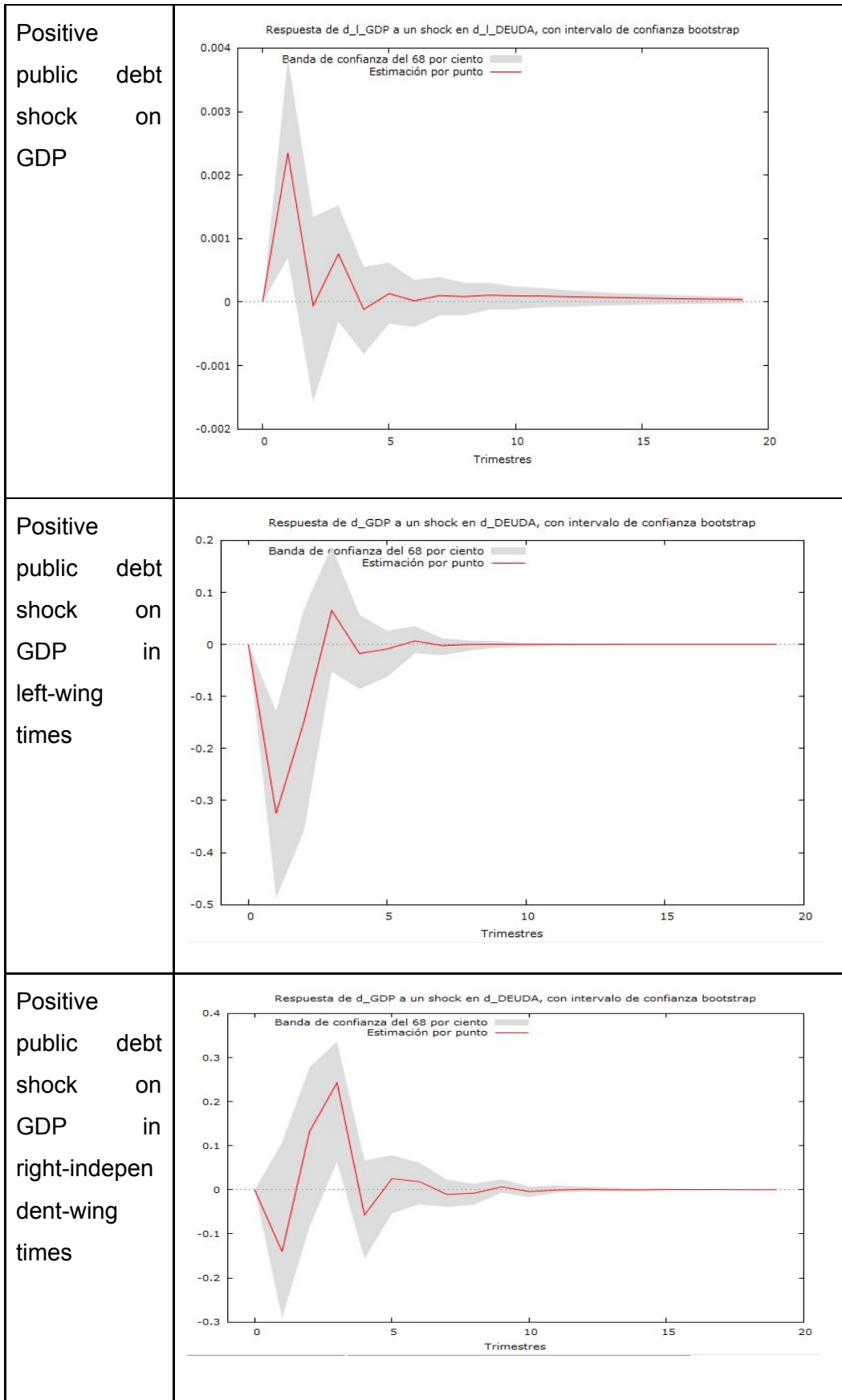


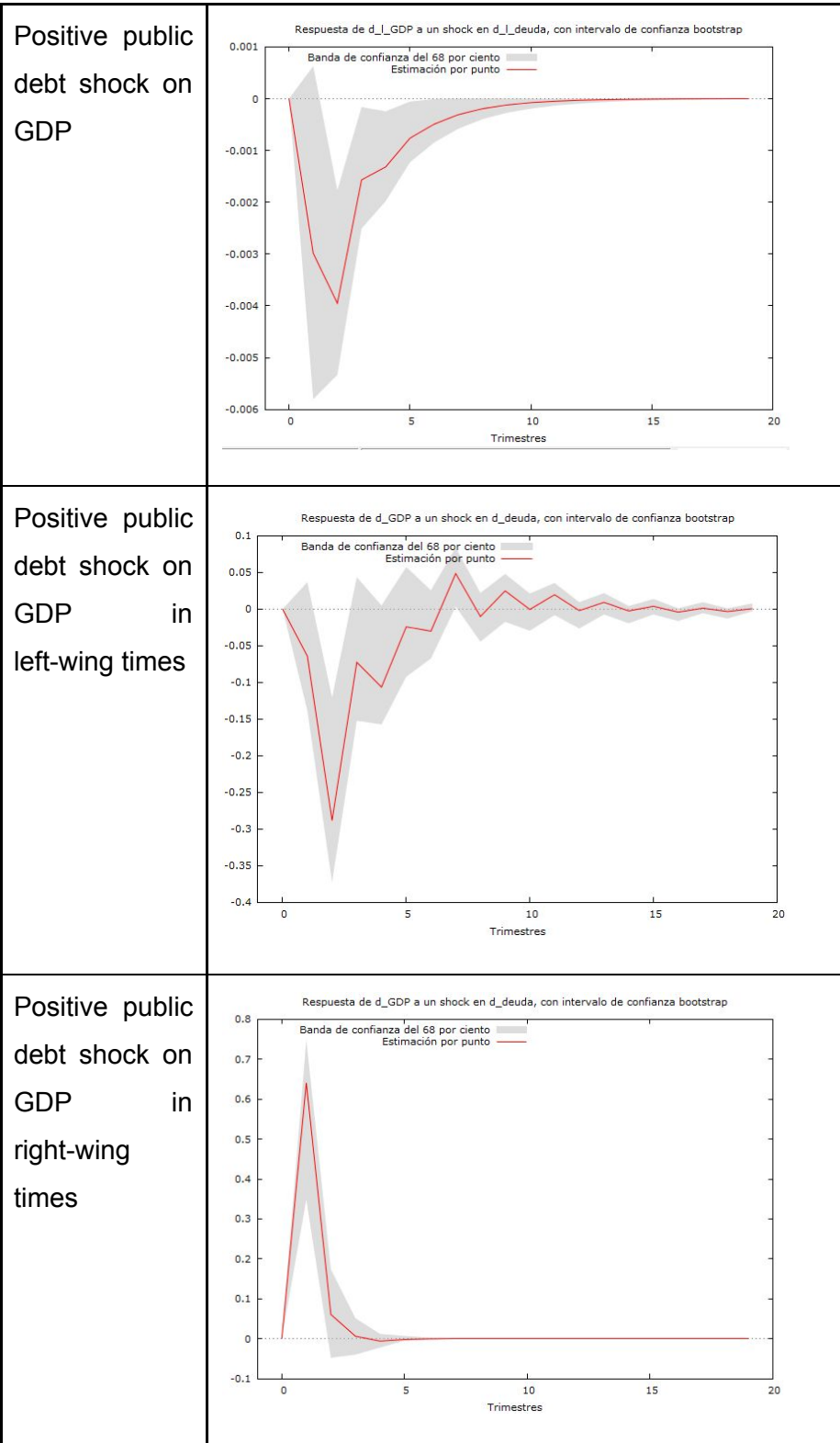
Figure 4: GDP'S RESPONSE TO A DEBT SHOCK IN GREECE

In Greece, the results are very surprising; it is already considered to be the country with the highest public debt of all the GIIPS. And to see that the positive shock of the debt increases the GDP, it is mainly because, as we have commented before, in Greece the correct debt accounts were not presented and people thought that the country was in a moment of economic expansion, and that is why the country did not introduce changes with respect to reducing the debt. A comparison of the political parties shows that the left has had a worse impact on GDP than the right and independent parties. The Greek case is special for several reasons. Firstly, responsibility for the crisis must lie with its own leaders who were very fiscally irresponsible even before joining the eurozone. After the outbreak of the crisis the troika handled the situation unequivocally. The logical thing would have been to approve a reconstruction of the Greek debt from the first moment

Quartes	General	Right-Indep	Left
1	0.000000	0.00000	0.00000
2	0.002349	-0.1407	-0.3249
3	0.000022	0.13177	-0.1492
4	0.000752	-0.2485	0.06504
5	-0.000111	0.00252	-0.0088
6	0.000013	0.02522	0.00650

Table 9: GDP CUMULATIVE RESPONSE FOR THE FIRST 6 QUARTERS

► IRELAND



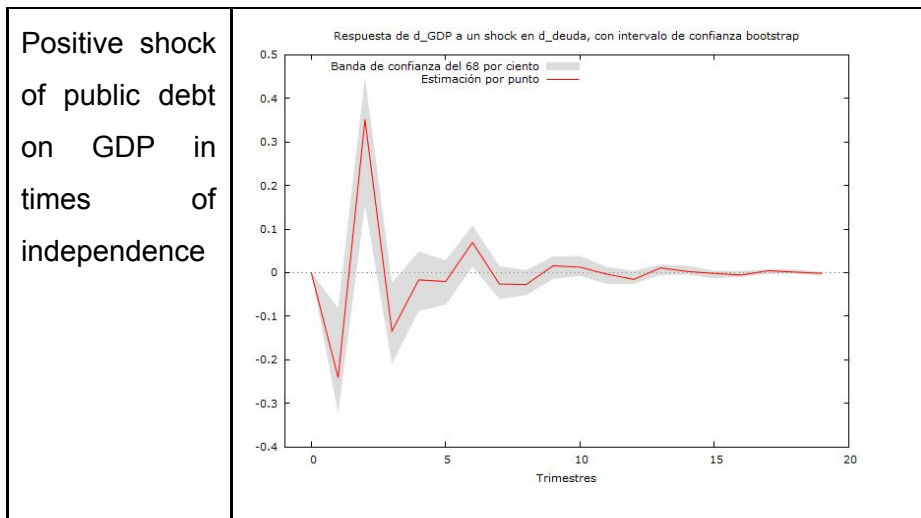


Figure 2: GDP'S RESPONSE TO A DEBT SHOCK IN IRELAND

Ireland was a country where austerity did succeed, as its accounts recovered within a few years. In changes at the beginning of the crisis, they had high public debt and deficits. In the country as a whole, the increase in debt has a negative impact on GDP, as it can be seen through the trajectory, which at the beginning of the quarters decreases significantly. In Ireland there have been 3 types of parties during this time. The left is the worst performer, as GDP decreases quite a lot at the beginning of the quarters. On the other hand, the right wing and the independents have better results, the former being the best.

Quarters	General	Right	Independent	Left
1	0.00000	0.00000	0.00000	0.00000
2	-0.0029	-0.1407	-0.2412	-0.3249
3	-0.0039	0.13177	0.35152	-0.1492
4	-0.0015	-0.2485	-0.1343	0.06504
5	-0.0013	0.00252	-0.0165	-0.0088
6	-0.0007	0.02522	-0.0204	0.00650

Table 10: GDP CUMULATIVE RESPONSE FOR THE FIRST 6 QUARTERS

► ITALY

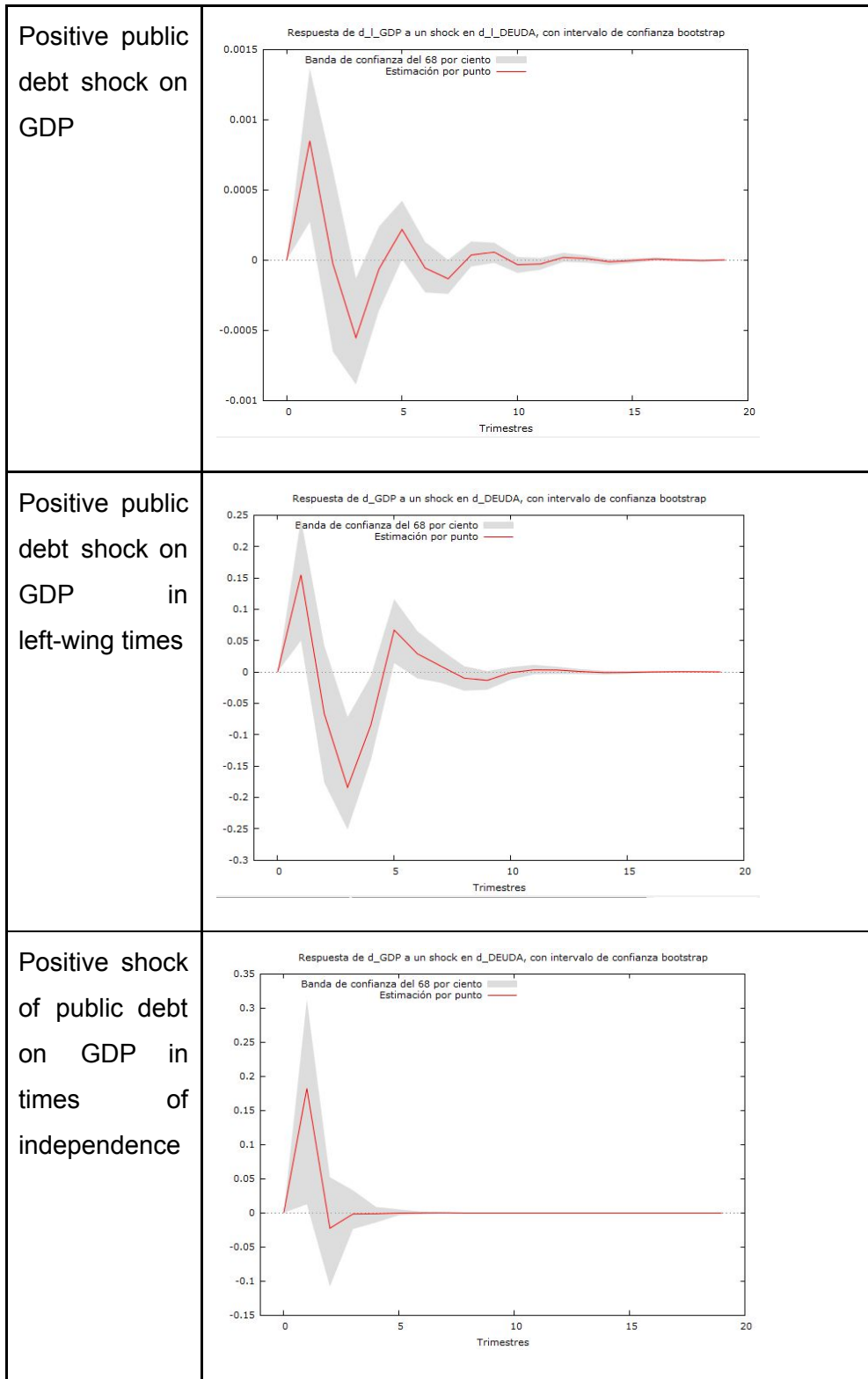


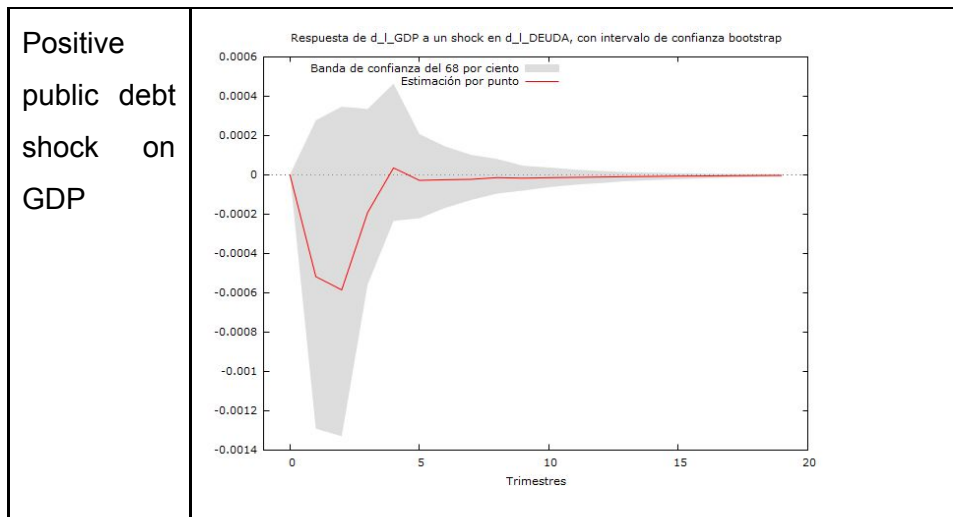
Figure 3: GDP'S RESPONSE TO A DEBT SHOCK IN ITALY

In Italy, unlike the other two countries, in the first quarters it shows a positive GDP performance, but subsequently it decreases, this is mainly due to the fact that in one country a period of time is needed for further changes to be introduced in an economy and to have an effect. If the political parties are compared, it is clear that in left-wing times the country has a worse GDP performance. This is because the independent party presents positive results from the very beginning.

Quarters	General	Independent	Left
1	0.00000	0.0000	0.00000
2	0.00084	0.1827	0.15476
3	0.00000	-0.2281	-0.06662
4	-0.0000	-0.0019	-0.18421
5	0.00000	-0.0015	-0.08456
6	0.00021	0.00002	0.066832

Table 11: GDP CUMULATIVE RESPONSE FOR THE FIRST 6 QUARTERS

► PORTUGAL



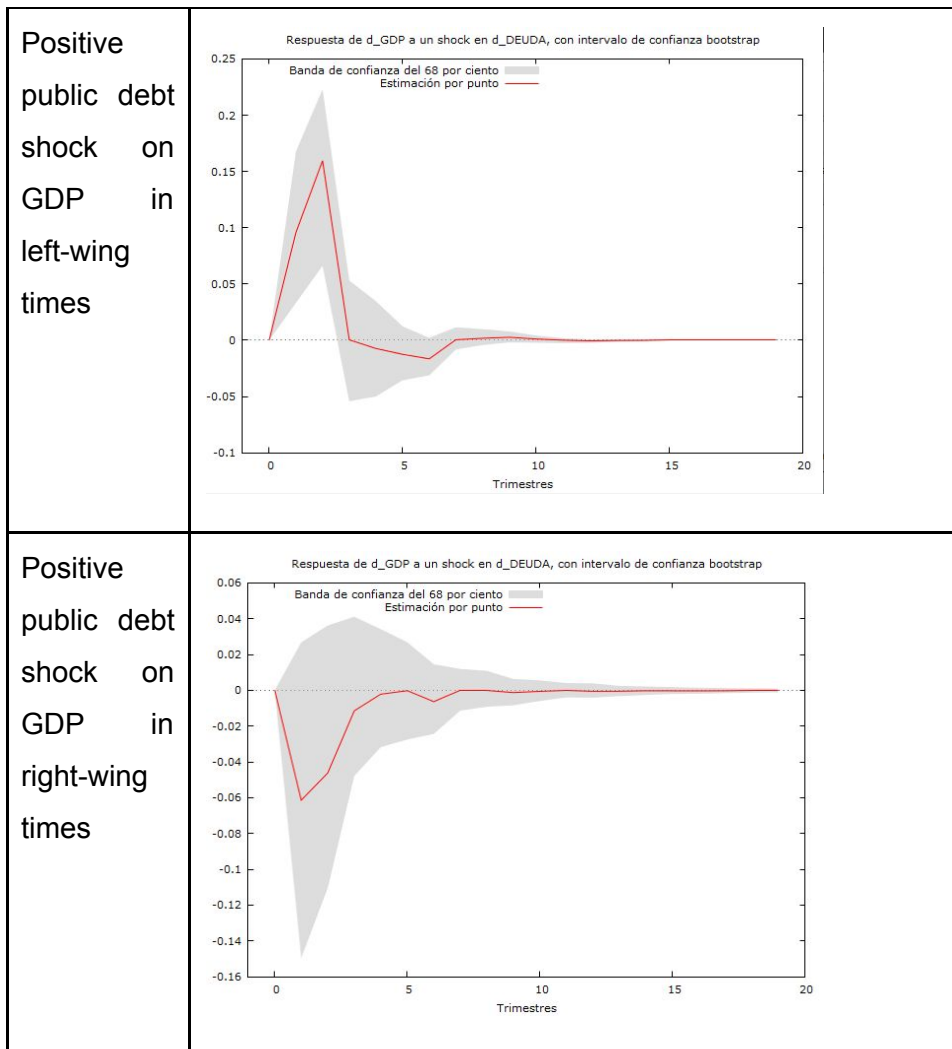


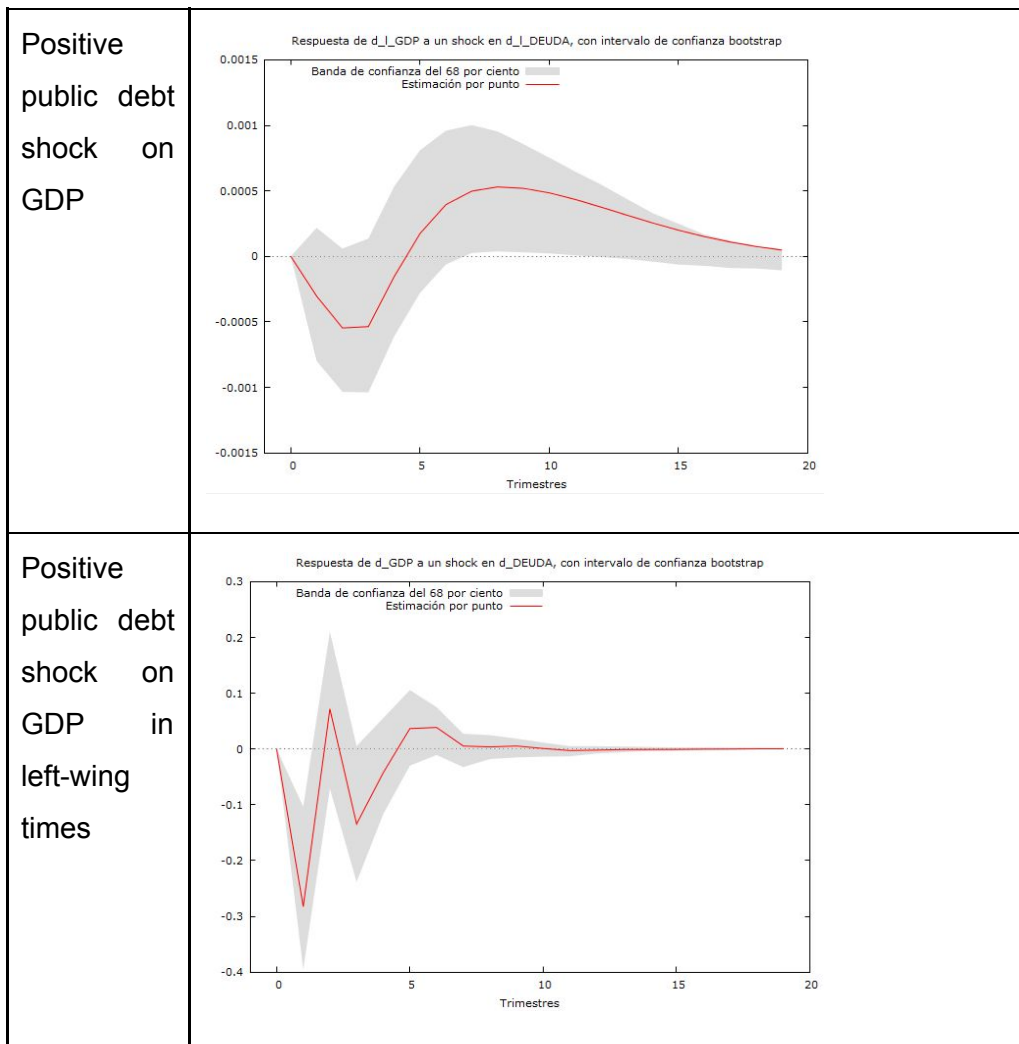
Figure 4: GDP'S RESPONSE TO A DEBT SHOCK IN PORTUGAL

Portugal in general presents expected results, as the positive shock causes a decrease in GDP per capita. When comparing the results of right and left, it is clear in this case, that the party that was in charge in time of austerity is the one that obtains worse results of the GDP. The left only governed during the first years until 2007, during which time the country had no public debt problems and that is why the shock affects the GDP positively. On the other hand, in periods of right-wing mandate, it is observed as this one if that it affects negatively the GDP reducing it during the first quarters.

Quarters	General	Right	Left
1	0.00000	0.00000	0.00000
2	-0.00051	-0.0614	0.09572
3	-0.00059	-0.0462	0.15951
4	-0.00010	-0.0115	0.00026
5	0.00002	-0.0021	-0.0007
6	-0.00006	-0.0002	-0.0025

Table 12: GDP CUMULATIVE RESPONSE FOR THE FIRST 6 QUARTERS

► SPAIN



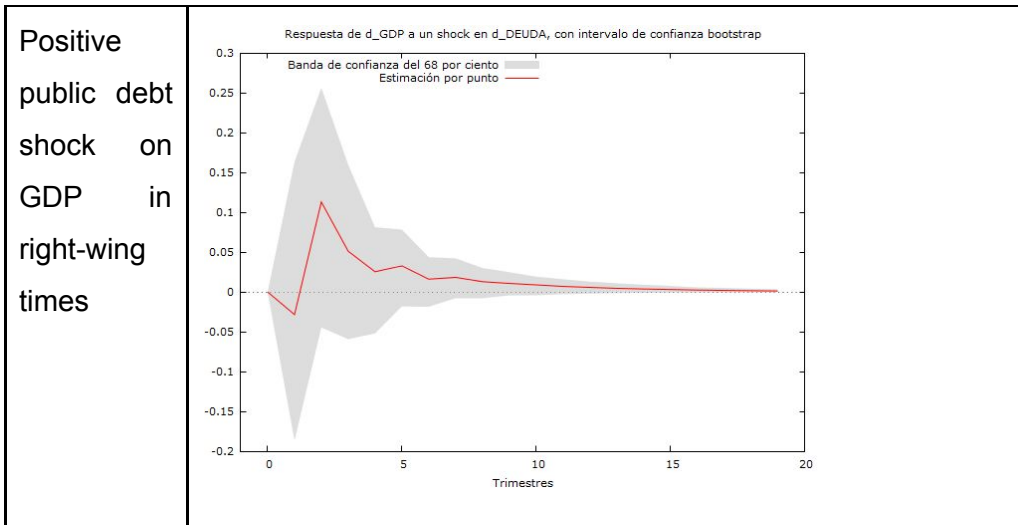


FIGURE 5: GDP'S RESPONSE TO A DEBT SHOCK IN SPAIN

When the shock is realized for the country in general, an increase in public debt decreases the GDP in the short term. But subsequently it shows a rapid positive and lasting recovery in GDP growth. If this is compared between the right and the left, it can be seen that the left has had the worst results from the shock. Since the right presents positive results, and this is mainly due to the fact that this government was the one who reduced the country's public debt and at the same time obtained an increase of GDP in periods of his mandate.

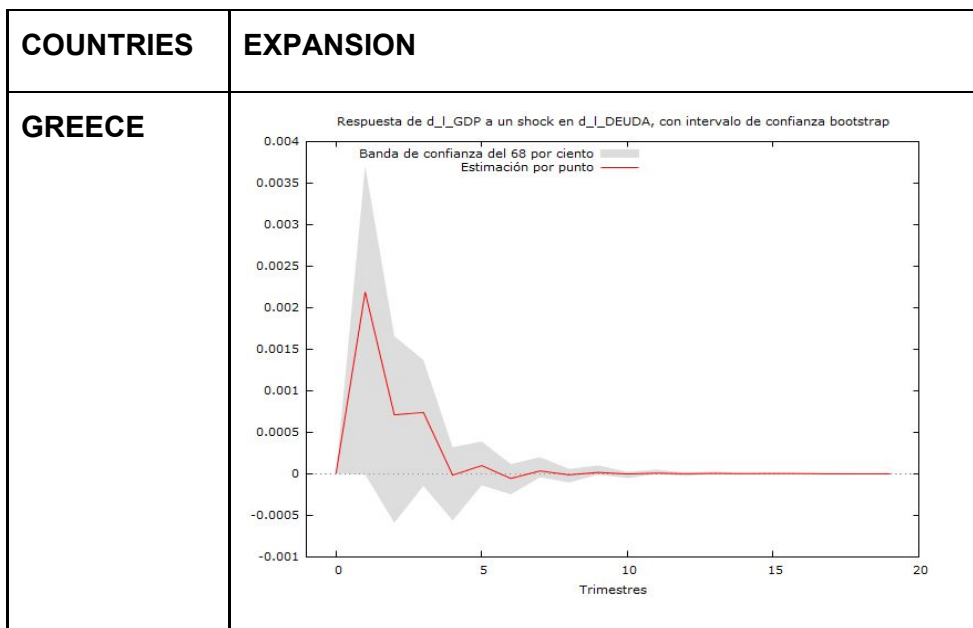
Quarters	General	Right	Left
1	0.00000	0.00000	0.0000
2	-0.0003	-0.0283	-0.2827
3	-0.0005	0.11317	-0.0717
4	-0.0005	0.05130	-0.1345
5	-0.0001	0.02541	-0.0426
6	0.0001	0.3288	0.0366

Table 13: GDP CUMULATIVE RESPONSE FOR THE FIRST 6 QUARTERS

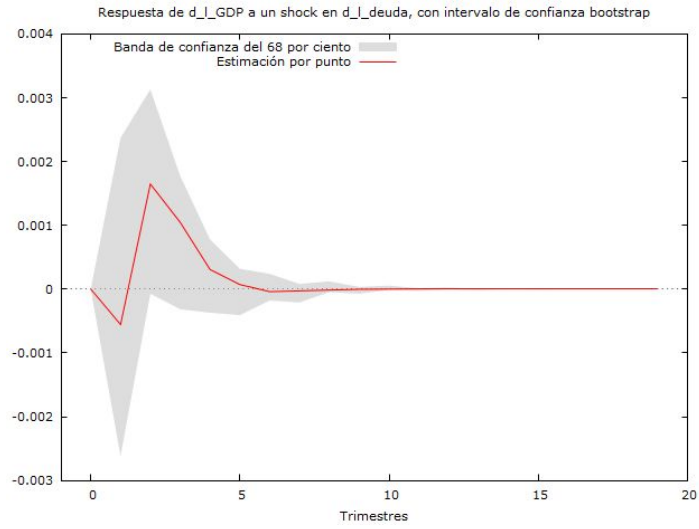
Therefore, once the analysis for each of the countries has been checked, and the impact of a positive debt shock on GDP can be seen, it can be concluded that it is true that in periods of the left, the impact is more negative on GDP than in periods of the

right. In times of the right, they did pay attention to the deficit accounts and tried to reduce them and with the help of the troika this was achieved. In general all countries except Greece have a negative impact on GDP in the short term, but they recover later. It has been proven that, as the shock of the debt on GDP is not immediate, this is due to the fact that the changes in the economy are not spontaneous, it takes time for it to begin to have an effect on macroeconomic variables. A study will then be carried out to see if the timing of the application of austerity matters.

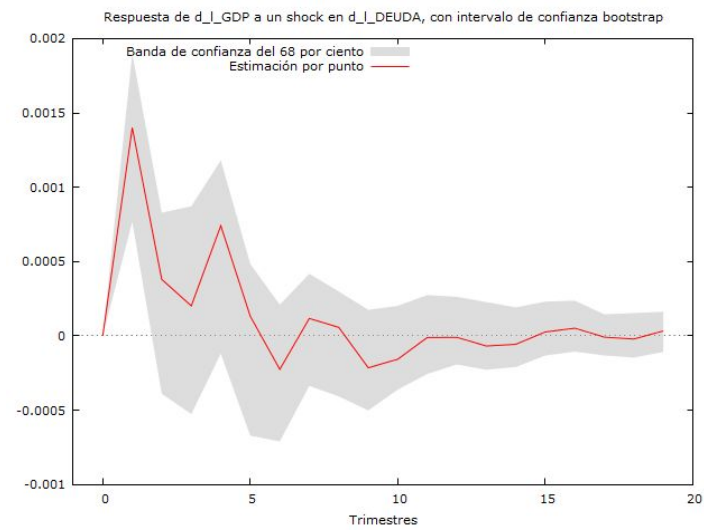
European austerity applied between 2010 and 2014 began at a time when economies were in a recession. If the macroeconomic scenario had been different, the effects of austerity on GDP would have been different? Determining when austerity is applied is complicated. Because a change in policy requires long and complex waiting times. Austerity in times of economic expansion can have favourable results, as it increases GDP even more. Therefore, what matters more - the way an austerity plan is designed or the state of the economy? The following is a study for times of expansion of countries, 2000 to 2006 and times of recession from 2007 to 2017. And check if it really matters when austerity is implemented.



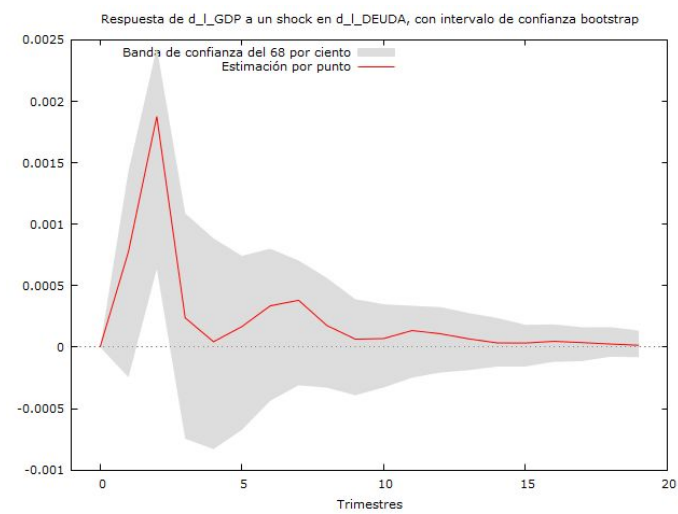
IRELAND

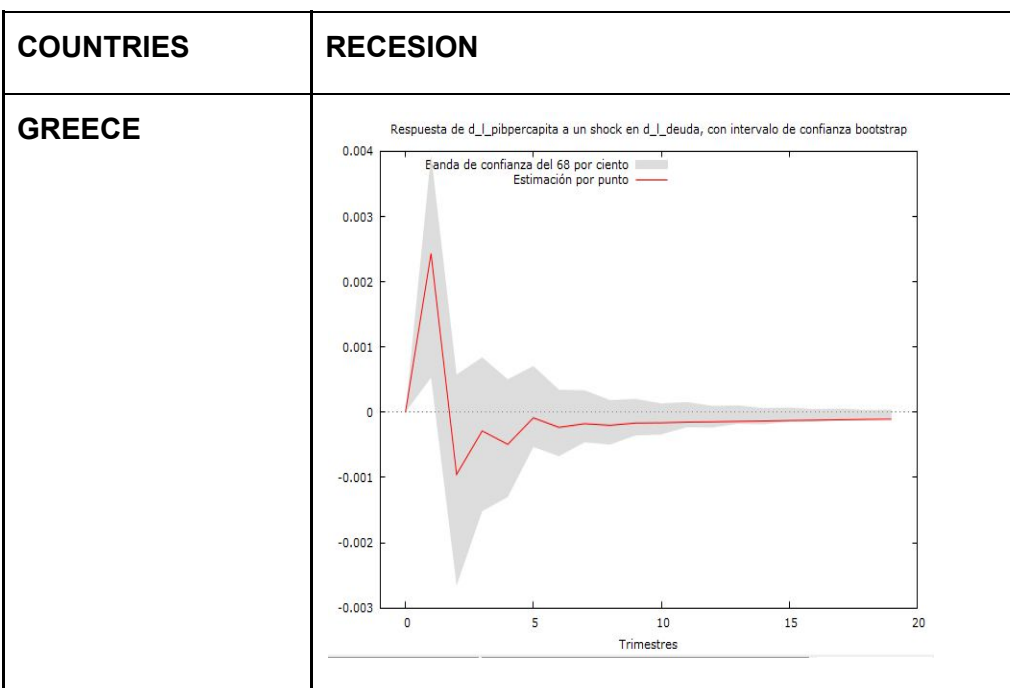
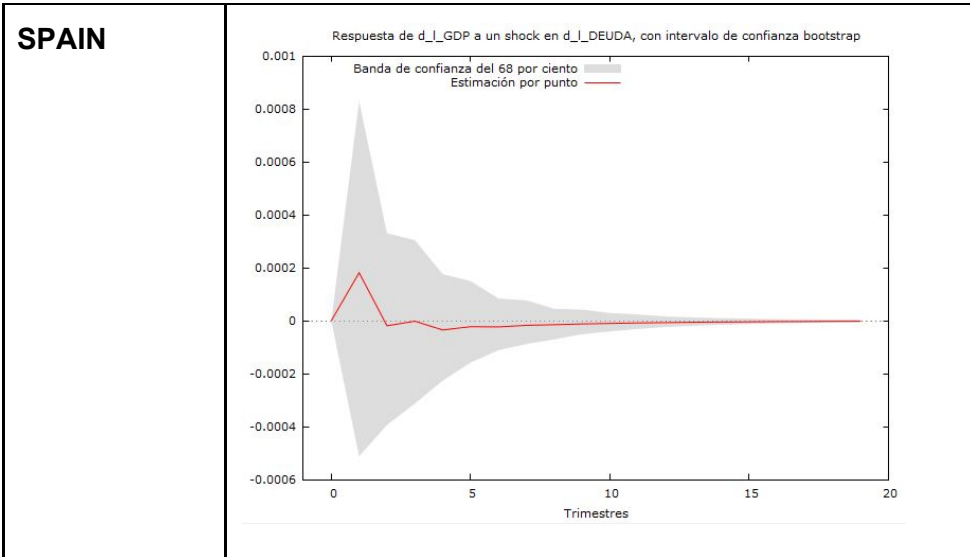


ITALY

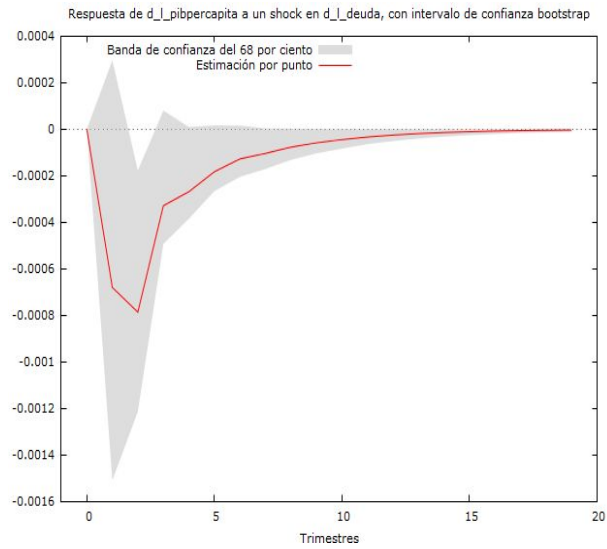


PORTUGAL

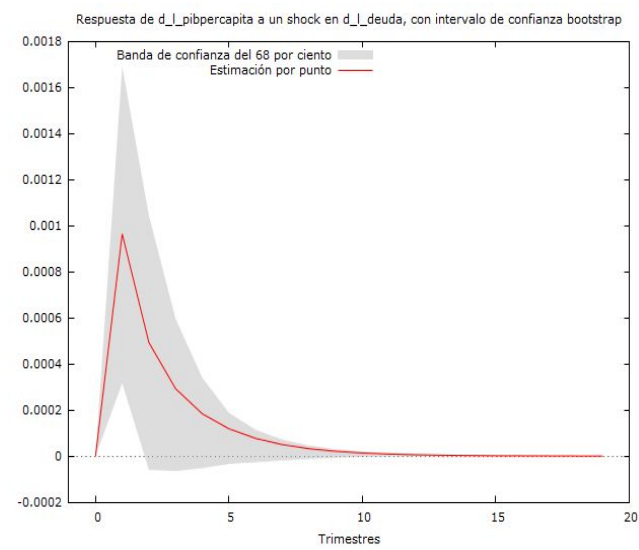




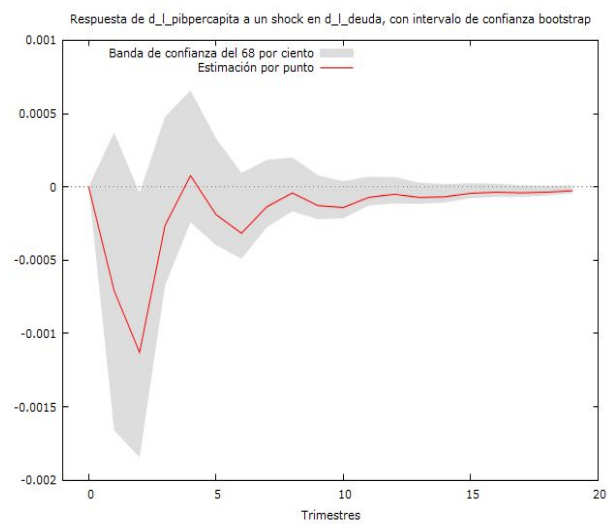
IRELAND



ITALY



PORTUGAL



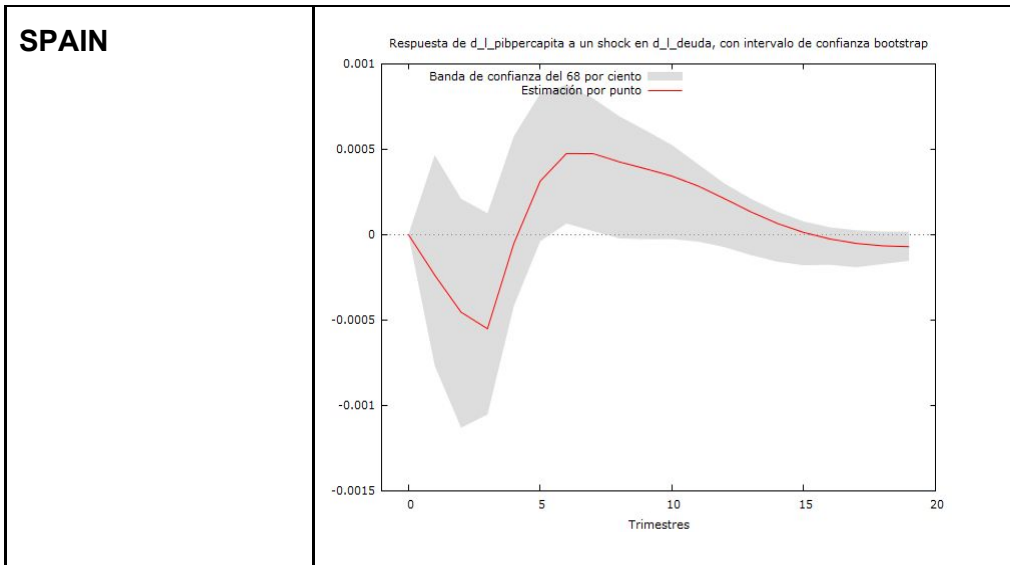


Figure 6 : GDP'S RESPONSE TO A DEBT SHOCK

Once it has been proven how austerity affects in times of expansion and recession, it can be concluded that if that is important, the "when" austerity is established. Since the results obtained show that, at times of the country's expansion, an increase in debt causes an increase in GDP. And on the other hand, in times of recession, an austerity worsens the situation of the country. The problem with the GIIPS was that they all implemented austerity in times of recession, and that is why the economy has had such a strong recession. In contrast, countries like Germany that have implemented austerity in times of expansion are now among the best economies in the world.

7 CONCLUSION

In general, it has been seen that austerity represents the correction of political errors of the past. Austerity by lowering public spending has been found to be much more efficient for the growth of the economy. A problem that most countries had in times of crisis was a high public debt, but this was not as bad as it seemed, since a high public debt accompanied by economic growth did not have to be a problem for the country. The GIIPS, should have held out longer with the high debt until stabilizing the accounts and avoiding austerity. Because when austerity is applied in the middle of a crisis,

macroeconomic variables tend to contract much more. However, countries such as Germany believe that debt and deficit limits must be complied with. Exports play an important role in a country's economy. Germany has become the leading exporter during and after the crisis. Ireland is another example that confirms that exports play an important role, since those countries that had a high deficit, thanks to exports, have rapidly reduced it in a few years. Therefore countries have to focus on having high exports. An analysis has been made of how macroeconomic variables have varied in austerity, and most of them have suffered significant declines, which have had negative impacts on the economy. The right-wing parties have emerged as the winners from this crisis, since in times of mandates they are the ones who have obtained the best results in the country's GDP. The econometric results obtained confirm this hypothesis. On the other hand, it is important to note that it plays an important role when austerity is implemented in a country, that is, at the time of expansion, austerity will have more positive effects on economic growth. In times of recession, when austerity is established, it tends to worsen the country's situation.

Countries such as Italy and Spain are once again in the spotlight because of their inefficient political decisions, which have put them on the podium of more cases and deaths in the world. These countries are likely to suffer a similar economic crisis as in 2010, and it is possible that austerity will be reintroduced. Germany, however, has again dealt with the pandemic in a very good way and with hardly any deaths and infections. This situation reminds us of 2010, where the protagonists once again play the same role, some are once again in a bad situation and Germany, instead, is once again the winner of this crisis. In Spain, the government in charge of this crisis is the Left, so this party is again imperfect as in the previous one.

REFERENCES

Agnello, L., Castro, V., Jalles, J. T., & Sousa, R. M. (2017). The Impact of Fiscal Consolidation on Human Development. *Journal of International Development*, 30(3), 399-429. <https://doi.org/10.1002/jid.3309>

Alesina, C. F. F. G., Alberto Alesina, C. F. F. G., & de la Cruz, D. S. (2020). *Austerity*. Barcelona, Spain: Planeta.

Arellano, B. S. A. (2020). *Monetary and financial crises: lessons for the future* (1st ed., 1st printing). MADRID, SPAIN: ESIC Editorial.

Barradas, C. da S., & Nunes, J. A. (2017). The austere turnaround: the decline in access to health and quality of care for cancer patients in Portugal. *História, Ciências, Saúde-Manguinhos*, 24(4), 933-951. <https://doi.org/10.1590/s0104-59702017000500005>

Bellod Redondo, José Francisco (2016). PIGS: FISCAL AUSTERITY, STRUCTURAL REFORMS AND POTENTIAL GROWTH. *Revista de Economía Mundial*, (43), 161-177. [Consultation date 5 May 2020]. ISSN: 1576-0162. Available at: <https://www.redalyc.org/articulo.oa?id=866/86647324008>

Blyth, M., Aúz, T. F., & Eguibar, B. (2014). *Austerity : history of a dangerous idea*. Barcelona, Spain: Critique.

Bobbio, N. (2014). *Right and left*. New York, United States: Penguin Random House.

Callan, Tim et al. (2011) : The distributional effects of austerity measures: A comparison of six EU countries, EUROMOD Working Paper, No. EM6/11, University of Essex, Institute for Social and Economic Research (ISER), Colchester,2-30.

Cherif, R., & Hasanov, F. (2017). Public debt dynamics: the effects of austerity, inflation, and growth shocks. *Empirical Economics*, 54(3), 1087-1105. <https://doi.org/10.1007/s00181-017-1260-3>

Cohen, S., Guillamón, M.-D., Lapsley, I., & Robbins, G. (2015). Accounting for austerity: the troika in the euro zone. *Accounting, Auditing & Accountability Journal*, 28(6), 966-992. <https://doi.org/10.1108/aaaj-04-2014-1668>

Guillamón, M. a D., Benito, B., & Bastida, F. (2011). Assessment of local public debt in Spain. *Spanish Journal of Finance and Accounting*, 40(150), 251-285. <https://doi.org/10.1080/02102412.2011.10779703>

Guillen, A., Gonzalez, S., & Luque, D. (2016). Austerity and social adjustments in Southern Europe. The fragmentation of the Mediterranean welfare model. *Revista Española de Sociología*, 25, 261-271. Retrieved from <http://digibuo.uniovi.es/dspace/bitstream/10651/40791/1/Austeridad.pdf>

Guillén Romo, Héctor. (2011). Monetary integration, crisis and austerity in Europe. *Development problems*, 42(165), 113-140. Retrieved May 4, 2020, from http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0301-70362011000200006&lng=es&tlng=es.

Heiner, F., & Lapavitsas, C. (2015). *Against the Troika*. Madrid, Spain: Akal.

HERNANDEZ, J. (2012). The crisis of regulatory systems in the European Union. *INDUSTRIAL RELATIONS REVIEW*, 26, 12-34. Retrieved from <https://dialnet.unirioja.es/servlet/articulo?codigo=4260536>

House, C. L., Proebsting, C., & Tesar, L. L. (2019). Austerity in the aftermath of the great recession. *Journal of Monetary Economics*. <https://doi.org/10.1016/j.jmoneco.2019.05.004>

Kaldor, N., & Pimetel, R. C. (2017). *Tax on expenditure*. Mexico City, Mexico: Fondo de Cultura Económica.

Keller, B. (2014). The continuation of early austerity measures: the special case of Germany. *Transfer: European Review of Labour and Research*, 20(3), 387-402. <https://doi.org/10.1177/1024258914538192>

Kretsos, L. (2014). Youth policy in austerity Europe: the case of Greece. *International Journal of Adolescence and Youth*, 19(sup1), 35-47.
<https://doi.org/10.1080/02673843.2013.862730>

Knight, D. M., & Stewart, C. (2016). Ethnographies of Austerity: Temporality, Crisis and Affect in Southern Europe. *History and Anthropology*, 27(1), 1-18.
<https://doi.org/10.1080/02757206.2015.1114480>

Menéndez Blanco, Juan Manuel, and Alonso González, Luis Alberto, and Moreno Gallego, Luis Santiago (2016). THE ROLE OF AUSTERITY IN OVERCOMING THE CRISIS IN THE EUROZONE'S PERIPHERAL COUNTRIES: AN ANALYSIS FROM THE PERSPECTIVE OF ECONOMIC POLICY *Revista Galega de Economía*, 25 (2), 5-12. [Consultation date 5 May 2020]. ISSN: 1132-2799. Available at:
<https://www.redalyc.org/articulo.oa?id=391/39148510001>

Ortega, m, & cortes, m. (2011). The Stability and Growth Pact in the face of the crisis. Determination and monitoring of the public deficit of the European Union Member States. *Journal of Business Studies*. Segunda época, 38, 65-104. Retrieved from
<https://dialnet.unirioja.es/metricas/documento/ARTREV/3849659>

Pérez Monsalve, Juan P. and Trespalacios Carrasquilla, Alfredo. (2014) IPP-IPC VAR Model Simulation. *Cuadernos de Administración (Universidad del Valle)* , 30 (52), 84-93. Retrieved May 6, 2020 from:
[http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-46452014000200009&lng=en&tlng=.](http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-46452014000200009&lng=en&tlng=)

Reeves, A., McKee, M., Basu, S., & Stuckler, D. (2014). The political economy of austerity and healthcare: Cross-national analysis of expenditure changes in 27 European nations 1995–2011. *Health Policy*, 115(1), 1-8.
<https://doi.org/10.1016/j.healthpol.2013.11.008>

Stiglitz, J. E., & Guzmán, M. (2016). *Contemporary Issues in Macroeconomics*. London, Reino Unido: Palgrave Macmillan.

Strober, Myra H.. (2015). Austerity. *Financial Wave*, 8(22), 135-144. Retrieved May 4, 2020, from http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1870-14422015000300135&lng=es&tlng=es

Stuckler, D., Reeves, A., Loopstra, R., Karanikolos, M., & McKee, M. (2017). Austerity and health: the impact in the UK and Europe. *European Journal of Public Health*, 27(suppl_4), 18-21. <https://doi.org/10.1093/eurpub/ckx167>

Euribor rates - all information on Euribor. (n. d.). Retrieved 21 March 2020, from <https://www.euribor-rates.eu/>

Home - Eurostat. (s. f.-b). Retrieved 2 February 2020, from <https://ec.europa.eu/eurostat/home>

OECD data. (n. d.). Retrieved 3 April 2020, from <https://data.oecd.org/>

World Bank Open Data | Data. (n. d.). Retrieved 12 April 2020, from <https://datos.bancomundial.org/>