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**IS POLITICAL INSTABILITY A PRODUCT OF AUSTERITY MEASURES?
A REGIONAL STUDY IN THE CONTEXT OF SPAIN (1996-2015)**

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ABSTRACT

Austerity reforms have, in the aftermath of the financial crisis, been the norm for the Spanish fiscal policy. At the same time, the Spanish political system has experienced instability due to the disruption of new political forces. Literature has studied in multiple occasions the political costs of fiscal policy without reaching a general consensus. In the same line, this thesis suggests that austerity, by weakening the social protection programs, have been a relevant factor behind the political instability increase. This hypothesis is tested using a panel dataset from 1996 to 2015 for the different Spanish regions. The estimates for the proposed models suggest a positive and significant relation between social benefits changes and political instability. However, the relation is not established with in-kind transfers. These results can be consistent with the idea that cuts on more critical public expenditure, as the case of social benefits which usually reach low-income households, entail larger effects to stability.

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1 INTRODUCTION

In the aftermath of the 2008 Economic Crisis, instability has established in the Spanish political scenario as the new norm. The unprecedented electoral repetitions in 2016 and 2019, the long periods with an acting government or the fact that only one administration has finished its term in office since 2008, well prove that. The reason for such a change could be blamed on the appearance of new political actors in the traditionally bipartisan Spanish politics. The fragmentation of the political scope in conjunction with the lack of a pact culture in the Spanish institutions, lead to a situation of political inoperability which built the climate for political unrest. Still, it is relevant to note that parties similar to the ones that broke the bipartisan paradigm, already existed previous to 2014 but without the success of the latter. And, in fact, many of those already existing parties ended up dissolving into the new and more successful ones. The question that this paper will try to answer is to which extend can the implementation of austerity and fiscal consolidation measures after 2010 explain the instable political situation that Spain is immersed in.

The literature analysing voter behaviour is now in upswing, motivated by the recent upraise of populist and non-mainstream political ideas. Scholars have analysed many relations between recent electoral results and other variables as unemployment (Algan, Guriev, Papaioannou and Passari, 2017), inequality (Alesina and Perotti, 1996), globalisation (Rodrik, 2018) and fiscal consolidations (Alesina, Carloni and Lecce, 2011; Alesina, Perotti and Tavares, 1998; Arias and Stasavage, 2016; Fetzer, 2019; Ponticelli and Voth, 2017). However, although analysing the same subject from different perspectives, a general consensus exists on the idea of individuals seeking external accountability when they are worse off. Given this *retrospective voting* dynamics, it is not insensible to relate a major economic shock as the 2009 Financial Crisis, which severely disrupted household's economies, to be a relevant and significant event changing the established political paradigm. Nonetheless, this is not a change which has happened overnight. Many scholars, like Dani Rodrik, agree on the view that this political change, and the recent populist rise, comes from farther away and as a response to hyper-globalisation. From whose distributional effects losers and winners have been derived. In front of such situation, the welfare state becomes an agent of stabilisation, which could - if well implemented (Antràs, de Gortari and Itskhoki, 2016) - lessen the negative effects

of shocks by establishing redistributive systems that compensate losers while not imposing a dead-weight to the economy. However, with the financial crisis, many European states – more prominently in the South - have seen their welfare state severely hit by austerity measures imposed on behalf of economic sustainability. This drives the logic to think that, by implementing austerity and lowering the *safety net* that welfare system represents, those more affected by negative economic shocks will seek for new non-mainstream political ideas, as traditional parties will have proven to be unable to work for their situation. It is here, where populist parties emerge as platforms that encapsulates these feelings against the traditional politics way of doing. Populist ideologies have historically proven to be a threat for the stability and the institutionalisation of any political system. For that reason, it one might think that by the implementation of austerity measures, the political stability of a system will be harmed.

However, this logic does not so clearly translate into data, where mixing results have been found regarding the relation between austerity and political instability. Alberto Alesina, probably the most prolific scholar in this issue, has empirically studied the relation with results opposing the above established logic. In Alesina et al. (1998) it was explored how leader turnover and political support varied due to fiscal consolidation measures. The results pointed at voters not punishing governments carrying deficit cuts. Similar investigation was also done in Alesina et al. (2011), using more recent data. In both papers it is suggested that the findings could be the result of reverse causality and selection problems where only strong governments, being aware of their position, implement reforms. Arias and Stasavage (2019), reviewed the same question with a similar strategy, but controlling for the selection problems identified by Alesina et al. (2011). They implemented an instrumental variable estimation (IV) approach to solve reverse causality problems. Their conclusion pointed in the same direction as Alesina et al. (1998) and Alesina et al. (2011). They conclude opening three possibilities which could explain the counter-logical findings: either the voter does not notice austerity, not mind, or is too anchored in political allegiances (Arias and Stasavage, 2019).

Contrarily, there are studies like Voth and Ponticelli (2017), which identified a strong correlation between budget-cuts and political unrest episodes, after empirically testing the correlation in a panel of 25 European countries in the period 1919-2008. Also interesting are the results from Fetzer (2019), who by using both, regional macrodata and

microdata from personal surveys, analyses the raise of UKIP and the vote for Leave in the Brexit referendum given the effect of the main austerity reforms implemented by the government. In these latter studies, the logic established previously linking austerity and political unrest would find empirical support.

Motivation for understanding the reasons that drive political unrest emerge from the recognition of the link between political stability and economic development (Barro, 1991; Alesina, Ozler, Roubini and Swagel, 1996; Alesina and Perotti, 1996). Knowing the reasons and the consequences that austerity can have in society and their relationship with the institutions, is relevant when making decisions about debt and public expenditure. In Alesina and Drazen (1989) are studied the reasons why policy makers postpone necessary reforms and the drawbacks of doing so. In it, the electoral schedule and turnover fear for incumbents, reveal as important factors in the decision to whether undertake important policies. As a policy maker, making decisions driven by potential electoral outcome more than by what is best for society represents a failure of the system. This is further exacerbated with the rise of economic populism, when the victory of easy and short-termed protection policies comes at the cost of long-term stability and development. One might consider instability as a necessary engine for change which allows society to progress. Thus, a certain degree of instability in society might be even desirable. Still, as a society, we should bear in mind the costs that periods of great political instability have had in the past.

This paper aims to empirically prove the effects of austerity on political instability in the case study of Spain in the post-crisis period and it is structured as follows. Section 2 explores what theory says about the dynamics in the supply and demand side of the political system and builds the theoretical framework under which this thesis is found. On Section 3 it is examined empirical results in previous article which explored similar questions as this thesis does. Section 4 discusses strategies used in literature to define the concepts of political instability and austerity and set the strategy followed in this thesis presenting the data to be used. In section 5 different models are proposed and results are analysed in confrontation to the proposed hypothesis. Finally, Section 6 concludes and proposes further research questions.

2 THEORETICAL FRAMEWORK

When approaching the concept of political system, it is not unusual to see economists interpreting it similarly to a market system¹. There is a supply side for political ideas represented by political parties, and a demand side for such ideas represented by voters. Any researcher would recognize the trade-off between simplification and depth, acknowledging its limitations and understanding that there is much more happening behind. But, for the sake of simplicity, and because of the economic perspective of this paper, the interpretation of the political system as a market for political ideas is going to be used, acknowledging in advance the limitations that taking this interpretation have.

2.1 Political system: the supply side

In understanding the supply side of the political system, it is specially enlightening the cleavage theory developed by Lipset and Rokkan (1967), who identify political parties as “*agents of conflict and instruments of integration*” (Lipset and Rokkan, 1967:3) . In few words, political parties are understood to be agents of conflict because they compete against each other in the system and they collide. While at the same time, and as a result of conflict, people with similar political ideas cluster in their opposition against the other groups. So, parties could be understood as creating an ‘*us against them*’ in society. The relevant thing is then to understand what differentiates people in *us* and people in *them*. In this direction Lipset and Rokkan theory states that societies are faced with major events in history that break society in groups and originate cleavage, which create long lasting divisions in society. These cleavages will, depending on the political system structure and design, translate in the appearance of new political parties or, in the acquisition by already existing parties of the cleavage rhetoric. In the original work by Lipset and Rokkan, two revolutions are identified to be the base for major cleavages in society: the industrial revolution, creating the cleavage between capital and labour; and the nation-state revolution, creating territorial cleavages.

¹ This approach can be seen in many political economist papers but remarkable for their relevance with this thesis topic are: “Populism and the economics of globalization” by Rodrik, “Populism: Supply and Demand” by Guiso et. Al. and “Economic Losers and Political Winners: Sweden’s Radical Right” by Dal Bó et al. among many other.

Since the release of the article in 1967, societies have evolved and nowadays, the second part of the political party definition by Lipset and Rokkan -the one claiming political parties as agents of integration- feels less appropriate given the decline of organizations which used to tie voters with parties. However, big part of their theory is still relevant on explaining the supply side of the political system. Hooghe and Marks (2018), re-visit in their article the theories by Lipset and Rokkan in the current European post-crisis context, identifying the appearance of new cleavages due not only to the financial crisis, but also a transnationalism cleavage as a result of the European integration in the last two decades. Additionally, one remarkable conclusion from the article is the study of the new parties' appearance, which they attribute to the inflexibility of existing parties and their lack of re-alignment capacity. These findings are empirically tested making use of the Chapel-Hill Expert Survey (CHES Data), which displays a clear image of traditional parties sticking to a certain position. Even more interestingly, traditional parties - which diverge in several topics among them - appear usually aligned in the response to new appearing cleavages as it is the European integration (Hooghe and Marks, 2018). The inflexibility of traditional parties in conjunction with the usually low barriers of entry of the European political systems, have paved the way to new challenger parties occupying the empty spaces that traditional parties left². It is in these spaces - away from traditional parties - where populist movements can proliferate. This introduces the concept of populism, present in many political circles across Europe, but still a vague concept not well defined. To some degree, there is a consensus among the literature on the main features that describe populist ideologies. As Guiso, Herrera, Morelli and Sonno (2018) argue when defining populism, the concept will always be subject to a certain degree of subjectivity.

2.2 Supply side: populism

The main characteristic of populism generally accepted by the literature like in van Kessel (2015) or Rodrik (2017a) is that populist parties' motto is the positioning against the establishment and the elites, which are said to be acting against the popular interest. This type of discourse, as Rodrik notes, does not fall specifically in one of the two sides of class ideology cleavage. Populism is not something unique of the right nor the left, but

² For instance, in Spain a party with 3% of vote in a given geographical section can have institutional representation. This represents lower barriers compared to a 'winner takes it all' system present in some Anglo-Saxon political systems.

rather both types of populism exist, and can even co-exist in the same political system. Rodrik explores the factors determining the development of populism to be more prone in one side than the other, relating populism with the way that globalisation shocks have been felt in society (Rodrik, 2017b). If globalisation shocks are more recognisable in the form of immigration and ethnic change, the nationalist discourse done by right populists will have more acceptance in society. While if the shocks take the form of supra-national financial institutions setting the rules of the game, the discourse blaming this elite supported by left populists will more likely soak through society. Translating these findings to the European scenario, Rodrik identifies a divergence between the populism surged after the Euro-crisis in countries in the South, where opposition to the Troika and the measures imposed by Brussels made left populism more prone, and Northern and Central Europe, where populism has been more right salient due to perceptible ethnic changes in society caused by immigration. We see how left populist parties emerged in Greece with *Syriza*, Spain with *Podemos* or Italy with *Movimento Cinque Stelle (M5S)*³. While in Central and Northern Europe parties such *Front National* in France, *FPO* in Austria or *Sweden Democrats* - whose rise has been very well pictured in Dal Bó, Finan, Folke, Persson and Rickne (2019) -, have experience and upward trend on the polls. This differences among European regions are also observed in Algan et al. (2017), where not only populist ideology is found to be heterogenous among European regions but also the pattern in which populism correlates to unemployment.

In this literature, a big consensus exists to relate the recent emergence of populist ideas with the distributional effects of globalisation, from which a situation of winners and loser is derived. Maybe the most prolific in this field has been Dani Rodrik and his notion of the globalisation trilemma, which fits especially well in the European context⁴. The process of integrations into which European countries have dived for the last two decades, has been anchored on two of the vertices of the prism: hyper-globalisation, with the

³ Movimento Cinque Stelle might not be explicitly characterised by a leftist discourse but do incorporate the rhetoric against the elites and supra-national institutions that characterised the populism emerged in Southern Europe in contrast to the nativist populism usually found in Northern Europe.

⁴ The three vertices of the prism are said to be hyper-inflation, national sovereignty and mass politics, this last understood as the capacity of states to answer the needs of the population. Rodrik defends that only two vertices are simultaneously possible and that some tension will emanate from leaving the other apart. This tension is usually exploited by populist ideas.

creation of a single market, and national sovereignty, in a situation where states still kept a big share of its power. This equilibrium in the trilemma has been at the cost of losing responsiveness capacity on what Rodrik encapsulates as mass politics or *democracy*. By scaling the economy to a trans-national dimension while preserving power and action to the national level, the capacity of institutions to respond to a massive shock, as it has been the 2009 Financial Crisis, has been limited. This malfunctioning of the Union on its response to a major event, has opened a new cleavage in society hugely exploited by populist movements (UKIP, Cinque Stelle, FN...).

Populist parties usually finely understand the limitations and tensions emerging from the globalisation trilemma, and go upfront rejecting the hyper-globalisation vertex, in favour of more national sovereignty and more capacity of the state to respond. This is seen in their discourse, but by overrepresenting losers of globalisation processes in their ranks (Dal Bo et al., 2019). This contrasts with traditional parties who, by acknowledging the benefits each of the three vertices have, try to do a dishonest balancing act when facing the trilemma. This difference with traditional parties, is perceived by Rodrik (2018) as one of the reasons behind the success of populism. However, just as populist are good at naming the problems, they do not do so well on solving them. Another key element in populist rhetoric is the “*disregard for longer-term on the premise of short-term protection*” (Guiso et al., 2018). This feature is especially significant when understanding the dynamics of its demand, but also depicts one of the main reasons for which the success of populism is undesirable. By concentrating in the short-term and easy policies, long-term might be jeopardized, making sustainability to stay at risk. The best example of such behaviour is the protectionist fever by populist parties who, by taking the largely discredited mercantilist view, forget about the gains from trade. At this point, it is relevant to highlight the findings by Antràs, Gortari and Itskhoki (2016), who examine channels through which distributional effects induced by trading activity can be compensated. In their article, they accept the flaws of the classical Kaldor-Hicks criterion, based on the unrealistic assumption of non-distortionary means of redistribution and develop a taxation model. This model is indeed distortionary. But under the view of inequality as an undesirable externality for society, its distortion is overcome by the gains from redistribution. These findings point at the existence of good policies to reduce the distributional consequences of globalisation, by compensating its losers, without rejecting globalisation itself.

2.3 Political system: the demand side

If understanding the supply side seems quite straight forward – there is a cleavage in society which translates in new parties arising or traditional ones incorporating it -, the demand side of the equation is much more complex. A very interesting approach, which again adapts economic theory into the political system, is the one identifying the situation as an agency problem in the situation (Wolfers, 2002). In such situation, voters are the principals, with incomplete information observing the performance of the agent – the political incumbent –, and they have to make decisions on whether the incumbent is valid or not. This decision is not just subject to the capacity of the politician but also on how information is *disentangled* and how the principal is able to distinguish the incumbent's responsibility on the observed results. When facing the topic of voter's behaviour, the literature has raised two main issues of examination: how informed voters are and how well information is used.

When judging the capacity of officeholders, individuals cannot have precise and complete information. Rather, they only know their own situation and perceive the one of people in their surroundings, evaluating well-being as outcome of government policies. It is easy to see how economic information will definitely be taken into account on the ballots. However, the debate among scholars is on the direction that the evaluation takes, on which indicators do influence voters the most and, accordingly on which indicators will better explain voter's behaviour. There are two directions in which voters can base their decisions: they can look backwards using information from the past *retrospective voting* or, they can base their decisions on what they expect to be happening in the future *prospective voting*. We find empirical research defending each of these two positions. Nadeau and Lewis-Beck (2001), investigate the effect of both retrospective and prospective voting in the US National Elections, finding that it is not one or the other but rather both have a significant effect on the polls. The effect of retrospective voting becomes more relevant when incumbent opts to re-election, while the opposed – and with similar figures - holds when incumbent does not present candidacy. These results seem to follow the logic of voters judging incumbent on past economic matters, but conceding the benefit of the doubt to new candidates even when sharing the same political party.

Again, Lipset (1959) becomes a reference to understand the sociological dynamics behind the above defined logic. Lipset defines and explores the concepts of *efficiency*, *effectiveness* and *legitimacy*, as necessary characteristics for the stability of a system. The efficiency of a system refers to well-functioning of it, whereas the effectiveness has to do with the capacity of the system to reach all strata and the ability to fulfil expectations. The legitimacy has to do with the capacity of the system to maintain the idea that it is the most proper for society. It is clear that a malfunctioning system or a system that does not fulfil expectations for a long enough period, will lack of legitimacy by society and this will translate into instability. Huntington (1968) identifies legitimacy as the primary problem for political power formation and that legitimate institutions – or *level of institutionalisation* as Huntington puts it- are necessary in order to avoid a state lagging its development on society's evolution. For Huntington a system needs adaptability, to overcome changes and readapt over time; complexity, to have the ability of readapting; autonomy, as to be isolated from non-political shocks; and coherence. Dani Rodrik (2014), who in the same terms, explains the situation in advanced countries. He identifies governments losing legitimacy due to "*its inability to deliver effective economic policies for growth and inclusion*" (Rodrik, 2014). The source of such inability is, under Rodrik's view, the asymmetric process of globalisation and power, and the fitting of nation-states in the new paradigm. The situation portrayed by Rodrik is the one of an effectiveness crisis, as the new paradigm does indeed entail efficiency, but fails when making this efficiency inclusive by redistributive mechanisms.

With respect to the question on how voters use observed information, the literature has explored it under the concept of *voter rationality*. Usually two profiles of voters are identified: rational voters and naïve ones. What distinguishes a rational voter from a naïve one is its capacity to understand the observed information and rightly assign responsibilities. A good definition of this is found in Alesina, Roubini and Cohen (1997): "*a naïve voter would punish an unlucky incumbent, whereas a rational voter would, at least in part, take bad luck into consideration*". Achen and Bartels (2006) does a very nice review on different historical events which fell far from the scope of officeholders - such shark attacks, droughts and flu - which had political backlash. More recent studies such Wolfers (2002), do identify similar pattern in modern times which would have to

question the rationality of voters⁵. However, it could also be the case where, in front of an exogenous shock, new information about the incumbent's capacity is revealed. In such scenario, we would expect from a rational voter to take this new information into consideration (Ashworth, Bueno and Friedenber, 2017). As one can see, the line between both types of voters is not so clear-cut defining rationality by the capacity of voters to distinguish endogenous from exogenous shocks. An exogenous shock by itself will not reveal new information about the incumbent, but its management, will definitely reveal new information. In conclusion, Wolfers (2002) does acknowledge the unfeasibility to expect a fully rational profile of voter. Still, he accepts that the rational profile is much more realistic than the naïve one, where voters can be easily fooled by expenditure booms on electoral period. For that reason, voters are assumed by Wolfers to behave in a quasi-rational manner, in which systematic attribution of errors is done by voters.

Given the theoretical framework it is expected that austerity measures will have a negative effect on the stability of the political system, as by imposing restrictions on state's redistributive tools, their effect will be reduced, and the effectiveness of the system will resent. Also, austerity lowers the safety net that the welfare state represents for society and which is expected to be safeguarded by the political system. Economic conditions are also expected to play an important role on the stability of the system, as retrospective voting is predicted to be more significant than prospective voting. Following these hypotheses, the observed rise of populist parties would be the result of voters seeking for alternatives to traditional parties, or in other words, that the political system is losing legitimacy due to both poor economic situation and austerity measures.

⁵ Wolfers (2002) identifies how in US states where oil-production is an important industry, usually the electoral outcome at local level depends on the price of oil, which clearly is out of the local incumbent.

3 STATE OF EVIDENCE

When translating the discussion about the political cost of austerity measures into empirical evidence, we find a mixture of results. In the literature, two waves have been seen explicitly investigating the relationship between these two variables. A first wave of articles appeared in the 90's, motivated by the Maastricht-mandate. This first wave developed the already existing voter behaviour literature of the 80's to focus on the effects of fiscal policy. More recently it has been overcome by a major second wave of research in the post-crisis years, when austerity measures have concentrated the attention of political economics.

From the first wave of research, probably the most relevant is Alesina et al. (1998) analysis of the effects of fiscal adjustments, and, specifically, on establishing causality between fiscal consolidation and political costs. They used a panel of 19 OECD countries, all of them culturally Western countries with the exception of Japan, in the period 1960-1995. On paper, they identify several means by which welfare cuts may entail a political cost for the incumbent. Welfare cuts are perceived to be more permanent and to be increasing post-tax inequality (Alesina et al. 1998: 212). They proceed by probit regressing ideological change and prime minister change after an election - capture both by dummy variables - against variables capturing deficit reductions. In order to avoid identified problems with the deficit variable, researchers use three different variables accounting for it: deficit reduction as a percentage GDP, deficit reduction cyclically corrected and averaged deficit reduction in the overall term. None of these variable draw significant results affecting the probability of ideological neither prime minister change. In the model, they also include control variables as incumbent's tenure, cabinet's structure or economic indicators. The control variables for government structure show significance and present the expected signs. On economic indicators, the only significant is inflation while GDP evolution and unemployment show expected sign but no significance. Aware of the possibility of the lag between policy and elections disturbing the results, researchers use similar strategy but using incumbent's popularity estimates as dependant variable. This variable is a quicker, but less official, source for *testing the waters* of political costs. Still by changing the dependant variable, none of the deficit reduction variables reveal to have a significant effect. The article concludes with two possible explanations for the result: either the average voter is fiscally responsible and understands fiscal consolidation

as a need for sustainability of the system, or there exists a selection problem where only strong governments, aware of the political cost of austerity, implement needed fiscal consolidations.

On the second wave of literature, Alesina retakes the analysis of fiscal adjustments concentrating this time on political consequences. In Alesina, Carloni and Lecce (2011) the relation between deficit adjustments and ideological turnover is analysed using a panel with the same 19 OCDE countries as in Alesina et al. (1998). The time series spans for 33 years (1975-2008), which still excludes data from the post-crisis period. They used the same variables as in the preceding article and added a dummy allowing to differentiate big fiscal adjustment – those exceeding 1.5% GDP deficit changes – in order to distinguish conscious fiscal policy from cyclical disturbance. They also incorporated two variables accounting for the structure of the policy, distinguishing tax-based and expenditure-based policies. The results are similar to those previously found in Alesina, et al. (1998) with deficit changes being insignificant irrespective of the variable used. In the Alesina et al. (2011) the hypothesis of reverse causality taking place is further analysed. Finding coalition governments being slightly less propense to implement fiscal adjustments than governments with majority, which are assumed to be stronger governments. This would indicate at the strength of the government not greatly affecting the decision to whether implement or not tight fiscal policy. Yet, researchers appoint that these findings must be cautiously taken because of the measure not being capturing what a strong government is. This paper also reviews specific historical case studies of expenditure-based deficit adjustment in order to test found empirical results in reality. Cases as Finland 1993-1998, where government lost support after implementing fiscal consolidation but still got re-elected; Canada 1993-1997, where voters seem to acknowledge fiscal consolidation as time goes by; and UK 1994-1999, where incumbent was not re-elected after thigh fiscal policy (Alesina et al. 2011: 11).

More recently Arias and Stasavage (2019) revisit the relation between political turnover and fiscal adjustments using a panel with a much broader time series (1870-2011) and also a broader sample with 32 middle- and high-income countries from Europe and America. Unlike Alesina et al. (1998) and Alesina et al. (2011), Arias and Stasavage focus on government expenditure growth rather than on deficit adjustments. Also, as the sample is bigger, they can distinguish political turnover between regular turnover, caused

by democratic means, and irregular turnover, due to coups d'état. They regress separately regular and irregular political turnover depending on expenditure growth, measured by either real expenditure growth or expenditure as a percentage of GDP. First, the regression is done using simple OLS with time and country fixed effects. The results fail to be significant even when controlling for other economic indicators, no matter which expenditure growth variable is used. Being aware of potential reverse causality problem where only strong governments, more confident of re-election, implementing expenditure cuts, Arias and Stasavage consider decide also to implement IV estimation and 2SLS regression. They use trading partners economic situation and international cost of capital as instruments for changes in public expenditure. These are exogenous variables which prove to be strong instruments, which allow to discard reverse causality when used, as they exceed incumbent's influence. By using this strategy, voter, - or at least the sufficient fraction of voters needed for turnover - is assumed to be *naïve* in case of significance, as they would be punishing incumbent for reasons that exceeds her or his capacity. Still by using IV estimation, the results in Arias and Stasavage (2019) keep drawing no significant relation between public expenditure changes and either regular or irregular political turnover.

Given these results, the logic of fiscal contraction being punished at the pools, loses some ground. It was Alesina who, in a debate after a lecture related to his 2011 article⁶, admitted having tortured the data as much as he could in order to proof logic right, but that no correlation was found. However, there are multiple cases in literature where the relation has been proven significant. It is true that dependent variables used in this literature to account for political instability, differ from the one used by the prior. This difference in measuring political instability could be explaining the disparity in the results. This is further discussed in Section 4, where a review on the variables used in literature is done analysing the strengths and weaknesses of each strategy.

Remarkable in the group of articles which find relation between fiscal policy and political outcome, is Fetzer (2019). The article analyses not government turnover, but the rise of

⁶ "Fiscal policy after the Great Recession" Barcelona GSE XXI Lecture presented by Prof. Alberto Alesina. May 2011.

populist ideas in the British political system, captured by the rise of *Leave* support in the Brexit referendum and the rise of UKIP party in the different elections. Fetzer uses two different approaches to the issue with two different sets of data. The first set involves aggregate data for 570 harmonized constituencies in the UK in the period 2000-2016. The panel is balanced and involves two main variables. The first is the vote share for UKIP party in the different elections which have taken place in the period. This variable is used as a way of measuring the support for *Leave* and also is a measure of how populism grows. The other main set of variables captures the different austerity reforms implemented. This data is taken from Beatty and Fothergill (2013), where the effect of the main fiscal reforms that British government undertook are quantified on a regional base. The estimation by Beatty and Fothergill (2013) involves dividing budget cut by the government that each reform produced. This total amount is divided by the total number of claimers or affected individuals, and then reallocated regionally by depending on the number of claimers that each region concentrates. With this data, Fetzer (2019) does a difference-in-difference regression, whose results establish a significant relation between all austerity reforms and the growth of political support for UKIP. The different reforms are analysed separately, finding reforms as child benefit less relevant than others such tax credit. This is justified by Fetzer on the ground of child-benefit affecting relatively well-off households, while tax credit reforms affected almost exclusively low-income ones (Fetzer, 2019: 18). The second set of data involves microdata collected by surveys undertaken since 2009 by the Understanding Society study. The approach with this data is similar to the aggregate one but allows for greater monitorization of individuals and data. The results of the difference-in-differences regression still display significant effect of the different austerity reforms on the probability of voting for UKIP. These results are robust after using different controls variables for time, region and survey wave fixed effects.

Another paper finding a significant relation between budget cuts and instability is Ponticelli and Voth (2018). This paper includes a broad panel dataset ranging from 1919 to 2008 and 25 European countries. This broad series allow to observe diverse episode of social unrest manifested with riots and demonstrations. These are not recurrent event but rather, periods with social instability, eventually occur. For that reason, considering a dataset which takes into account wide time series is an important asset for the study in order to observe diversity. Ponticelli and Voth, take a different interpretation from what

political instability is meant. All the previously mentioned articles were understanding political instability from an *executive view*, where instability is understood as not observing major disruptions in the functioning of the institutions. Ponticelli and Voth study is rather capturing *social unrest* perspective, where instability is understood to occur when there is social mobilization to protest against incumbent's policies. With that purpose, they create the CHAOS index to measure degree of social unrest, capturing information regarding general strikes, massive demonstrations and political assassinations, among other variables, taking place. This is regressed on the evolution of primary public expenditures as a percentage of GDP and including control variables for different subsets of data, in order to discard economic downturn noise. Relevant findings are that while expenditure cuts have a major impact on fuelling protest, tax increases do not seem to do so. These results could add a new dimension to Alesina and Ardagna (2009), where expenditure cuts are found to be more efficient and less economically disturbing and, consequently, more desirable when aiming fiscal consolidation.

Finally, for the purpose of this thesis Algan et al. (2017) deserves special mention. Although the study does not share the objective of study with this thesis – in the case of Algan et al. (2017) it was the raise of non-mainstream ideologies support explained by economic effects of recession mainly in the form of unemployment-, it shares context with this thesis and the intention of detangling the reasons for populist and instability rise. In their research, a structural change in the vote for populist parties between the period pre and post-crisis is detected. The study finds a relation between the unemployment and non-mainstream voting which significantly holds at a regional disaggregation at NUTS2 and NUTS3 level. However, this relation establishes differently depending on the European region. In the South it is seen how higher unemployment share correlates with more extreme left voting -Podemos in Spain and SYRIZA in Greece - while in transitioning countries - like the cases of Hungary or Poland -, and Central-Northern Europe, it is far-right parties which succeed. They establish an interconnection between economic discontent, trust in institutions and populist voting, which suggests that accountability voting has existed in the period. Furthermore, the *losers* from unemployment could be also the *losers* from austerity, it can be expected to see similar relation when using austerity measures instead of unemployment.

4 DATA

It is the aim of this thesis to analyse if austerity reforms implemented in Spain have had an effect on political stability. A major challenge is faced when putting these two concepts – political instability and austerity – into quantifiable variables. Also, as it has been identified in the previous section, the selection of variables could be the reason behind the disparity of empirical results in literature. With that in mind, this section is devoted to deeper analyse the different strategies followed in literature when defining and quantifying the concepts, and to develop the strategy which is going to be followed in this thesis when quantifying both concepts: political instability and austerity.

4.1 Measuring political instability

Political instability is a highly abstract concept which is difficult to quantify and measure. Finding a variable that measures it properly, is complex and the approach will highly depend on the objectives set by the study. When speaking about political instability, literature usually refers to either executive instability or social unrest. The latter is, as seen in Section 3, the approach of Ponticelli and Voth (2017). But under the assumption that democracy is finely established, one might expect social unrest always translating into the polls. For this reason, and although it is true that relevant social unrest events have happened on the analysed period, this thesis will base the view of political instability understanding it as executive instability. As it is assumed that by using this approach, rather than using social unrest, the study will be indirectly capturing the changes on both dimensions.

When approaching the concept from the perspective of executive instability, scholars have mainly used two different strategies: use leader turnover - as in Arias and Stasavage (2016) and Alesina et al. (2011) –, or the use voting results and derivates from it - as in Fetzer (2019), Algan et al. (2017) or Chiaramonte and Emmanuele (2017). Although both strategies take information from the same event – elections – they capture it differently. The former only take information about incumbent while the latter takes a broader picture, which could relate not that much with the stability of the incumbent but the stability of the political system.

The use of leader turnover as an indicator of political instability, is justified under the assumption that when there is a high rate of leader turnover there is, for sure, political

instability. However, this variable might be too limited when small series are used in a framework where democracy is established, as there might exist rigidities in the system that allow for instability not well translating into turnover. Having high turnover rate can indicate political instability, but not having high turnover rate is inconclusive. Arias and Stasavage (2019) acknowledge this flaw of using political turnover to measure instability, pointing that it could be the case in which voters opt for non-mainstream minor parties, but without the sufficient strength to displace the government. These events, if happening, would not be recorded by the measure of leader turnover while they could be very relevant in terms of stability of the political system. A clear example of asymmetry between the measure and what it is trying to capture is seen in the period 2011-2019. In this period, for example, leader turnover in Spain is equal to zero as Mariano Rajoy was in office for the full period. However, in this same period the governing party went from controlling 52% of the seats in parliament and governing in absolute majority into controlling just 40% of the seats and needing from third parties support. Also, in this period, an electoral repetition happened for the first time in Spanish democracy and there were 316 days with an acting government. This asymmetry, between the measure and actual political instability, suggest that political turnover could be a misguided strategy to follow if one is trying to see structural changes of the system.

On the other hand, the usage of actual electoral results has as a benefit, that information captures a broader set of events happening in the political system, as it does not restrict to the specific and categorical event of political turnover. However, the big issue with electoral data is how to summarize all the information that it entails into a single measure which is manageable in a model. Literature usually focus on the evolution of specific agents in the political system as in Wolfers (2002), where the variable used is incumbent electoral share change, or in Algan et al. (2017), where the variable used is the electoral share of populist and non-mainstream parties. The former could seem similar to using political turnover, but it does supply the model with much more information regarding how incumbent has lost or earned support in the period. Using political turnover, this information is only captured when it takes extreme values. Also, by using voting share, the lost or earned support is quantified. The latter - putting the spotlight on other categories such populist ideology (Algan et al., 2017) or specific parties (Dal Bó et al., 2019) voting share – allows to analyse the reasons behind the success or failure of the agent in question. These different approaches are useful when focusing the study on the

reasons for the success of a specific party or specific set of ideas. And although the rise of certain ideas such as extremist -either left or right- or more importantly populist, have an impact on political instability, these measures are not seizing the full political system changes.

Pedersen (1979) presented the electoral volatility index (TV), using electoral data. This index captures net electoral changes between elections of all agents in the political system. It is computed by adding all changes in parties electoral share in absolute values and then dividing by two to obtain an index that ranges from 0 to 1. Expression (1) shows the formula to compute TV, where s stands for electoral share of party i at election t and I is the set of parties participating on either election t or $t-1$.

$$(1) \quad TV = \sum_{i=1}^I \frac{|s_{i,t} - s_{i,t-1}|}{2}$$

It is easy to see how a value of the index of 0 represents a fully static image where no electoral share changed for any of the parties in the system ($s_{i,t} - s_{i,t-1} = 0$ for all $i \in I$), whereas a value 1 represents all incumbent parties in the system lost their votes in favour to parties outside of it. This index is very intuitive and operable while capturing changes happening in the political system as a whole, but at the cost of simplifying the concept too much, as changes in voting share might be just the result of alternance in the system. Bartolini and Mair (1990) present a modified version of TV, which allow to disaggregate TV in three in three figures: volatility due to entering or exiting parties (RegV), volatility due to changes in already established parties (AltV) and volatility due to changes in minor parties (OthV)⁷.

$$(2) \quad TV = AltV + RegV + OthV$$

Note how, as Expression (2) states, AltV, RegV and OthV, are only the result of splitting TV in the three groups. By implementing this disaggregation of TV, the reason for the

⁷ On Bartolini and Mair, a party is considered to be entering the party system when going from less than 1% of the electoral share to having more than that. The opposite stands for exiting parties. Established parties are those which have more than 1% of electoral share in both elections. While parties with less than 1% of the voting share in both elections are considered minor parties.

index's value can be better traced. If a major share of TV is due to AltV, one might consider this normal under a democratic bipartisan system where alternance in power takes place. However, if it is RegV which represents a major share of TV, this would imply new parties entering into the system. As theoretical framework evidences, the event of new parties entering the political system and voters seeking for alternatives outside the political system, indicates the appearance of new cleavages, and instability till this cleavage is assumed by the system. In this direction, Chiaramonte and Emanuele (2017), propose the Political System Institutionalisation index (PSI). This index is based on what they identify as necessary conditions for institutionalisation of the political system: stability, predictability and the consistency of the previous two. PSI takes TV as a measure of stability, RegV as a measure of predictability and weights the same result for the previous three elections held, they compute the index as Expression (3) presents.

$$(3) \quad PSI = 1 - \frac{\sum_{n=0}^T k_{t-n} \times \frac{(TV_{t-n} + RegV_{t-n})}{2}}{\sum_{t=0}^T k_{t-n}}$$

Where $T=2$ and k_t is the weight each election is given and is computed as Expression (4) shows.

$$(4) \quad k_{t-n} = \frac{3}{6} - \frac{1}{6} \left(\frac{n \text{ in month}}{Term} \right)$$

Where *Term* is the theoretical months to elapse between elections – which, in the case of Spain, would be 48 months. In an ideal scenario where the three elections are equally space in time by the theoretical months, the weight for the election in $n=0$ would be $3/6$, the election in $n=1$ would be $2/6$ and the last election at $n=2$ would be $1/6$. While if all elections are held in a short space of time, all results would be similarly weight.

PSI is an index ranging from 0 to 1, where 1 represents no electoral volatility in the last three elections, a scenario that, although unfeasible, would represent fully stable political system. The index is endowed of *memory*, meaning that the variable becomes not just a picture of the moment but portrays a trend in the period. This is understood to be important for the measure, as one might think that political stability is not something happening overnight but rather a process which develops with time. Also, by giving more importance to RegV – accounted both in TV and RegV -, PSI is giving more importance

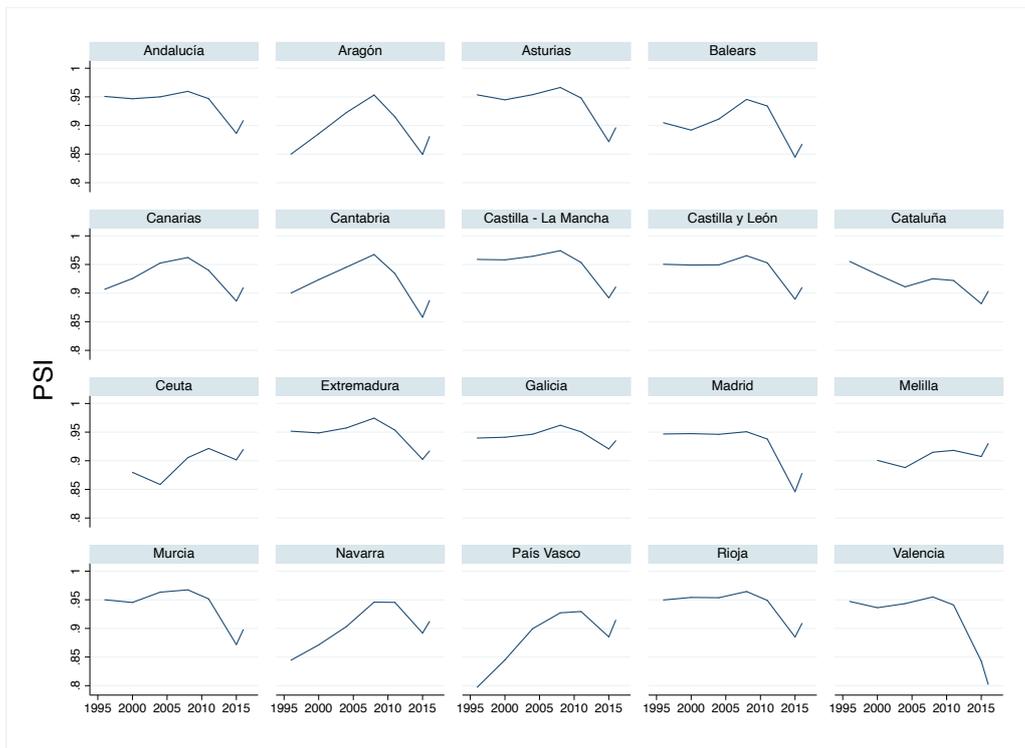
to what Marks and Hooghe (2018) identified to be traditional parties being unable to re-adapt their positions in front of new cleavages. So, adaptability of the political system, identified by Huntington (1968) as key characteristic for institutionalisation of the system and thus stability of the system, would be well captured in the proposed index. For these two reasons this index is understood to be suiting the intentions of the thesis of not just capturing eventual episodes of instability but rather periods of instability.

The methodology of the PSI index is going to be applied to the electoral results for general elections 1996-2016⁸ disaggregated by Spanish NUTS2 regions⁹. By doing so, each NUTS2 region will have a different PSI which will be used as the dependant variable in the model. When computing PSI by NUTS2 in Spain, results are similar to the ones found for Spain at Chiaramonte and Emanuele (2017), who computed PSI for several European countries in the period 1945-2015. In Figure 1, it can be seen how since 1995 till 2009, a positive trend is observed for the majority of regions, meaning an increment in the institutionalisation and increasing political stability in the period. This trend peaks at around 0.95 – similar figures as in Chiaramonte and Emanuele (2017) – for a majority of the regions. And then since 2009 the tendency is broken in a steeper or softer manner depending on the region. Exceptional are the observations for year 2016, as for almost all regions this year PSI grows. The reason for these unexpected results is the effect of the electoral repetition that took place in that year, where electoral volatility between the two immediate elections was low. Although, PSI index do incorporate the three last elections and weight them according to their temporal distance, the most recent election always has a major weight in the index. For that reason, observations of 2016 are found misleading and are dropped from the sample.

⁸ As PSI require two passed elections electoral data used ranges from 1993-2016. The first observations of PSI is computed with just two elections instead of three, in order to be able to include one observation more into the sample.

⁹ NUTS2 regions are the second level of Territorial Units for Statistics in Eurostat, these regions coincide in the case of Spain with Comunidades Autónomas.

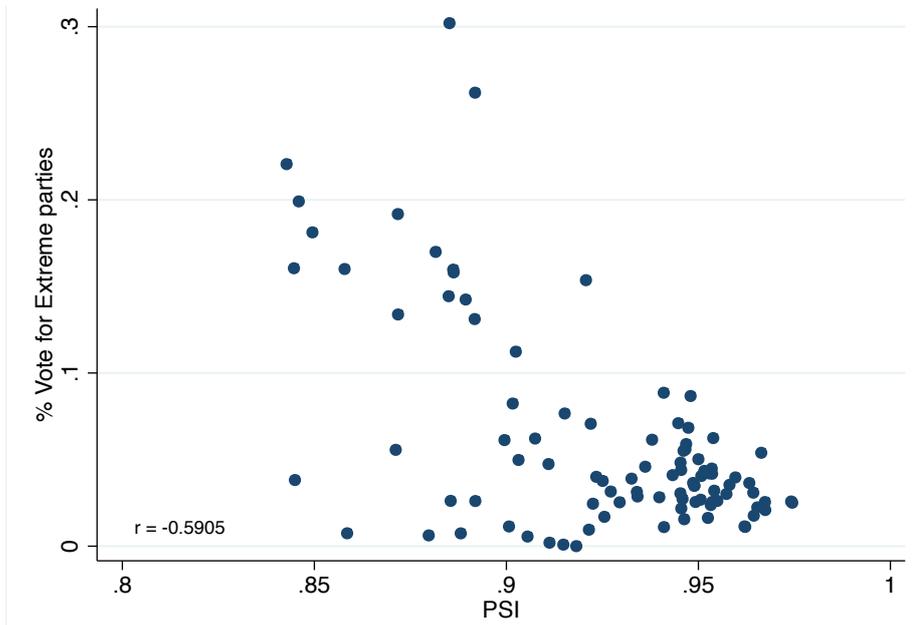
Fig 1. PSI evolution 1996-2016 in Spain, by NUTS2 region.



1. Source: Author's calculations using General Elections data 1993-2016 by provinces extracted from Ministerio de Interior. www.infoelectoral.mir.es

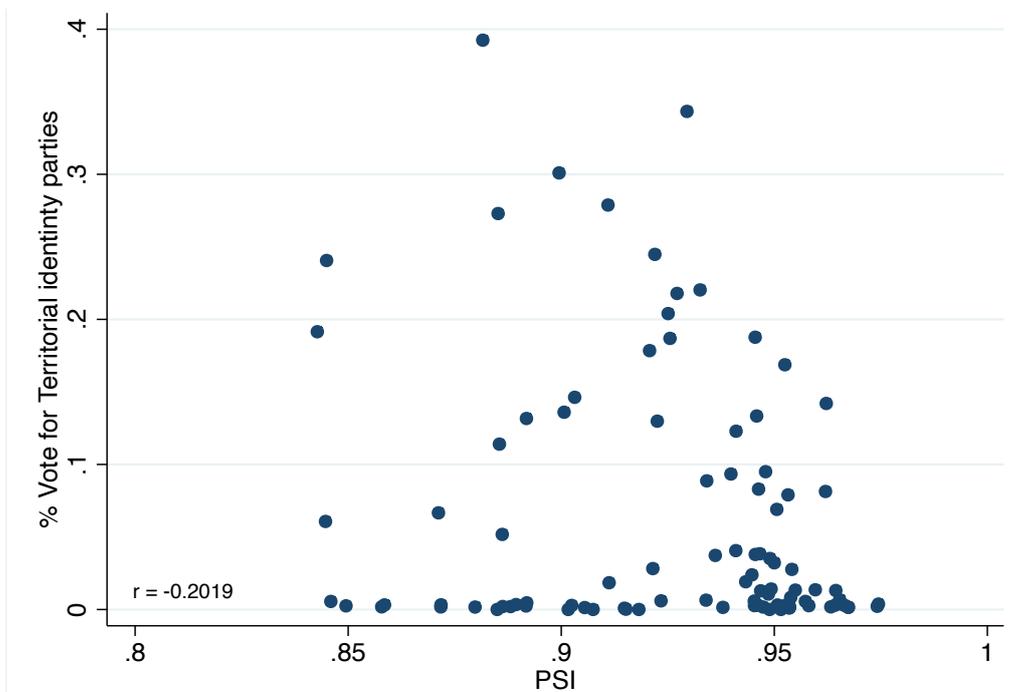
The results display also an accurate to reality scenario with diminishing stability after recession. It is also relevant, as seen in Figure 2, the negative correlation between extreme parties' electoral share and PSI. Correlation between the variables is -0.59 , which is something pointing at decreasing PSI as extreme ideologies support grow. However, given the short series used, only the entrance of one major extreme party is captured - Podemos in 2015. It would be interesting to enlarge the sample to consider the entrance of other extreme parties entering the system – VOX in 2019. Also, a weaker negative correlation is seen in Figure 3 between PSI and the voting share for parties with a territorial identity – either nationalist or regionalist. It would be interesting to analyse this relation in a deeper way and with more data available in future studies. As the national identity cleavage is becoming more relevant in the political system is not just a phenomenon taking place in Spain, but also in other countries – UK with Scotland, Italy with Veneto...

Fig 2. Scatter PSI and log of extreme parties' electoral share.



2. Source: Author's calculations using General Elections data 1993-2016 by provinces extracted from Ministerio de Interior. www.infoelectoral.mir.es

Fig 3. Scatter PSI and parties with territorial identity electoral share.



3. Source: Author's calculations using General Elections data 1993-2016 by provinces extracted from Ministerio de Interior. www.infoelectoral.mir.es

4.2 Measuring austerity

Finding an operational measure of austerity for empirical purpose is also challenging. Austerity refers to a fiscal policy which pursues consolidation by undertaking budget cuts as the main instrument. Accordingly, it is clear that any variable measuring austerity, will have to come from public expenditure figures.

Literature has used as measures for fiscal policy different strategies. Alesina et al. (2011) - who analyse political consequences of fiscal adjustments - propose taking into account only big (>1.5% of GDP) reductions of public deficit in order to distinguish conscious adjustments from cyclical effects. This strategy involves dropping several data points which in a short sample as the one studied in this thesis would imply a huge sacrifice. Also, taking this measure would mean to understand austerity as the result of both expenditure cuts and revenue increases through higher taxation levels. Generally, when referring to austerity, it is meant reductions on the expenditure side via reduction of services provided by the state. Centring the variable accounting for austerity on deficit figures, would mean deviating from the concept.

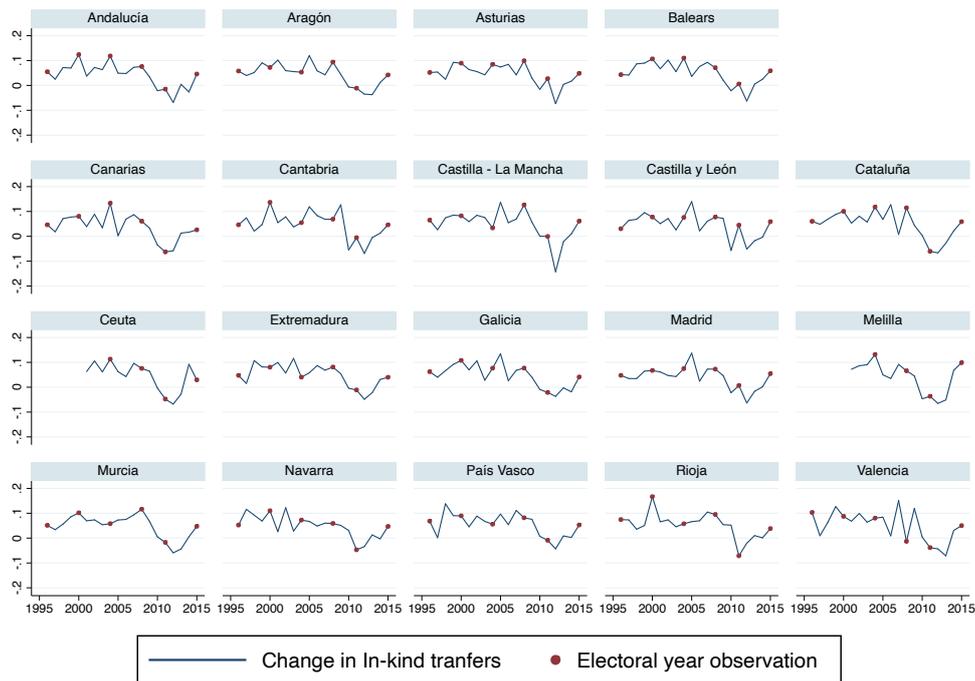
Arias and Stasavage (2019) reach similar conclusions as Alesina et al. (2011), but they concentrate only on the expenditure side, portraying this way a better picture of what we could understand by austerity. They opt to use separately real public expenditure growth and public expenditure share on GDP, reaching similar results. However, using public expenditure as a share of GDP make the measure to depend not only on the fiscal policy implemented but also on the economic situation. For that reason, and although this measure is widely used in literature, this thesis is not going to use this as a measurement of austerity. The former variable – real public expenditure growth – seems appropriate for the objectives of the thesis – analyse at a regional level in Spain in the period 1996-2016 the relation between the austerity measures and political instability. However, no data have been found disaggregated at NUTS2 level. For that reason, this measure is not going to be used in the analysis. Also, as commented in Section 3, Arias and Stesavage (2019), estimates the model by using IV estimations in order to address mutual causality between dependent and independent variables. This issue, however, does not seem relevant for the period and the context in which this thesis is centred, as austerity have not been an option for incumbents but an obligation by the European Commission.

Notable, but unfeasible for this thesis, is the measure used by Fetzer (2019) and developed by Beatty and Fothergill (2013) to identify and quantify austerity. It is unfeasible not just because translating the same methodology to the Spanish context, becomes messy - as a big part of austerity was done by freezing civil servant wages or by only replacing exiting servants on a 10% rate, cuts whose effects are difficult to allocate. But also, because involving in a process of estimating the effects would require an amount of time and tools not available.

From all data searched the one that is going to be used, because it finely disaggregates information by NUTS2 regions is Spanish Regional Accounts 2000-2017, more specifically the Households Rents Accounts. In these accounts two main variables regarding public expenditure are found: social benefits in cash, which are benefits under social protection schemes, and in-kind transfers, which are estimations done by Instituto Nacional de Estadística (INE) regarding the economic value of the services offered by public institutions. These two measures are appropriate for the purpose of analysing the effect of austerity on political instability, as they capture cuts of public expenditure and more specifically expenditure cuts on social protection and welfare system. In order to enlarge the sample data from the previous series - Spanish Regional Accounts 1995 - is incorporated. All data in the accounts is published in aggregate terms. This are deflated by the population in order to have per capita measures which do not depend on demographic effects.

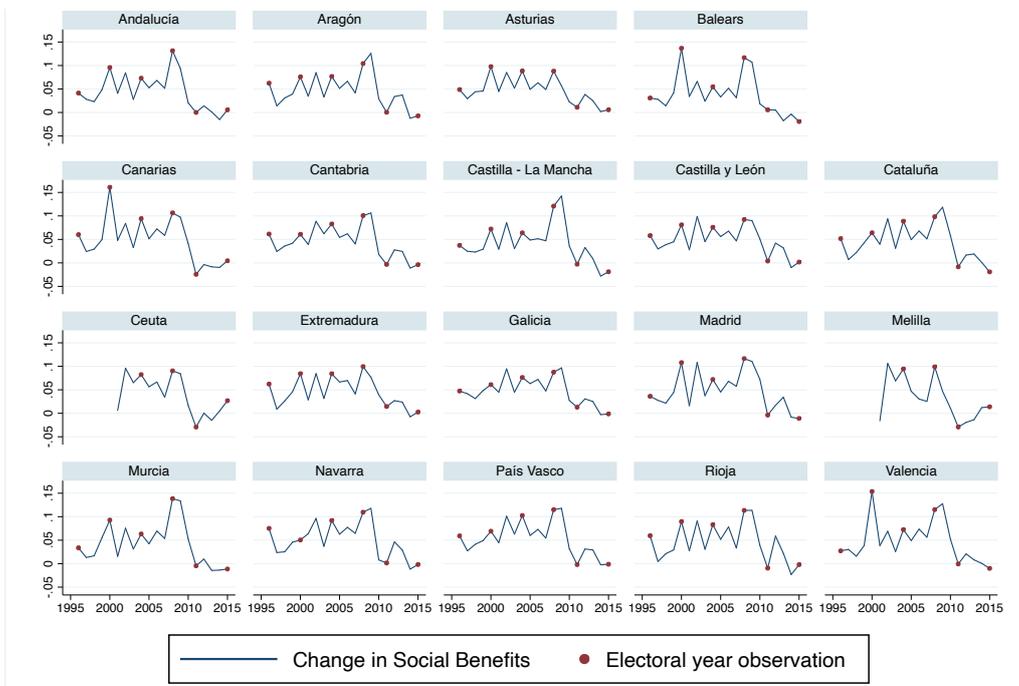
Finally, when observing in Figure 4 and Figure 5, the evolution of both, social benefits and in-kind transfers, many positive peaks which break the negative trend followed by a year where the trend re-establishes, are observed. These peaks usually coincide with an electoral year, what reinforces the idea of incumbent governments trying to gain support by executing expenditure booms. This is deeply discussed in voter rationality literature and specifically in Wolfers (2002). In order to distinguish the effect of the electoral year expenditure and the effect of cumulated fiscal policy, it is proposed to use not the observable change in the year of the election but the average change since last election, which would be seizing the whole fiscal policy implemented by the incumbent. It would be interesting in order to check for voter rationality, which figure is more relevant if the averaged change of the measures during the term, which would mean having voters who can rationally evaluate all the policy of incumbent, or the immediate change to the election, in which case voters would be acting in a more naïve manner.

Fig 4. Evolution of in-kind transfers by NUTS2 (1995-2015)



4. Source: Author's elaboration, using data regarding Change in In-kind transfers taken from Spanish Regional Accounts, INE.

Fig 5. Evolution of Social Benefits in Spain by NUTS2 (1995-2015)



5. Source: Author's elaboration, using data regarding In-kind transfers taken from Spanish Regional Accounts Households' rents, INE

5 MODELS

In this section it is going to be presented the empirical strategy to analyse the effect of social protection rents on political stability, which is captured using the PSI index proposed by Chiaramonte and Emanuele (2017). The data that is going to be used involves a strongly balanced panel with the 19 NUTS2 Spanish regions and with a series spanning from 1996-2015. The data regarding PSI have been computed according to the original methodology expose in the previous section using general elections results¹⁰. Information regarding social protection rents, is taken from Spanish Regional Accounts Households' rents. All regions have observations for the full period except for Ceuta and Melilla, which data prior 2000 was aggregately published.

Expression (5) collects what would be the most basic model. Regressing PSI on the immediate observed changes in social benefits per capita and in-kind transfers per capita. When estimating this model, it is expected to find both β_1 and β_2 holding positive signs, as that would mean PSI and the regressors moving in the same direction. So, when more welfare state is implemented more institutionalised the political system is, and vice versa. Note that all models are estimated using robust standard errors estimations clustered by regions in order to avoid heteroskedasticity or autocorrelation problems affecting the standard error estimates and leading to potential Type I errors when doing significance tests for the coefficients.

$$(5) \quad PSI_{i,t} = \beta_0 + \beta_1 (\Delta In\ kind\ trans_{i,t}) + \beta_2 (\Delta Social\ ben_{i,t}) + \alpha_i + \varepsilon_{i,t}$$

The model is estimated using both random effects (5a) and fixed effects. The former estimator assumes covariance between α_i and the other regressors, to be 0. If this assumption holds, random effects estimator is consistent and more efficient than estimating by fixed effects or pooled OLS, and thus it is a more desirable estimator to use. However, if the assumption does not hold, the estimator is inconsistent, which makes using the estimator a wrong choice. The Hausman test between the estimating the model via fixed effects (FE) or random effects (RE), shows differences between the estimations

¹⁰ General Elections included in the sample are: 1996, 2000, 2004, 2008, 2011 and 2015, except for Ceuta and Melilla, for which 1996 observation is not included as no economic data of the period is available.

not significant at a 10% level¹¹. This result point at both, RE and FE, being a consistent estimator for the model. However, RE is preferable as it is a more efficient estimator. In Table 1 results for (5a) are displayed as well as the model estimated with fixed effects and robust standard errors (5b), for which the test for joint significance show significance, at a 1% level. The results between the two estimations are similar - as the Hausman statistic result advanced. In both cases, results show both regressors to be significant at a 1% confidence level. The sign of β_2 is positive, meaning that both, PSI and Social Benefits changes, move in the same direction. When there is an increment of 1% in Social Benefits, it is expected to have a 0.55 increase in the PSI. Less intuitive seems the estimator for β_1 , which holds a negative and significative sign. The reason for such result may be due to expenditure booms on electoral years disturbing the interpretation of β_1 .

Estimates (5c) and (5d), estimate the model as (5a) and (5b) respectively, but including similar control variables to the ones used by Arias and Stesavage (2019). These control variables are included in order to control for economic situation and involve changes in GDP per capita of the region and the *GDP per capita (Ln)*. The former is expected to hold a positive sign, meaning that when economy grow, the system is more stable. The latter - *GDP per capita (Ln)* – is expected to be insignificant or to hold a small value, as variance of the variable occur more between regions than within, and it's effect will be majorly captured with per regions fixed or random effects. It is also added a control for economic cycle during the government's term. Expression (6), shows the way this measure is computes, being T the years elapsed between elections. This variable, as in the case of changes in GDP per capita, is expected to hold a significant positive value indicating PSI moving in the same direction as the variable. All data concerning GDP per capita is taken from the Spanish Regional Accounts published by INE.

$$(6) \quad \Delta GDP \text{ per capita}_{i,t} = \frac{1}{T} \sum_{n=0}^T \Delta GDP \text{ per capita}_{i,t-n}$$

When including the control variables for the economic situation, the significance of the social protection measures – changes in social benefits per capita and changes in in-kind transfers per capita – drop in both cases, but more drastically in the case of β_2 . Both

¹¹ Hausman Test results can be found in Annex 2.

estimates maintain the sign as in (5a) and (5b), but their values are much closer to 0 and, in the case of changes in social benefits, the result becomes non-significant. The estimates for the control variables, point out expected results except for $\Delta GDP \text{ per capita}$, which has a negative and significant associated coefficient. However, when averaging the changes occurred during the term, the value is positive. This might lead one to think, that voters are behaving rationally, and, when they are called to the polls, they make a retrospective analysis for the full term and not just for the last year change. Results from the Hausman test, reject RE being a consistent estimator at a 5% level. Still, interpretation of (5c) and (5d), being the former inconsistent and the latter consistent, do not drastically change. Except for $GDP \text{ per capita (Ln)}$, whose coefficient is, as expected, not significant.

Table 1. Regressions estimates: PSI Index and Immediate change on Social protection rents.

Variable	(5a)	(5b)	(5c)	(5d)
$\Delta In \text{ kind trans}$	-0.399 *** (0.058)	-0.425 *** (0.064)	-0.176 ** (0.078)	-0.176 ** (0.083)
$\Delta Social \text{ ben}$	0.547 *** (0.055)	0.565 *** (0.057)	0.072 (0.107)	0.144 (0.119)
$\Delta GDP \text{ per capita}$			-0.987 *** (0.159)	-0.930 *** (0.171)
$\Delta GDP \text{ per capita}$			0.920 *** (0.224)	0.784 *** (0.252)
$GDP \text{ per capita (Ln)}$			-0.040 *** (0.009)	-0.023 (0.020)
Random effects	✓		✓	
Region fixed effects		✓		✓
Robust standard errors	✓	✓	✓	✓
Consistent estimator	✓	✓	X	✓
Observations	93	93	93	93
Overall R ²	0.340	0.339	0.542	0.517

1. Source: Author's elaboration, using calculated PSI index by NUTS2 Spanish Region as dependent variable. Clustered standard errors in parentheses.

* p 0.10, ** p 0.05, *** p 0.01

One reason that might be given to the unexpected results found in Table 1, is that what could have an impact on stability are not the changes prior to the elections but the trends of the measures during the period. With the purpose of testing this hypothesis, it is proposed a second model, collected in expression (7). This model is similar to the prior but changes the main regressors for averaged values of the measures during the term – using the same process as described in expression (6) for GDP per capita. The expected estimates are as in the prior model expectations, to find positive relation between the social protection measures and PSI.

$$(7) \text{PSI}_{i,t} = \beta_0 + \beta_1 (\Delta \text{In kind trans}_{i,t}) + \beta_2 (\Delta \text{Social ben}_{i,t}) + \alpha_i + \varepsilon_{i,t}$$

Results of the estimation are displayed in Table 2 and show very similar results between estimating with RE (7a) or with FE (7b), making both consistent estimators. This is strongly supported by the results of the Hausman test. In terms of efficiency they don't present major differences either. The values found, provide more logical interpretations. In the case of β_1 , the value is significant at a 1% level and is strongly positive. Meaning that for every 1% extra average change in social benefits, PSI increases by almost the same token. Results for β_2 , are, by far, non-significant. It is interesting to see how, by comparing the R2 statistics of (7a) and (7b) with the ones obtained in (5a) and (5b), this model seems to be better explaining the changes in PSI index and averaged changes to be better measures for austerity than immediate changes. As the former conceives voters as more rationally behaving and doing a retrospection that does not limit to the last observed change.

When adding the same control variables as in the previous model, results keep displaying similar information regarding the relation of the main regressors and PSI index. The Hausman test statistic still significantly states RE estimation and FE estimation to be consistent, which make RE estimations to supply more desirable estimations when interpreting the results. Results for β_2 are still significant and relevant in both (7c) and (7d) although, by including the control variables, the estimations have been deflated. The results for this coefficient are the expected and support the main hypothesis of the thesis, that fiscal policy which reduces social protection, imply destabilisation of the system. On the other hand, the results for β_1 , are not significant even at a 10% level, which point at

in-kind transfers changes not affecting PSI index. This different relation, between the two main regressors and the dependent variable, might lead to similar conclusions as in Fetzer (2019), where more critical reforms on social protection which affect lower-income households, are identified to entail a major political cost than those affecting relatively better-off parts of society. One might understand social benefit programs to aim more critical cases, while in-kind transfers usually involve general services offered to all population regardless the income. The results, although acknowledging the limitations of the study, might be pointing at social protection cuts effects on political stability not depending that much on the amount of people affected but on how critical is the effect.

Table 2. Regression estimates: PSI Index and Term averaged change on Social Protection rents.

Variable	(7a)	(7b)	(7c)	(7d)
Δ In kind trans	0.068 (0.120)	0.070 (0.118)	-0.241 (0.165)	-0.047 (0.178)
Δ Social ben	0.918 *** (0.103)	0.919 *** (0.107)	0.633 *** (0.131)	0.526 *** (0.159)
Δ GDP per capita			-0.755 *** (0.131)	-0.692 *** (0.210)
Δ GDP per capita			0.693 *** (0.155)	0.541 ** (0.229)
GDP per capita (Ln)			-0.043 *** (0.008)	-0.019 (0.024)
Random Effects	✓		✓	
Region fixed effects		✓		✓
Robust standard errors	✓	✓	✓	✓
Consistent estimator	✓	✓	✓	✓
Observations	93	93	93	93
Overall R ²	0.462	0.462	0.589	0.548

2. Source: Author's elaboration, using calculated PSI index by NUTS2 Spanish Region as dependent variable. Clustered standard errors in parentheses.

* p 0.10, ** p 0.05, *** p 0.01

6 CONCLUSION

This thesis aimed to study the effect of austerity on political stability in the context of Spain 1996-2015. These two concepts – austerity and political instability – have been quantified using changes in social protection rents, for the first one, and the PSI index for the latter. The measures display both events taking place in the studied period, coinciding both in time after 2009. The main hypothesis was that the weakening of the welfare state and social protection programs, as a result of austerity, have been important factors explaining the increasing political instability in the period. In this line, it was expected to get significant and positive results for the coefficients of the variables. However, results seem to partially support the hypothesis established. Interesting are the findings pointing at averaged changes for the full term being more useful than immediate changes. These results support the idea of voters having a behaviour better profiled as rational. Finally, result for economic situation

Nevertheless, one must be very cautious when reading the presented results, as sample used is not ideal. The amount of observation is greatly limited by the availability of economic data used to measure austerity. The fact that political results are usually only observed every four years, aggravates this problem, making that in a series of 20 years only 6 observations per region is available. The analysis would greatly benefit from enlarging the sample and to do so it might be needed to change the measures defining austerity for others which have larger series available. It would be extremely interesting to keep this methodology, adding the period 2016-2020. As in the employed dataset, a major populist shock as VOX being third force in parliament, is not captured. This new wave of extreme-right populism in the South -with VOX in Spain or Cinque Stelle in Italy – does not fit with the model of populism succeeding in the region (Algan et al., 2017; Rodrik, 2017b).

A more practical option would be to enlarge the regions included in the sample. But, the development of a dataset with foreign countries, would require an amount of time to collect electoral data from the different country databanks and a knowledge regarding foreign political party systems, which make it unfeasible for a thesis like this. Finally, a final option to enlarge the sample would be considering regions at a NUT3 level, for which electoral information is still disaggregated. However, economic data at NUTS3

data is vastly limited and usually dispersed among the different regional statistical institutes. It has to be noted that new experimental statistics have been published since 2015 by INE, disaggregating income related data at a sub-municipal level. This data, if available with larger series, could result very useful for a study like this, where averages of big regions spoil many relevant dynamics.

Also, it would be interesting to do the same exercise but computing the PSI index with autonomic and European electoral data. This would allow to better test for voter rationality, as it would be capturing how do voters understands the scope of action of each political institution. In the case of using European elections data, information would also portray how institutionalised are EU institutions in each region. Allowing for a further study testing if, as with economic divergence among regions, there exists a lack of institutionalisation convergence in the EU.

Finally, one variable which has not been included in the discussion, but which could indeed be a relevant one, is economic inequality. The results suggest that austerity implemented on social benefits programs is more destabilising than cuts on in-kind transfers. The reason behind these results, might be on the redistributive power of each of the programs. While both are redistributive in its nature, it might be the case that social benefits aid those who could feel more alienated from society and the system. Alesina and Perotti (1996), already found significant relation between larger inequality and political instability. It would be interesting to explore this in further research.

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8 ANNEXES

8.1 ANNEX 1: Summary statistics of the relevant variables

Variable		Mean	Std. Dev.	Min	Max	Observations
<i>PSI</i>	<i>overall</i>	.9208711	.0367138	.7972532	.9744398	N = 131
	<i>between</i>		.0187122	.8854155	.9444779	n = 19
	<i>within</i>		.0318354	.813583	.9803265	T = 6.89474
Δ <i>Social ben</i>	<i>overall</i>	.0424444	.0368668	-.0293527	.1609425	N = 408
	<i>between</i>		.0043828	.0316062	.0494648	n = 19
	<i>within</i>		.0366368	-.0273889	.1579976	T-bar = 21.4737
Δ <i>Social ben</i>	<i>overall</i>	.0409564	.0274848	-.0087636	.0799725	N = 112
	<i>between</i>		.0041336	.0309485	.0482335	n = 19
	<i>within</i>		.0272008	-.0060742	.0822524	T = 5.89474
Δ <i>In kind trans</i>	<i>overall</i>	.0441711	.0473201	-.1430229	.1664875	N = 408
	<i>between</i>		.0041802	.0362618	.0507525	n = 19
	<i>within</i>		.0471492	-.1438118	.1618069	T-bar = 21.4737
Δ <i>In kind trans</i>	<i>overall</i>	.0426452	.0318871	-.0234543	.0968338	N = 112
	<i>between</i>		.0039372	.0348483	.0491525	n = 19
	<i>within</i>		.0316505	-.025376	.0974519	T = 5.89474
Δ <i>GDP per capita</i>	<i>overall</i>	.0276376	.0330645	-.0628252	.0853548	N = 408
	<i>between</i>		.005801	.0148358	.0380351	n = 19
	<i>within</i>		.0326097	-.0617309	.0878084	T-bar = 21.4737
Δ <i>GDP per capita</i>	<i>overall</i>	.0267894	.0283901	-.0309716	.0712347	N = 112
	<i>between</i>		.0054565	.0155957	.0367434	n = 19
	<i>within</i>		.0279048	-.0310719	.0672628	T = 5.89474
<i>GDP per capita (Ln)</i>	<i>overall</i>	986.139	.2516584	9.075.665	1.037.427	N = 355
	<i>between</i>		.1904354	9.500.023	1.019.671	n = 19
	<i>within</i>		.1686291	9.437.032	100.967	T-bar = 18.6842

8.2 ANNEX 2: Hausman Tests results

Hausman Test between Expression (5) estimated through fixed effects (fe) and through random effects (re):

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
c_socben	.5653097	.5472925	.0180171	.0084343
c_inkindt	-.4250358	-.3988154	-.0262204	.0112554

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(2) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= \mathbf{4.33} \\ \text{Prob}>\text{chi2} &= \mathbf{0.1147} \\ &(\text{V}_b\text{-V}_B \text{ is not positive definite}) \end{aligned}$$

Results don't reject the H_0 with 10% significance level. Thus, Random Effects estimation is preferable, as it is both consistent and efficient.

Hausman Test between Expression (5) including economic situation control variables, estimated through fixed effects (fe) and through random effects (re):

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
c_socben	.1438669	.0723399	.071527	.0270657
c_inkindt	-.1757963	-.1761723	.000376	.0119928
c_gdpcap	-.9295948	-.9871425	.0575476	.0289609
ac_gdpcap	.78418	.9203796	-.1361997	.0454645
log_gdpcap	-.0225031	-.0404409	.0179379	.0119594

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(5) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= \mathbf{14.57} \\ \text{Prob}>\text{chi2} &= \mathbf{0.0124} \\ &(\text{V}_b\text{-V}_B \text{ is not positive definite}) \end{aligned}$$

Results reject the H_0 with 5% significance level. Thus, Random Effects estimation are inconsistent. Fixed effects are preferable, as they are consistent.

Hausman Test between Expression (7) estimated through fixed effects (fe) and through random effects (re):

	Coefficients		(b-B) Difference	sqrt(diag(V _b -V _B)) S.E.
	(b) fe	(B) re		
ac_socben	.9191322	.9183795	.0007527	.0269493
ac_inkindt	.069701	.0681508	.0015502	.0186736

b = consistent under H₀ and H_a; obtained from xtreg
 B = inconsistent under H_a, efficient under H₀; obtained from xtreg

Test: H₀: difference in coefficients not systematic

$$\begin{aligned} \chi^2(2) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= \mathbf{0.03} \\ \text{Prob}>\chi^2 &= \mathbf{0.9829} \end{aligned}$$

Results don't reject the H₀ with huge (90%) significance level. Thus, Random Effects estimation is preferable, as it is both consistent and efficient.

Hausman Test between Expression (7) including economic situation control variables, estimated through fixed effects (fe) and through random effects (re):

	Coefficients		(b-B) Difference	sqrt(diag(V _b -V _B)) S.E.
	(b) fe	(B) re		
ac_socben	.5260762	.6332565	-.1071803	.0495545
ac_inkindt	-.0472511	-.2405832	.1933321	.1106553
c_gdpcap	-.6922662	-.7547418	.0624756	.0910525
ac_gdpcap	.5410316	.6925428	-.1515112	.111402
log_gdpcap	-.018725	-.0429986	.0242736	.0157311

b = consistent under H₀ and H_a; obtained from xtreg
 B = inconsistent under H_a, efficient under H₀; obtained from xtreg

Test: H₀: difference in coefficients not systematic

$$\begin{aligned} \chi^2(5) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= \mathbf{8.68} \\ \text{Prob}>\chi^2 &= \mathbf{0.1224} \\ &(\text{V}_b-\text{V}_B \text{ is not positive definite}) \end{aligned}$$

Results don't reject the H₀ with 10% significance level. Thus, Random Effects estimation is preferable, as it is both consistent and efficient.

