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Quantifying Political Populism and Examining the Link with Economic Insecurity: evidence from Greece

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Contents

1. Introduction 3

2. Literature Review 5

2.1 A Historical Synopsis on the Term "Populism"..... 5
2.2 Populism's Dominant Definitional Approaches 6
2.3 Existing Methodologies for the Quantification of Populism 8
2.4 Populism's Link with Economic Conditions 9

3. The Research Framework 10

3.1 Adjusting Populism's Definition to the Greek Context 11
3.2 Defining Economic Insecurity and Linking it with Political Populism 11
3.3 Research Hypotheses 12
3.4 Research Limitations 13
3.5 Research Design and Datasets 14

4. Quantifying Political Populism 16

4.1 Creating the Populist Dictionary 16
4.2 The Identification Process 18
4.3 Dictionary Coefficients and the Populism Timeseries 19
4.4 Results 22

5. Examining the Link between Political Populism and Economic Insecurity 25

5.1 Model Specification 25
5.2 The Contextual Factors and Limitations Behind the Model 26
5.3 Understanding the Properties of Our Time Series 27
5.4 Modelling Assumptions and Initial Findings 28
5.5 Model Transformation and Results 30

6. Conclusions and Future Research 34

Bibliography 36

Appendix A: A Novel Textual Dataset of Greek Parliamentary Plenary Sessions (2004-2020) 40

Appendix B: Relevant Macroeconomic Time Series and Control Variables 43

Appendix D: Indicative Events that have Shaped the Emergence of Populism in Greece 47

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Raphael Ntentas[1]

ABSTRACT

At this juncture of human history populism is ubiquitous and Greek politics constitute no exception. This paper sheds light on a methodology that quantifies political populism (i.e. parliamentary populist rhetoric) in Greece through a novel textual dataset, which includes 16.5 years filled with heated debates over times of economic peaks and valleys. Combining computer with human intelligence to identify populism based upon a creative dictionary and strict definitional guidelines that fit the Hellenic Parliament's context, helps one explore perspectives unimagined just a few years ago. Besides, as Greece has gone through a series of sharp, intense and generalized socio-economic shocks, this paper uses an OLS multiple regression analysis to test whether there is a link between economic insecurity and political populism. Ultimately, it provides empirical evidence on a weak link, indicating economic insecurity's minimal role in explaining the variation in political populism levels. Our results do offer some tentative insights into how political populism evolves in the country during 2004-2020, confirming the previous empirical finding that assigns higher levels of populism to December when heated parliamentary debates on the following year's budget occur. Lastly, the empirical results indicate that populism does not intensify in conditions of crises, in alignment with the findings of some of the latest cross-national studies.

Keywords: Populism, Hellenic Parliament, Economic Insecurity, Big Data, Quantitative Text Analysis, Multiple Regression Analysis

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1. Introduction

At this juncture of human history populism is ubiquitous. Parliaments across the globe are filled with heated debates among leaders who represent what is believed to be the heart of populism; the will of the people (Norris, 2020). As Larcinese (2016, p.1) notes, though, "a well-established literature in social choice theory, of which Kenneth Arrow's impossibility theorem is probably the most important result, shows that unfortunately the will of the people does not exist." Therefore, should one consider populist leaders a threat to the institutional balance of democratic order? The answer is, not necessarily. Mudde & Rovira Kaltwasser (2012) discuss the possibility that populism is corrective for democracy and thereby not a dangerous phenomenon. Consequently, it is reasonable to think of populism as a Mona Lisa painting that sometimes smiles and sometimes not.

Nowadays, an estimate of two billion people is governed by populist leaders (Lewis, Clarke and Barr, 2019). Gellner and Ionescu (1969, p.1) also note that there can be no doubt about the importance of populism, and its scientific interest has recently been on the rise (Gidron and Bonikowski, 2013). Nevertheless, populism's mercurial nature often discourages scholars to take it seriously (Stanley, 2008, p.108). The limitations of its research are numerous, but it is a worth studying phenomenon as it shapes global politics. The phenomenon that came into the sunlight due to a series of economic, political, cultural and social factors has been defined and analyzed from "myriad theoretical perspectives" (Weyland, 2001, p.1). Besides, as De Vries, Hobolt and Van der Velden (2018, p.1) discuss, "much has been written about populism, but the scientific community still lacks a systematic analysis of the anti-establishment rhetoric." Having taken into consideration the existing literature and the fact that politics and political conflicts often occur in spoken words (Grimmer and Stewart, 2013, p.1), it is intriguing to study populism with the help of automated content analysis.

The aim of this paper is twofold. First, we shed light on a methodology that quantifies political populism (i.e. parliamentary populist rhetoric) in Greece over the period

2004-2020[2] during which the country both reported significant economic gains and had to tackle one of the most severe economic crises that have ever been triggered. From being the proud host of the Olympic games of 2004 in Athens, Greece went down the line to receive one of the largest bailouts in the global financial history to tackle its insolvency problem. Importantly, even an exit from the European Union (EU) was on the table during July's 2015 critical negotiations with the main creditors. Consequently, building upon the fact that the external conditions vary enormously in the period studied, and that there is very limited empirical evidence on the presence of populism in Greece, this paper analyzes populism from a perspective that has never been officially examined before in the country; the perspective of the Hellenic parliament's plenary session scripts. Vasilopoulou, Halikiopoulou and Exadaktylos (2014, p.388) argue that "populism is a fundamental sustenance of the Greek political system" and is expressed through the narratives of political actors from across the political spectrum. Therefore, measuring the absolute level of populist rhetoric appears to be a good proxy for political populism in Greece. Our analysis indicates that higher levels of populism should be expected during December when heated parliamentary debates on the following year's budget occur. Besides, our empirical findings stress that populism does not intensify in conditions of crises, in alignment with the findings of some of the latest cross-national studies (Lisi, Llamazares and Tsakatika, 2019, p.1; Stankov, 2018, p.251).

Secondly, as "democratic politics can hardly be imagined without populism" (Skenderovic, 2017, p.53; as cited in Stavrakakis, 2014, p.506), this paper attempts to identify whether there is a link between political populism and economic insecurity in Greece. Although populism has several causes and consequences, it is particularly sensible to try to focus on the effect of economic insecurity to political populism, as the country's citizens went through some sharp, intense and generalized socio-

[2] The textual dataset concerns the period January 2004 - May 2020. This cutoff period has been selected for the following reasons: (i) reliable data availability (i.e. monthly unemployment rate as extracted from "theglobaleconomy.com"), as this paper regresses the economic insecurity proxy with the time series of political populism levels, and (ii) the change in government took place on 7 March 2004; we thereby start quantifying populism as of January that year, and aim to capture the evolution of political populism till the latest available plenary session at the time of this study (including the months of April and May 2020 when the Covid-19 pandemic was on the rise).

economic shocks (Lazaretou, 2015) within the period studied. To continue, as Margalit (2019, p.1) discusses, "a common explanation for the rise of populism is economic insecurity driven by forces such as trade, immigration or the financial crisis." Thus, testing the explanatory power of economic insecurity for the variation in political populism seems rather appropriate. As such, this paper provides empirical evidence on a weak link between economic insecurity and political populism in Greece, in alignment with Margalit's (2019) research, who argues that the populist surge explained by economic insecurity is rather modest.

The remainder of the paper develops in the following manner. Section 2 includes a thorough review of the literature around the term "populism" and its quantification, but also stresses the phenomenon's interrelationship with economic insecurity. Section 3 demonstrates the study's research framework, including the limitations and definitions used to both quantify populism in the Hellenic parliament and identify economic insecurity. Section 4 sheds light on a methodology that eventually produces a time series for political populism levels in Greece and section 5 presents the quantitative analysis that attempts to identify whether there is a link between economic insecurity and political populism. Lastly, section 6 concludes by briefly discussing our findings and approach as well as highlights some recommendations for future academic research.

2. Literature Review

2.1 A Historical Synopsis on the Term "Populism"

Nothing is simple in the world of populism (Mastropaolo, 2017, p.59). As Cas Mudde and Cristobal Rovira Kaltwasser put it (2012a, p.1), "populism is one of the most used and abused terms inside and outside academia." To understand the concept a little better, though, one needs to have a look on its history. The conceptual genesis of populism took place in 1891 in the USA and the People's party which consisted mainly of farmers and lower middle classes that had several financial and economic policy

demands (Skenderovic, 2017). Along the same lines, the Russian political party "Narodniki" and the French "Boulangisme" are also considered to belong to the founding forms of populism. The common denominator of all these parties was the will of the working classes to challenge the emerging agricultural and industrial capitalism. However, it took almost half a century for scholars to start discussing the concept from a cross-national perspective. The next important milestone for the recent populism research took place at the London School of Economics and Political Sciences in 1967 in the form of the international conference "Populism, its meaning and national characteristics", where scholars from various academic disciplines agreed that the "subject was much too vast not merely to be contained in one definition, but to be exhausted in one discussion" (Skenderovic, 2017, p.49, as cited in Berlin et al, 1968, p.179). Besides, till 1990s, the dictionaries, lexicons and encyclopedias which are important indicators of knowledge production were not bothering to discuss populism as a concept or to establish the content of its meaning (Skenderovic, 2017, p.43). Consequently, one can understand that populism is a phenomenon that only recently became the subject of serious academic research.

2.2 Populism's Dominant Definitional Approaches

To quote Socrates, "the beginning of wisdom is the definition of terms" (as cited in Guriev & Papaioannou, 2020, p.6). And when it comes to populism, strictly defining the concept is essential. It is worth reviewing, though, the dominant theoretical approaches to framing populism. According to Taggart (2000), populism is "often defined differently, depending upon the context in which it is used." For this reason, we adopt Gidron's & Bonikowski's (2013) approach where there is a reduction of the numerous meanings of populism to populism as an ideology, as a discursive style and as a political strategy.

To begin with, one can conceptualize populism as a thin-centered ideology. A rather influential definition suggested by Cass Mudde, which has recently been used in efforts that deploy automated content analysis is the following: *"Populism is a thin-centered ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, 'the pure people' versus 'the corrupt elite,' and*

which argues that politics should be an expression of the volonté générale (general will) of the people" (Mudde, 2004, p.543). As Mudde and Rovira Kaltwasser (2011, p.2) argue, populism's thin-centeredness means that it can be found in parties from across the political spectrum and not only in far-left or far-right ones as scholars used to believe. This approach has widely been adopted by political scientists since it is slightly more quantifiable than others.

The second definitional wave sees populism as a discursive style. In Latin America, where populism has been dominating public political debates for ages, De la Tore (2000, p.4) uses such an approach by defining populism as a "rhetoric that constructs politics as the moral and ethical struggle between the people and the oligarchy." Pauwels (2011) notes that examining populism as a rhetorical style makes it easier to track variations in the levels of populist politics, as language is more flexible to change than ideology itself. In this way, scholars leave the binary arena of Mudde and move on to the field of observing populism as a matter of degree. As Gidron & Bonikowski (2013, p.8) discuss, "despite the clear similarities between the ideational and discursive approaches, the nuanced differences between them carry significant theoretical and methodological implications and push researchers toward different modes of empirical inquiry."

Last but not least, there is the third definitional wave of analyzing populism as a political strategy. It could be argued that political entrepreneurs from all over the political sphere strategically use populist rhetoric as a new means of communication to compete with other candidates and maximize their vote share. In a similar vein with the theoretical concept of the Downsian model (1957) which predicts that electoral competition urges political candidates to target the pivotal middle classes (Shepsle, 1997, pp.96-98), populism can be considered as the innovation that can determine electoral outcomes. Political populism, mistakenly or not, represents the will of the relatively poor[3] middle classes who envision a better standard of living compared to the existing elites. From the standpoint of this definitional wave, Weyland (2001, p.14)

[3] Under the hypothesis of a world that mainly consists of right skewed economies, where the median voter income is less than the mean population income.

argues that "populism is best defined as a political strategy through which a personalistic leader seeks or exercises government power based on direct, unmediated, institutionalized support from large numbers of mostly unorganized followers."

2.3 Existing Methodologies for the Quantification of Populism

There is a reason why all these different definitions for populism exist, and it is a simple one. As populism is quite an ambiguous concept whose measurement heavily depends on the context upon which it is identified, there need to be variations in its definitions. This characteristic, though, is one of the most significant limitations populism has when it comes down to scholars conducting comparative, cross-national research. This paper, however, concerns the quantification of populism solely within the Hellenic Parliament's context and for this reason, a very targeted approach is implemented. At this point, it is important to review the various existing methodologies that have been used to measure populism so far.

As Pauwels (2011, p.97) explains, "the measurement of populism has long been neglected." In recent times, though, the academic debate over the conceptualization of populism has been lively. To measure populism, one needs to fully understand the limitations and challenges of such a venture. Being based upon minimal definitions hinders precision and the use of more complex definitions makes measurements almost impossible. Therefore, there is a tradeoff that one needs to account for. The dominant methods one can choose from to move forward with the venture of quantifying populism are four; "the classical content analysis[4] where coders systematically analyze texts by means of a codebook, a computerized content analysis in which an a priori designed dictionary serves as a gauge of the degree of populism" (Rooduijn and Pauwels, 2011, p.1272), a combination of the first two, and the machine learning approach of a supervised classifier where the computer is trained to identify political populism on its own. The latter, however, is beyond the scope of this paper as it is far more complicated and not significantly more effective than the combination

[4] According to Hawkins (2009), this is an extremely rare method.

of a classical and automated content analysis on the basis of a dictionary approach with strict definitional guidelines.

Even though one should be rather cautious with dictionaries, they can produce reliable results when they are coupled with the appropriate validation (Grimmer and Stewart, 2013). Rooduijn and Pauwels (2011) compare the first two dominant methods and suggest that a combination of both shall constitute the best possible strategy to measure political populism. What is more, the validity of the computerized method appears to be lower than that of the classical one, but it is far less labor intensive as well. Yet, the automated content analysis method is established upon the bag of words assumption (Grimmer and Stewart, 2013), where the order of the words does not matter. As Pauwels (2011, p.98, as cited in Benoit, 2009) notes, text is treated in the form of data and that alone can create inefficiencies. To sum up, though, automated content analyses can be rather efficient when coupled with careful human validation.

2.4 Populism's Link with Economic Conditions

As this paper also examines the link between political populism and economic insecurity, we should also briefly explore the causes of populism. Social scientists deeply understand that establishing a causal relationship is oftentimes very difficult. Thus, it is important to note that our exploration discusses potential causes of populism from a theoretical perspective. Guriev and Papaioannou (2020) provide a well described overview of the main drivers of populism. These can be both cultural and economic ones. Joseph Schumpeter's creative destruction, massive immigration flows, financial crises as well as corrupt institutions can trigger the demand needed for political populism to thrive. The focus of this study, though, lies upon the economic drivers of populism. Algan, Guriev, Papaioannou and Passari (2017) find that one percentage point in unemployment is related with one percentage point increase in the populist vote. Guiso, Herrera, Morelli and Sonno (2020, p.1) find that "economic insecurity shocks have a significant impact on the demand of populism… and adverse shocks to economic security and trust in political parties induce people not to vote and if they do, to choose a populist party". Similarly, Guriev and Papaioannou (2020,

p. 53) point out the role of "adverse economic shocks in providing a fertile ground for populist leaders." Fetzer (2019) as well as Colantone and Stanig (2018) attempt to identify the economic antecedents of populism by sharing a similar logic that sets the dynamics of labor markets at the center of attention, rendering them as the medium through which economic insecurity arises and triggers demand for populism. On the contrary, Margalit (2019, p.1) undermines the explanatory power of economic insecurity as a driver of populist support. However, he dismisses neither the role of economic factors nor the role of the cultural ones. Indeed, "the relationship between economic variables and populism is multifaceted and quite challenging to identify" (Guriev and Papaioannou, 2020, p. 67), but that does not mean it is not worth studying it.

Vasilopoulou, Halikiopoulou and Exadaktylos (2014, p.389) discuss that "the origins of populism can be located in the global financial system and the imbalances this has created." They also note that post-2009 Greece, recently described as the "sick man of Europe", is an ideal place to test whether populism tends to intensify in periods of crises as Stavrakakis (2002) suggests. Similarly, this paper attempts to provide evidence on whether there is an empirical link between economic conditions[5] (i.e. economic insecurity) and political populism in Greece. Besides, understanding the multifaceted nature of populism research is difficult but fascinating at the same time.

3. The Research Framework

As social scientists hypothesize and test the boundaries of their conceptualizations, this chapter is devoted to providing the theoretical base, limitations, and research design (including information on the study's datasets) upon which our subsequent analysis is developed.

[5] This empirical inquiry indirectly provides information on whether populism tends to intensify in periods of crises, but it is also coupled with the necessary tests (i.e. control variables) in section 5.

3.1 Adjusting Populism's Definition to the Greek Context

First and foremost, as "populism is a phenomenon difficult to notice" (Stulik, 2019, p.2667), we need to strictly define it. Nevertheless, our definition is not completely in line with a single definitional wave (as presented in section 2), but it combines elements from all three of them to better accommodate the nature of the Hellenic parliament. Being well-acquainted with the context where political populism is captured, is of vital importance. After a thorough consideration of both the existing literature and the peculiar nature of the study's context, this paper produces the following definition to measure populism within the Hellenic Parliament.

"Populism is a communication strategy that lies upon emotion to oftentimes demagogue and set the perspective of a return to a true democracy by rejecting the corrupt political mainstream."

Elements from all definitional waves are considered quite relevant. Mudde's (2004) thin centeredness is important as populism is expressed through parties from across the political spectrum and does not concern the ideology of a particular color. In addition, the distinction between the pure people and the corrupt elite is central for our definition as well. To continue, Weyland's (2001) approach is pertinent because politicians oftentimes use the rhetoric that demonstrates a struggle between the people and the oligarchy to gain the public's acceptance. The word "oftentimes", though, is crucial as populism does not always have a negative connotation. There are times when politicians are simply narrators of facts. The wording they choose is decisive of course, but political populism is not always taking place as a form of a conscious communication strategy. Therefore, one needs to accept that this paper's quantification of populist rhetoric captures populism's both negative and positive connotations.

3.2 Defining Economic Insecurity and Linking it with Political Populism

At this stage and as the set-up of populism's adjusted definition is complete, it is time to theoretically establish the link between economic insecurity and political populism. Concerning the term "economic insecurity", we adopt the definition provided by

Bossert and D'Ambrosio (2013, p. 1018), which frames it as "the anxiety produced by the possible exposure to adverse economic events and by the anticipation of the difficulty to recover from them". Consequently, variables such as unemployment, business confidence and consumer confidence can allegedly be considered significant for providing a proxy of economic insecurity.

The common narrative that links economic insecurity with the demand for political populism is adjacent to a potential change in the dynamics of labor markets. Economic crises, immigration flows, technological change and other adverse shocks create uncertainty by transforming the demand and supply of labor. In this way, citizens - subject to such changes - feel vulnerable and economic insecurity arises. Along the same lines, demand for political rhetoric that promises a safer economic future can sensibly be considered to move in the same direction. Lastly, we hypothesize that politicians can capture this demand for political populism and perfectly convert it to supply, reaching in this way some type of an equilibrium.

3.3 Research Hypotheses

Moving along with the theoretical expectations, we provide this paper's hypotheses which are at a later stage descriptively and/or empirically tested.

Hypothesis 1: Distinct waves of populism should be observed over time.

As Guriev and Papaioannou (2020, p.2) suggest, "populism is spreading globally, reaching countries such as Germany and Sweden." It is not a solely Latin American phenomenon any more as Dornbusch and Edward (1991) argued in the past. Additionally, scholars of populism "distinguish between different waves of populism" as cultural and economic conditions are subject to change. This implies that once the graph with the evolution of political populism is produced, one should be able to observe concrete waves of populism over time. Lastly, it is important to again note that political populism is assumed to be equivalent to parliamentary populist rhetoric under the context of this study.

Hypothesis 2: Political populism tends to intensify in conditions of crisis.

Vasilopoulou et al (2014, p.392) discuss that conditions of crisis can potentially affect the variation in populism levels. Arguably, as Guriev and Papaioannou (2020, p.17) note, "there has been a recent rise in populist vote share by 10-15 percentage points." Besides, combining this piece of knowledge with the financial meltdown of 2008, one should expect to observe higher levels of populism within post-2008 political speeches.

Hypothesis 3: Economic insecurity should partially explain the variation in the demand for populist rhetoric.

Guiso et al (2020, p.1) find that economic insecurity shocks have a statistically significant effect on the demand of populism. Margalit (2019) discusses economic insecurity as the commonly cited explanation for the rise of populism, but he argues that their relationship is oftentimes overstated. Gidron and Hall (2017) suggest that the parameters that capture economic insecurity provide only a minimal explanation for the variation in the vote for populist parties. Most scholars agree that there is a link between economic insecurity and populism. In this paper, we expect to provide further empirical evidence of such a link.

3.4 Research Limitations

Having provided the study's theoretical expectations, it is necessary to discuss our venture's limitations. Gidron and Bonikowski (2013, p.19, as cited in Arditi, 2007) refer to a fascinating statement where populism appears to be an awkward late-night guest who drinks and sets inappropriate questions that trigger the revelation of hidden problems. Scholars who study populism need to live with the several limitations that go together with this field.

Firstly, the concept is so complex that it can be studied from myriad perspectives. Therefore, choosing a specific angle to study it means that one cannot generalize their findings confidently. Secondly, the method used to capture populism can be quite problematic itself. The dictionary approach that this paper adopts needs to be "used with substantial caution or at least be coupled with explicit validation" as Grimmer et al (2013, p.9) point out. Besides, regardless the researcher's desired methodology (e.g.

classical versus automated content analysis or a combination of both), caveats still remain. As the validation of populist context needs to be performed also by humans, the subjectivity and coder reliability issues enter the game. Thirdly, one needs to be rather careful in the identification strategy of the effect of economic insecurity on populism. Economic insecurity's definition is far less challenging than populism's but creating an appropriate proxy for it is not quite straightforward. What is more, the link between the dependent and independent variables needs to be explicit. Lastly, it is crucial to keep in mind that in most social sciences studies, one has to address sufficiently the omitted variables bias as well as remember that "all quantitative models of language are wrong but some are useful" (Grimmer et al, 2013, p. 3).

3.5 Research Design and Datasets

From an ideal world's standpoint, the hypotheses described above should be tested with an extremely labor intensive process where multiple coders read every single word of all 2500 parliamentary debates (included in our dataset) and determine what constitutes political populism based upon a strict and clearly developed codebook. Next, accounting for every possible confounder of political populism to be able to discuss the explicit effect of economic insecurity on populism would be needed. Clearly, however, as both statements are almost impossible to occur, we have to proceed with the possibility of a sampling and omitted variable bias. As an automated content analysis approach (i.e. dictionary one) is adopted, the analysis runs a subjectivity risk with regards to which words are included in the populist dictionary. As a matter of fact, the selection of keywords in context that my research assistants validate might hide an unobserved bias. To continue, accounting for all economic, cultural and social factors as well as the external conditions that affect political populism is out of question, as it is not possible to collect time series on every desirable variable. In this way, it is likely that our model attributes some of the effect of non-existing variables to those we have included. Finally, as causality is difficult to achieve in such a study, this paper is being developed under the regression analysis framework.

To address the issues outlined above, though, we develop the following empirical strategies. First and foremost, the populist dictionary is developed through iterative rounds of discussion with my research assistants and in line with the existing literature and nature of the Hellenic parliament. Secondly, my research assistants validate the extent to which each of the dictionary words expresses populism by manually examining a random and representative sample of sentences. Only the instances where both my researchers agree on the identification of political populism are taken into account (see dictionary coefficients[6]). Thirdly, to capture the effect of economic insecurity on populism, we control for parameters such as the conditions of crisis dummy variable and the length of each parliamentary speech which may significantly co-explain political populism's variation. Even though, these strategies do not completely eliminate the challenging identification issues of this study, they indeed increase our confidence that the findings are robust. Lastly, as the unit of interest is populist rhetoric, one can sensibly claim that reverse causality is not powerful enough to trigger identification issues. There is no concrete evidence that populist rhetoric can influence economic insecurity as well as the variables that are used as a proxy for it.

Populism is considered an integral part of Greek politics. For this reason, there is no better place to measure populism than the Hellenic parliament and the day to day plenary sessions. Our novel textual dataset includes around 5,4 million sentences and concerns the period January 2004 - May 2020. It is a rather unique set of documents, which has never been officially analyzed from the perspective of our study and can provide a rare insight into the evolution of political populism in Greece. Appendix A already provides some very interesting technical information on our unique dataset. Other than the textual dataset, this study uses several macroeconomic time series and control variables to examine the link between economic insecurity and political populism. Appendix B presents the relevant detailed information.

[6] The notion of dictionary coefficients is elaborated in section 4.3.

4. Quantifying Political Populism

At this stage, we shed light on the explicit methodology that provides one of the most fascinating insights of this paper. The quantification of populism has been attempted by very few scholars as the concept lacks clarity (Rode and Revuelta, 2015, p.74) and that is what makes this research challenging and fascinating at the same time. Breakthroughs in this particular field have only taken place very recently. One of the very first was performed by Jagers and Walgrave (2007) who attempted to capture populism by both quantitatively and qualitatively analyzing political speeches. Similarly, this paper implements the existing knowledge within the Greek context and provides a novel basis that could be used to further explore populism.

Populism's definition, as provided in section 3, basically explores the dichotomous classification between the ordinary people and the privileged elites. As Mastropaolo (2017, p.65) discusses, "all classifications make simplifications to some extent" and the dichotomous approach ignores the potential existence of grey zones (Rode and Revuelta, 2015, p.107). As such, methodological skepticism is sensible to be existent. However, one must make do with the limitations of this venture and focus on the inferences that can be extracted.

To quantify political populism, no pre-processing steps for the automated text analysis process are needed. All features are considered relevant as the Quanteda package in R (Benoit et al, 2018) is powerful enough to use the populist dictionary that is outlined below and lead the researcher to useful considerations.

4.1 Creating the Populist Dictionary

One of the first steps in our process concerns the creation of a populist dictionary. Creating a valid and robust dictionary to identify political populism is not an easy task. Iterative rounds of discussion and validation with my research assistants as well as random actual reading of parliamentary debates between members of the parliament (MPs) from across the political spectrum have taken place to come up with a populist dictionary that consists of 48 words (as presented in Table 2 below).

Table 2: Dictionary for Political Populism (Including Stemmed and Original Words)

Greek	*English*	*Greek*	*English*	*Greek*	*English*	*Greek*	*English*
αδιαφαν*	intransparency	βολεμέν*	settled	κλέφτες	thieves	παρακράτος	para-state
αδιαφάν*		διαφθορά	corruption	κραυγή	cry	πενιχρό	meager
αδικημέν*	underprivileged	διεφθαρμέν*	corrupted	λαϊκ*	of the people	πλάτες	shoulders
αδύναμ*	frail, weak	εκμετάλλευσ*	exploitation	λαοί	the people	πλούσι*	the rich
αθηνοκεντρικό	centered on Athens	ελίτ	elite	λαό*		προνομιούχ*	on the right side of
αιχμάλωτ*	captured (fig.)	εργάτης	worker	μοχθ*	strive for	προπαγάνδα	propaganda
αντιδημοκρατικ*	anti-democratic	έρμαια	adrift	ντροπή	shame	ρουσφέτι	scecial favor
αντιλαϊκ*	against the people	ιδρώτ*	sweat	ξεζούμισμα	being squeezed (fig.)	σκάνδαλο	scandal
απάτη	fraud	καπιταλιστ*	capitalist	ξεσηκών*	revolt	στάχτη	ash
άρχουσα	ruling	κατεστημένο	establishment	ολιγαρχία	oligarchy	υποφέρ*	suffer
βάρβαρη	cruel	κερδοσκόπ*	speculators	ομηρία	under thralldom	φιλολαϊκ*	with the people
βασανίζ*	torture (fig.)	κλεπτοκρατικό	kleptocratic	όμηροι		ψεύτ*	lie

Table 3: Words Not Included in the Final Populist Dictionary

Greek	*English*	*Greek*	*English*	*Greek*	*English*	*Greek*	*English*
αφουγκραζόμαστε	listen carefully	ήρωας	hero	οργή	anger	ταλαιπωρημένοι	through hardship
εκβιασμοί	blackmail	μάρμαρο	marble	όφελος	advantage	τάξη	class
εσείς	you (against us)	οι πολιτικές σας	your policies	σφαδάζει	writhing	χρήμα	money

A random sample of 50 out of the 2500 documents of parliamentary sessions (included in this study) has been carefully read. This sample included texts from politicians of all political ideologies in Greece, and in conjunction with similar dictionaries that have been implemented internationally, it inspired the genesis of our populist dictionary. The steps described above help in avoiding partisan bias and strengthen our dictionary's robustness. What is more, some words known as "false positives", were excluded from the final dictionary. Despite being initially regarded as appropriate for the study of populism, words or phrases such as "anger", "money", "advantage", "your policies", "marble", "hero", "blackmail" were excluded as they mostly seem to relate with context irrelevant to the purposes of this study. The final dictionary includes 48 words that are in line with the definition given in section 3.1. All selected words have a direct or indirect relation with the exploitation, struggle or simply distinction of the pure people against the corrupted, settled and powerful elites. This simplification renders the quantification of populism possible by using automated content analysis (Mudde, 2004, p.543). However, as it has been indicated multiple times, human validation is an essential supplementary step to avoid the pitfalls of automated techniques.

4.2 The Identification Process

For the shake of this study, my research assistants validate whether the dictionary words have a link with political populism (based upon the strict guidelines provided) when identified in the actual political speeches. They are both Greek language native speakers living in different parts of the world and know little about the research goals of this study. It is worth noting that their help has solely been asked to shape the populist dictionary and validate the subsequent analysis. As Pauwels (2017, p.126) points out, it is rather important that human validation takes place if and only if the guidelines have clearly been understood. For this reason, it is important to stress that my researchers have used the following concrete criteria to identify populism in text:

- A distinction between the corrupt political mainstream and the pure people is implied.
- Language is used to primarily demagogue the pure people.

- Speakers denote that their perspective and respective proposed policies would lead to a more efficient democracy where the people are better represented.

If a research assistant believes that one of these conditions is met, number *1* is noted next to the identified sentence to note that political populism is captured. If the research assistant has reasons to believe that none of the above criteria applies or it is impossible to determine, *0* is noted next to the sentence accordingly. Appendix C provides indicative examples of the research assistants' judgement. We have selected four sentences to represent all different combinations of the research assistants' judgement. As presented in Appendix C, within the first part of a parliamentary debate that took place in February 2020, populism is clearly identified by both coders. The speaker who appears to talk before the identified keyword uses a common blame-shifting communication strategy to demonstrate his anger against a decision taken by the ruling elite. Concerning the other three parts of parliamentary debates that took place in 2005, 2008 and 2010, political populism cannot be identified with confidence.

Interestingly, the research assistants' overall agreement rate is considered very good (i.e. 77.63%) and strengthens the credibility of our results. At this stage, it is important to remind the skeptical reader that our method captures both negative and neutral types of populism as this renders the project more viable. Tellingly, it is observed that stemming Greek words leads our software capture words that are relatively impertinent to the study of populism. However, this is something that this study accounts for through weighting measures (i.e. dictionary coefficients).

4.3 Dictionary Coefficients and the Populism Timeseries

To account for the fact that automated content analysis captures words impertinent to the study of populism, this study uses the notion of dictionary coefficients (as presented in tables 6a, 6b). For instance, table 6a includes the word "exploitation" which is assigned to a coefficient of 0.19, as well as the phrase "against the people" which corresponds to a 0.93 coefficient. Such coefficients indicate that 19% and 93% of the times these words are used in the various texts, populist context is identified (based upon the study's strict criteria and guidelines). It is thereby sensible to assume

that when politicians make use of the word “exploitation”, it is highly likely that populist context will not be identified.

To produce these coefficients, my research assistants read a random and representative sample of sentences where the dictionary keywords are identified. In total, they carefully examined 9,610 instances of keywords in context which is an extremely labor-intensive task. That means that 6.56% of all 146,376 identified dictionary keywords has manually been validated. Our corpus’ random and representative sample size has been determined through the algorithm of the online platform “checkmarket sample size calculator” with the default choice of 5% margin of error and 95% confidence level with a view to increasing our sample’s robustness.

The next step in our quantification exercise is to use these dictionary coefficients. Having already produced the relevant timeseries with the frequency of dictionary words per parliamentary session (i.e. indicating the number of times each dictionary word appears in a given parliamentary session), we proceed with the weighting process. Through the development of a 191x2500 matrix in Microsoft Excel, our time series is weighted with the respective dictionary coefficients and the desired populism time series is produced. However, as this study also aims to later regress our populism time series with monthly economic data, we proceed with the relevant adjustments. Taking the average monthly[7] levels of populism, eventually produces a time series that starts in January 2004 and ends in May 2020 and consisting of 194 values.

[7] The monthly timeseries is simply produced by taking the sum of populism levels per month and dividing it with the absolute number of parliamentary sessions of that same period.

Table 6a: Dictionary Coefficients

Greek	*English*	*Dictionary Coefficient*	*Greek*	*English*	*Dictionary Coefficient*
αδιαφαν*	intransparency	0.64	**βολεμέν***	**settled**	**0.93**
αδιαφάν*		0.70	διαφθορά	corruption	0.60
αδικημέν*	underprivileged	0.47	διεφθαρμέν*	corrupted	0.49
αδύναμ*	frail, weak	0.70	**εκμετάλλευσ***	**exploitation**	**0.19**
αθηνοκεντρικό	centered on Athens	0.77	ελίτ	elite	0.89
αιχμάλωτ*	captured (fig.)	0.35	εργάτης	worker	0.62
αντιδημοκρατικ*	anti-democratic	0.54	έρμαια	adrift	0.67
αντιλαϊκ*	**against the people**	**0.93**	ιδρώτ*	sweat	0.86
απάτη	fraud	0.48	καπιταλιστ*	capitalist	0.73
άρχουσα	ruling	0.81	κατεστημένο	establishment	0.56
βάρβαρη	cruel	0.89	κερδοσκόπ*	speculators	0.48
βασανίζ*	torture (fig.)	0.52	κλεπτοκρατικό	kleptocratic	0.50

Table 6b: Dictionary Coefficients

Greek	*English*	*Dictionary Coefficient*	*Greek*	*English*	*Dictionary Coefficient*
κλέφτες	thieves	0.52	παρακράτος	para-state	0.51
κραυγή	cry	0.55	πενιιχρό	meager	0.75
λαϊκ*	of the people	0.61	πλάτες	shoulders	0.82
λαοί	the people	0.65	πλούσι*	the rich	0.45
λαό*		0.71	προνομιούχ*	on the right side of	0.72
μοχθ*	strive for	0.58	προπαγάνδα	propaganda	0.42
ντροπή	shame	0.35	ρουσφέτι	scecial favor	0.65
ξεζούμισμα	being squeezed (fig.)	0.82	σκάνδαλο	scandal	0.43
ξεσηκών*	revolt	0.61	στάχτη	ash	0.48
ολιγαρχία	oligarchy	0.92	υποφέρ*	suffer	0.46
ομηρία	under thralldom	0.74	φιλολαϊκ*	with the people	0.71
όμηροι		0.56	ψεύτ*	lie	0.40

4.4 Results

As in most time series, seasonality and randomness have their own significant roles to play. In that respect, while producing the plot of the populism time series, we need to be able to discern such factors. This is achieved with the help of the Seasonal Trend Decomposition (*STL*) function in R (Cleveland et al, 1990) that divides a times series into the pure trend, the remainder and seasonality. As such, Figure 3 presents the relevant fascinating visualization.

Descriptively speaking, there is valid ground to claim that *hypothesis 1* (as presented in section 3) is not wrong. Distinct waves of populism are indeed observed. The first one seems to start within the timeframe of the global financial meltdown in 2008 and reaches its lowest point in 2018, when the next wave is identified. The second wave includes the period when the radical left SYRIZA government is voted out of office; something that could potentially co-explain the high levels in political populism. Along a similar standpoint, *hypothesis 2* seems to hold as well. Populism appears to become more intense in the period where unemployment sharply rises and where wages are subject to severe cuts.

As a matter of fact, Greece has recently experienced socio-economically turbulent times. To introduce the reader, though, into Greece's socio-economic context, it is necessary to refer to some key milestones that have allegedly shaped populist politics in Greece. Appendix D provides some relevant indicative events.

To conclude the chapter, this section's findings seem to be consistent with the theoretical conceptualization and empirical findings of researchers such as Vasilopoulou et al (2014) and Stavrakakis (2002; 2014) who specialize in the study of Greek populsim. As Vasilopoulou et al (2014, p. 396) find, "the highest blame shifting[8] is observed in budget[9] speeches despite their technical character". Similarly, figure 4 confirms that political populism steadily fluctuates around very low levels in January and the summer months and reaches its highest points (on average) during December.

[8] Blame shifiting can be conceptualised as a juxtaposition of the pure people against the corrupted elites.
[9] They naturally take place each December.

Figure 3. The Evolution of Populism in the Hellenic Parliament

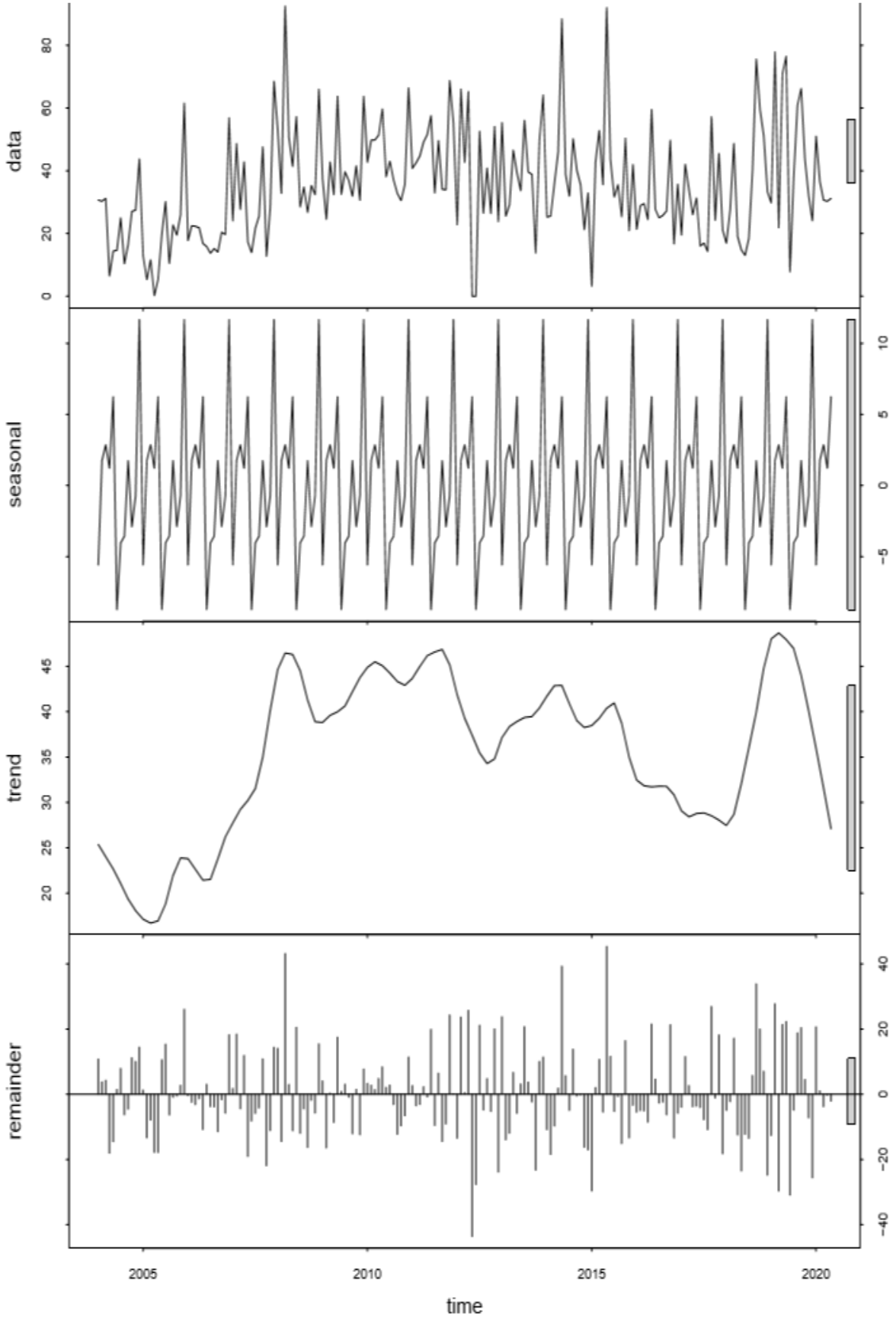
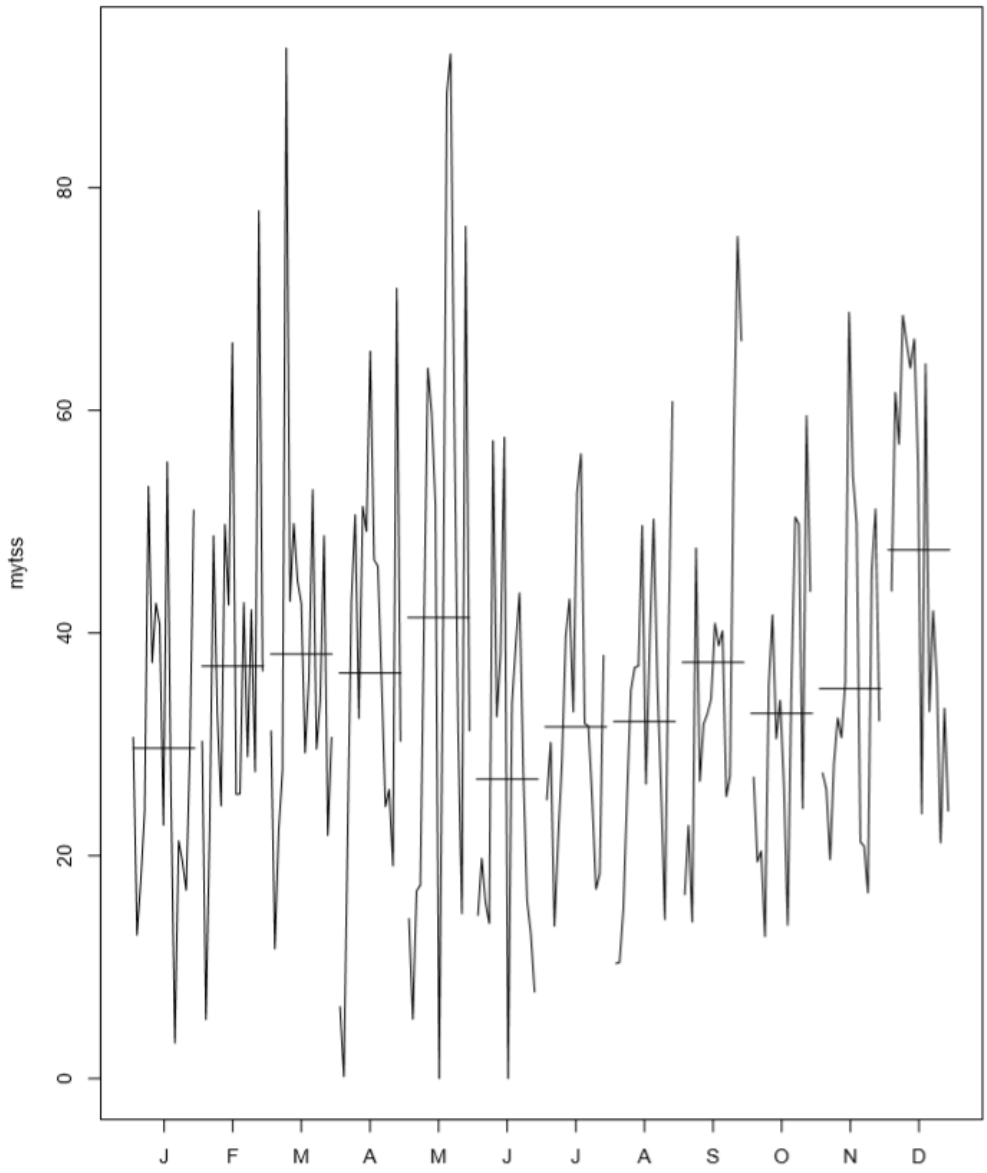


Figure 4. The Evolution of Populism from a Monthly Perspective



5. Examining the Link between Political Populism and Economic Insecurity

Having completed the measurement of political populism over time, we are now in the position to proceed with the test of our remaining hypotheses (as outlined in section 3). Questions such as "Does populism intensify under conditions of crisis?" or "Is there a significant effect of economic insecurity on populism?" are central for the quantitative analysis that follows.

To begin with, one should keep in mind a largely cited in econometrics phrase, which renders all quantitative models wrong but suggests that some of them provide useful insights. In this section we deploy the widely known multiple regression analysis (OLS method) on time series data to understand whether there is a link between economic insecurity and political populism.

Multivariate linear regression is usually criticized as a valid way to establish causal identification, especially because of the omitted variables bias that the reader has to tolerate with, as in most social sciences studies. One cannot account for all unmeasured confounders of political populism as it entails a behavioral dimension that can be affected by various factors. In that respect, it is worth noting that this analysis lies under the omitted variables bias framework. Interestingly, however, our readers should not worry too much about reverse causality and the existence of a closed-loop system as it is unlikely that political populism (i.e. populist rhetoric) affects directly one of the considered explanatory variables (e.g. unemployment rate etc.).

5.1 Model Specification

At this point, it is necessary to set up a particular model for our analysis. Initially, we use the following specification:

$$POP_t = a_t + b_{it}\, I_{it} + c_{it}\, C_{it} + M_t + e_{t,\ for\ i=1,2}$$

The response variable is named *POP* and represents the political populism time series. The explanatory variable *Ii* is used for (economic) Insecurity and entails the sub-variables I_1 unemployment and I_2 consumer confidence time series which together

constitute our proxy for economic insecurity. Next, the independent variable *Ci* includes the CrisisR[10] dummy variable (C_1) as well as the Tokens time series (C_2) to control for factors that are considered important for the variation in political populism. Finally, *M* represents the monthly fixed effects that are used to introduce independence from the evolution of time. If our research hypotheses are correct, coefficients b_1 should be statistically significant and positive and b_2 should be statistically significant and negative. Accordingly, we expect c_1 and c_2 to be positive, indicating a clearly positive relationship with political populism as originally hypothesized.

5.2 The Contextual Factors and Limitations Behind the Model

At this stage, it is necessary to understand the contextual reasons as well as the limitations that lie behind our quantitative approach. To begin with, Pickett, Reilly and Mclntyre (2005, p.11) discuss the dangers of using Ordinary Least Squares models for time series data, as OLS was initially developed to analyze cross-sectional data. Many scholars blindly adopt the OLS approach without being aware of its pitfalls. One of the most fundamental assumptions needed for the use of OLS is the independence between our observations. That is clearly a criterion that is not met by our macro-economic time series data, as knowing the observation for unemployment at a given time point has predictive power to explain its short-term fluctuations. On the contrary, though, it is valid to suggest that the recently created time series for political populism does not suffer from this issue, as political populism is defined and measured with a dictionary approach and is afterwards converted to average monthly values. As such, we can claim that the political populism time series has properties similar to a cross-sectional dataset (i.e. merely knowing the value of one observation does not reveal information about the value of another).

That being discussed, and building upon the thoughts of Chatfield and Xing (2019, p.154), we know that the use of multiple regression on time series data can be dangerous "except when there are clear contextual reasons why one or more time series should explain variation in another." As thoroughly discussed in chapter 2,

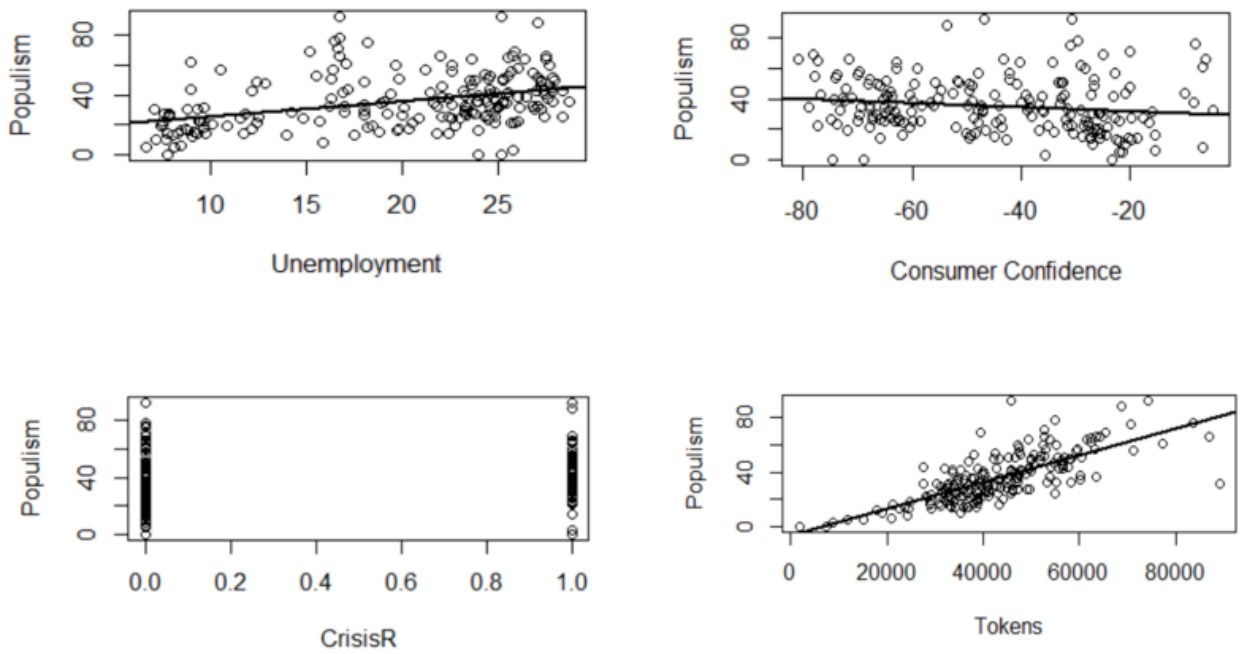
[10] A dummy that has been used to control for the yeas of extreme socio-political uncertainty in Greece.

recent academic literature on populism suggests that the role of economic insecurity for the variation of populism levels is significant. Even scholars that undermine its explanatory power for populism (see Margalit, 2019) do not dismiss the possible link. In this way, we confidently proceed with this method despite the fact that one needs to be rather cautious for the so-called spurious regression pitfall, which is a "fatal" issue.

5.3 Understanding the Properties of Our Time Series

Visualizations provide rather useful insights before the actual quantitative analysis is conducted. That is why we present figures that depict the hypothesized linear relationship between our model's response and explanatory variables. Figure 5 suggests that political populism appears to have a slightly positive relationship with unemployment, a slightly negative relationship with consumer confidence and a clearly positive relationship[11] with the number of tokens per parliamentary session. What is more, one can intuitively say that political populism moves towards higher levels during conditions of crisis, as the graph with the CrisisR dummy variable suggests below.

Figure 5. Basic Visualizations



frequency of words. It is reasonable to identify more populist words within larger documents and that is something we control for.

When working with time series, one of the first things scholars need to examine is stationarity[12]. This step is rather important as a non-stationary variable can cause several model mis-specifications. To check for stationarity, we run the following tests: the Auto-Correlation Function (ACF) to identify whether correlation at different time lags reaches 0, the Box-Ljung test for independence, the Augmented Dickey-Fuller (ADF) test for unit root and the Kwiatkowski-Phillips-Schmidt-Shin test (KPSS) for trend stationarity. After testing both the response and the considered explanatory variables for stationarity, we cannot confidently claim that they are stationary ones. The ACF finds the political populism time series to be stationary, while the rest (consumer confidence, unemployment and tokens) to be non-stationary. Ljung-Box suggests that all time series are non-stationary as we cannot reject the null hypothesis. The ADF test cannot reject the null of non-stationarity for all variables except for populism and lastly, KPSS rejects the null of trend stationarity for all variables. In conclusion, we cannot be confident that non-stationarity is a non-issue.

5.4 Modelling Assumptions and Initial Findings

However, if we proceed by accepting that we regress non-stationary explanatory variables which are integrated of order I(1) on the stationary response variable of populism which is integrated of order I(0), we have the results presented in table 8. As conventional statistical measures do not seem to be appropriate to evaluate such a model, though, Baffes (1997) suggests a method which can help in explaining such a model's performance. This method includes "examining the properties of the disturbance term as well as the stationarity properties of the predicted value of the dependent variable" (Baffes, 1997, p.70). Consequently, to explore our model further, we need to proceed with a series of specific tests.

The first test is based on the Residuals vs Fitted plot which tests the assumption that the relationship between our variables is linear and that there is equal variance across the regression line (i.e. we have homoscedastic data). All six models in table 8 seem to behave rather well in this test as we generally have symmetrical distribution around

[12] A criterion implying that the mean and variance of a time series are constant and not dependent on time.

the 0 line. In terms of outliers, models 2,3,5 and 6 are considered very good. The second required test is the normal QQ plot which examines whether the response variable is normally distributed. All 6 models produce pretty good plots which indicate normal distribution. Thirdly, we need to examine the scale-location plot which indicates whether our residuals are homoscedastic. Models 1,2,3,4 and 6 perform satisfactorily, while model 5 suffers from heteroskedastic residuals. Finally, the Residuals vs Leverage plots help us in the identification of influential data points which lie outside the red dashed Cook's distance line. Only model 5 appears on the verge of facing this influential data points issue.

The major issue of this quantitative analysis, which is part of the basic OLS assumptions, is that our observations are not independent from each other. However, we have clear contextual reasons that incentivize us towards regressing unemployment and consumer confidence with political populism. Unemployment and consumer confidence are intrinsically associated with conditions of crisis and are reasonably linked with political populism in the way explained along the following lines. From a theoretical perspective, conditions of crisis and uncertainty trigger the citizens' demand for political populism (i.e. populist rhetoric) that promises a relatively better future. As this situation evolves, politicians capture this demand and lead the society towards an equilibrium where supply equals demand for political populism. This is a fairly sensible hypothesis that a quick historical retrospection on periods of crises can confirm.

To continue with the modelling process, though, it is worth noting that multicollinearity is not a dangerous element as the quantity and quality of explanatory variables have been selected with care to avoid such concerns. Following the recommendations of Baffes (1997) on regressions that entail non-stationary explanatory variables and a stationary response one, and thereby having examined the disturbance term's properties as well as the stationarity levels of the dependent variable's predicted value, we understand that reliable insights can only be extracted from model 1. Model 1 indicates a negative coefficient b_2 at the 5% level of statistical significance. A one unit increase in the score of consumer confidence is associated

with a 0.136 decrease in the score of political populism, after including monthly fixed effects.

This confirms the hypothesized relationship and shows that one out of economic insecurity's two considered variables has satisfactory predictive power.

5.5 Model Transformation and Results

However, as the required modelling assumptions are only limitedly met, it is most likely that our results are spurious and are driven by uninteresting factors. Thus, to address the issue of non-stationarity and to be able to use the conventional statistical measures without conditions, differencing is implemented in both dependent and explanatory variables. As Chatfield and Xing (2019, p.42) discuss, first-order differencing is normally a sufficient action to produce stationary series for non-seasonal data. However, as the populism and unemployment data can be regarded as seasonal[13], we proceed with a second-order differencing to produce clearly stationary time series that can be trusted. In addition, as our venture to capture the effect of economic insecurity on political populism lies on risky grounds, we again need to account for the suggestions provided in Chatfield and Xing (2019, p.137). These guidelines include the testing of necessary assumptions that have been implemented above and can ensure reliable results. Consequently, our model is transformed in the following way.

$$\Delta[\Delta(POP_t)] = a_t + b_{it}\,\Delta[\Delta(I_{it})] + c_{it}\,\Delta[\Delta(C_{it})] + e_t$$

[13] The summer period is generally quieter in terms of heated debates and the existence of populist rhetoric.

Table 8: OLS Estimation on the Role of Economic Insecurity for the Variation in Political Populism

		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Independent Variables	*(Intercept)*	31.083 ***	17.489 ***	17.964 **	34.029 ***	-17.115 ***	15.797
		(-4.974)	(-5.227)	(-5.574)	(-4.093)	(-3.627)	(-12.242)
	Consumer Confidence	-0.136 *				0.019	0.108
		(0.062)				(0.066)	(0.419)
	Unemployment		0.956 ***	0.916 ***		0.650 **	1.607 **
			(0.172)	(0.233)		(0.199)	(0.594)
Control Variables	*CrisisR*			0.817	9.298 ***	1.984	4.693
				(-3.265)	(-2.493)	(-2.337)	(-3.996)
	Tokens					0.001 ***	
						(0.000)	
	*Unemployment *Consumer Confidence*						0.008
							(0.019)
Fixed Effects	*Monthly Fixed Effects*	X	X	X	X		X
	R^2	0.177	0.280	0.280	0.216	0.642	0.316
	Adj. R^2	0.123	0.231	0.227	0.164	0.635	0.258
	Num.obs.	194	192	192	194	192	192

Standard errors in parentheses. *** p < 0.001; ** p < 0.01; * p < 0.05

The only difference now is that we have second order differencing which produces stationary time series and that the monthly fixed effects have been removed. The Greek letter **Δ** denotes that each time series has been differenced. Other than that, notation remains the same as before. The results in table 9 show that statistical significance is not reached any more. It is worth noting that R squared has significantly fallen to 1-2% across all models. It is reasonable to expect very small values of R squared as we have only included few independent variables to explain political populism which can be affected by various (omitted in this study) factors. In fact, though, there are two key findings here. In all 4 models considered, the coefficient for consumer confidence remains negative (as the previous analysis suggests) but non-statistically significant. Similarly, the coefficient for unemployment is always positive but again non-statistically significant. These findings show that the there is indeed a trend between our independent variables and political populism, but it does not reach the required level of statistical significance.

Therefore, this analysis provides empirical evidence that the link between economic insecurity (defined as the combination of unemployment and consumer confidence) and political populism exists but at a non-statistically significant level. The hypothesized effect, however, is not visible. What is more, we observe that the coefficient for the dummy variable CrisisR is negative in all three models it is included, leading us to the inference that it is unclear whether conditions of crisis affect the levels of political populism, questioning the link that has been previously described from a theoretical standpoint. This result aligns with the results of recent cross-national studies which do not find a significant impact of the 2008 global crisis on the degree of political populism (Lisi, Llamazares and Tsakatika, 2019, p.1; Stankov, 2018, p.251). Therefore, Hypothesis 2 does not seem to be true from an empirical standpoint.

Table 9: OLS Estimation on the Role of Economic Insecurity for the Variation in Political Populism (Differenced Models)

		Model 1	Model 2	Model 3	Model 4
Independent Variables	*(Intercept)*	-0.012	-0.019	0.049	-0.021
		(-2.865)	(-2.855)	(-2.875)	(-2.862)
	Δ[Δ(Unemployment)]	3.106	3.150	3.076	3.040
		(-2.156)	(-2.148)	(-2.173)	(-2.167)
	Δ[Δ(Consumer_Confidence)]	-0.221	-0.339	-0.342	-0.373
		(0.486)	(0.491)	(0.492)	(0.498)
Control Variables	*Δ[Δ(CrisisR)]*		-30.270	-30.629	-27.419
			(-19.930)	(-20.030)	(-20.996)
	*Δ[Δ(Unemployment)] * Δ[Δ(Consumer_Confidence)]*			-0.086	
				(0.336)	
	Δ[Δ(Tokens)]				0.293
					(0.665)
	R^2	0.011	0.024	0.024	0.025
	Adj. R^2	0.001	0.008	0.003	0.004
	Num.obs.	190	190	190	190

Standard errors in parentheses. *** p < 0.001; ** p < 0.01; * p < 0.05

6. Conclusions and Future Research

The findings of our analysis do offer some tentative insights into how political populism evolves in Greece since 2004. From a descriptive standpoint, political populism seems to surge in conditions of crisis (especially after the global financial meltdown of 2008). However, this result is not empirically confirmed.

Tellingly, though, our results move along the same direction as Vasilopoulou et al (2014), who suggest that higher levels of political populism should be expected in December when heated debates concerning the following year's budget occur. This finding is sensibly expected but it also confirms the robustness of political populism's identification and quantification process, which are extremely difficult and labor-intensive tasks.

To continue, our models suggest that there is a weak link between economic insecurity (i.e. as a proxy that combines consumer confidence and unemployment) and political populism (i.e. as quantified in the context of the Hellenic Parliament) in Greece. This comes in alignment with Margalit (2019), who argues that the populist surge explained by economic insecurity is rather modest.

The important innovation that this paper brings to literature, however, is the dictionary for Greek political populism (as presented in section 4). This dictionary allows us to explore populism from the Hellenic parliament's plenary session scripts perspective, which is unseen. Our abovementioned findings suggest that we have followed a well-thought and robust approach that can be replicated in the future. Our paper sets the basis for future scholars to better explore the phenomenon of populism from a new -to the Greek context- perspective.

The interested reader, though, is advised to account for the analysis' challenging identification issues and note that the results allegedly lie in a suggestive rather than inclusive framework. As Gidron and Bonikowski (2013. P.113) discuss, "to explore content validation we must ask ourselves whether the produced indicators adequately capture the full content of the systematized concept." As such, our methodological approach has been developed by questioning each step of the process, by taking into

consideration the various pitfalls that the existing literature denotes and by accounting for the possible difficulties that lie behind the study of Greek language. As no quantitative method replaces the human critical thinking which is useful for taking decisions under complex situations (Grimmer and Stewart, 2013), we consider the combination of human and computer intelligence as the best strategy to move forward in the particular field of populism. In the foreseeable future, we expect systematic comparative work to shed light on a wider number of populism's properties, as it constitutes "a crucial feature of political reality in contemporary democracies" and there are much that are still not understood in full (Gidron and Bonikowski, 2013, p.33).

This paper ultimately sets out recommendations that may inspire scholars to conduct further research in the field of Greek political populism. Building upon both this paper's findings and our dictionary approach, it would be interesting that scholars further examine populism from a comparative perspective: (i) between the different parties of the Hellenic parliament, (ii) between complete parliamentary sessions. Besides, as our paper covers the period until May 2020, it is worth taking a step further to explore the effect of the covid-19 pandemic on political populism (e.g. by including the available plenary scripts of 2020-2021). It would be particularly interesting to do so, by alternatively deploying Vector Autoregressive Models (VAR) which can more efficiently accommodate time series data analysis (for a detailed analysis see Chatfield and Xing, 2019, p.323).

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Appendix A: A Novel Textual Dataset of Greek Parliamentary Plenary Sessions (2004-2020)

The creation of the textual dataset was extremely labor intensive. Even though most of the documents until 2018 were already available in a zip format (Nikoloulia, 2019), many file modification steps were taken. Before moving along with describing them, it is important to note, though, that only one parliamentary document per day has been kept[14] to not over-represent specific days over the others. Additionally, it is worth mentioning that no parliamentary sessions take place within a small timeframe (i.e. around one month) before each national election.

To complete this unique dataset, downloading the missing txt. files for the period 2004-2018 as well as all available sessions of 2019 and 2020 was essential. Then, all documents had to be converted from ANSI to UTF-8 encoding with the help of the online platform "Subtitle Tools". The ANSI format triggers readability issues and is therefore not useful. Even after the format modification, though, specific files were not readable and were therefore excluded. Finally, we had to write code in R to sort the corpus by date and bind all documents into a single textual dataset. Even though, this process is described in just a few lines, it was a very time-consuming one. At this point it is necessary to understand the analyzed corpus a little deeper. In Table 1 below, we provide the data collection summary that is fundamental for this paper.

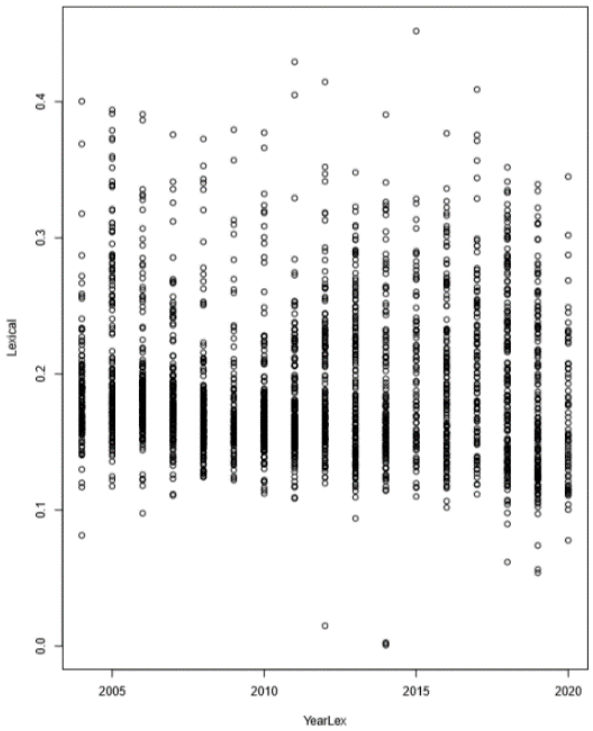
The corpus under study consists of 109,018,379 tokens, 5,394,042 sentences and 6,938 types per document on average. Lexical diversity (measured as the ratio types/tokens) seems to fluctuate as Figure 1 below suggests, showing a small spike in 2005 and the period 2015-2019 when Greece was governed by the radical left SYRIZA.

[14] Sometimes two plenary sessions per day may take place (one in the morning and one in the afternoon). The selection of whether the morning or afternoon session will remain, has been conducted randomly in R by deleting the duplicate rows of dates.

Table 1: Data Collection Summary

Year	Successfully Read Parliamentary Scripts	Parliamentary Scripts with Issues (% of Total Scripts)	Successfully Read Tokens in R
2004	133	0	5,231,760
2005	160	17 (9.60%)	5,627,943
2006	180	0	7,184,131
2007	152	0	6,723,321
2008	197	0	10,131,838
2009	110	27 (19.70%)	5,146,189
2010	191	0	9,009,548
2011	175	48 (21.52%)	8,064,737
2012	155	04 (02.51%)	6,558,233
2013	185	19 (09.31%)	8,348,150
2014	142	39 (21.54%)	6,744,184
2015	87	46 (34.58%)	3,234,428
2016	137	52 (27.51%)	4,807,002
2017	113	56 (33.13%)	4,087,660
2018	165	02 (01.19%)	6,840,634
2019	149	0	8,465,512
2020	69	0	2,813,109
All years	2500	310 (11.03%)	109,018,379

Figure 1. Lexical Diversity Across Time



Using the Quanteda package in R (Benoit, 2018), it is worth discussing the corpus' most common features. This can easily be visualized with the form of a Wordcloud which has been produced in the way described in the following lines. Initially, the corpus is converted to a data feature matrix, punctuations are removed, all letters are converted to lowercase, the Greek language stopwords are removed, and the words that appear more than 1.000 times and less than 30.000 are solely kept. As figure 2 suggests, political speeches seem to be abundant in words such as "why", " issue", "democracy", "government", "measures", "euro" and "because", confirming the nature of the parliament to predominantly debate (social) issues.

Figure 2. Most Common Words within Greek Parliamentary Debates

Appendix B: Relevant Macroeconomic Time Series and Control Variables

Data on macroeconomic time series for Greece were collected through the site GlobalEconomy.com which serves researchers with up to date data that are selected from various trusted sources. The variables that are of particular interest to shape our analysis but are not essentially included in our final results are the following: the business confidence survey, the consumer confidence survey, the consumer price index, the unemployment rate, the government bond 10-year yield, the consumer credit and the bank deposit interest rate. As cited in Eurostat, the business survey indicator deploys opinion surveys to provide information on how the business managers perceive the economic outlook of their companies. Similarly, the consumer survey deploys questionnaires to analyze the public's opinion on tendencies and general economic phenomena in the country. The consumer credit time series which is measured in billions of euros and expresses the total loans that banks have provided to households and individuals for the purchase of goods and services, is being produced by the Bank of Greece. Additionally, the Hellenic statistical authority provides the unemployment rate that depicts the share of the labor force that is unemployed but is available and seeking for a job. Again, the Bank of Greece produces the deposit interest rate time series which they define as the "average interest rate on one-year term deposits offered by commercial banks to the households." A rather interesting time series is the consumer price index, provided by the Hellenic statistical authority, depicting "the changes in the cost of a basket of services and goods consumed by the average urban household." Finally, a variable that reveals many information concerning how a country's economy is performing is the 10-year government bond that the European Central Bank provides. Simply explained, it is the estimated return on investments expressed as an annual percentage of the original investment. Despite considering all these previously mentioned variables, only 2 of them appear to be quite relevant to the economic insecurity definition; these are the consumer confidence surveys and the unemployment rate. The rest may be used as control variables in the process of modelling the effect of economic insecurity on populism.

Besides, we have two additional control variables that are of particular interest. The first one is the dummy variable “CrisisR” that takes the value of 1 for the period starting in January 2010 and ending in August 2015, when Greece went through a socio-economic crisis that is rarely found across the world. Using this variable, we want to control for these extreme conditions and study the direct effect of economic insecurity on populism. The second variable is called “Tokens” and constitutes an excellent proxy for the length of each parliamentary debate. As lengthier documents are expected to contain more words from our populist dictionary, we want to control for the variation explained from such factors.

Appendix C: Identification of Political Populism; Indicative Examples with my Research Assistants' Judgement.

Table 4: The Identification Process of Populism (Original in Greek)

Date	Text Before the Keyword (original in Greek)	Keyword	Text After the Keyword (original in Greek)	Researcher 1	Researcher 2
25/2/2020	οι Βουλευτές και εσείς ξέρετε τι ακριβώς υπογράψατε με τη διάταξη για τη δέκατη τρίτη σύνταξη . Είναι ντροπή να σας το διαβάζει ξανά και ξανά και εσείς να σφυράτε	κλέφτικα	. ΠΡΟΕΔΡΕΥΟΥΣΑ (Σοφία Σακοράφα) : Κύριε συνάδελφε , ολοκληρώστε . ΕΥΚΛΕΙΔΗΣ ΤΣΑΚΑΛΩΤΟΣ : Τριάντα δευτερόλεπτα . Δεν ξέρατε δηλαδή , τι υπογράψατε , δεν έχετε ακούσει τον Βορίδη	1	1
1/6/2005	αυτή είναι μια πραγματικότητα . Τολμάτε εσείς να μιλάτε για συνέντευξη που εσείς πρώτοι την καθιερώσατε ; Είναι αυτή λογική ; Ισχύει , λοιπόν , ακριβώς το « φωνάζει ο	κλέφτης	να φοβηθεί ο νοικοκύρης » . Ε , όχι λοιπόν , αυτό δεν θα σας περάσει . Εδώ έχουμε μια Δημόσια Διοίκηση , την οποία πρέπει να συμμαζέψουμε και τα	1	0
26/8/2008	ποιότητα και χαμηλότερες τιμές , διότι παγκόσμια συζητιέται η ενίσχυση της αγροτικής παραγωγής και οι πολιτικές -αυτό που έλεγα προηγουμένως- της αυτάρκειας των χωρών σε αγροτικά προϊόντα και κάποιοι σφυρίζουν	κλέφτικα	. Το σχέδιο νόμου έρχεται ούτως ή άλλως με καθυστέρηση , χωρίς να μπαίνει σε κρίσιμα ζητήματα που θα βελτιώνουν ουσιαστικά τις συνθήκες και τους όρους της πρωτογενούς κτηνοτροφικής παραγωγής	0	0
12/5/2010	την εποχή εκείνη -αν θυμάστε όσοι από εμάς είναι παλαιότεροι ή όσοι έχουν μελετήσει την περίοδο πριν την δικτατορία- όπου επικρατούσε η φαυλοκρατία , το γενικό σύνθημα « κάτω οι	κλέφτες	» , όπου οι πάντες ήταν ίδιοι , όπου οι θεσμοί ήταν καταρρακωμένοι και αφυδατωμένοι και οδηγηθήκαμε στους συνταγματάρχες . Τώρα η περίοδος είναι τέτοια που αν δεν αναλάβουν τις	0	1

Table 5: The Identification Process of Populism (Translated from Original)

Date	Text Before the Keyword (Translation from original)	Keyword	Text After the Keyword (Translation from original)	Research. 1	Research. 2
25/2/2020	the members of the parliament and you, know precisely what you signed with the legal clause for the 13th pension. It is a shame that he states it again and again and you pretend	knowing nothing about it.	[President of the Parliament] Sofia Sakorafa: Please, sum your thoughts up. Euclid Tsakalotos: Just give me thirty seconds. To clarify, you didn't know what you signed as if you haven't heard Mr. Voridis...	1	1
1/6/2005	this is the reality. How dare you talk about the interview that you established in the first place? Is this sensible? Consequently, it is valid to state that the	thief	blames the victim. This is not acceptable. We have a public administration that we have to organize and…	1	0
26/8/2008	the quality and the lower prices, becase strengthening agricultural production is being discussed in a worldwide scale, and the policies, as I was explaining before, for countries to be agriculturally self-dependent, while some pretend	knowing nothing about it.	This legislation is coming with serious delays, without discussing critical topics that could improve the conditions of livestock farming.	0	0
12/5/2010	at that period of time - if the older of us remember or the ones who studied the period before the dictatorship in Greece - when political corruption was dominant, and the common phrase "stop the	thieves"	was stated, when everybody was the same, when the institutions were rather corrupted, and we were led to the state where the colonels were ruling. Now is the time that if they don't take..	0	1

Appendix D: Indicative Events that have Shaped the Emergence of Populism in Greece

Date	Event
15 September 2008	The Lehman Brothers (USA) collapse and trigger the global financial meltdown.
December 2009	The 2010 Greek austerity budget is discussed.
3 March 2010	The Greek government announces severe austerity measures in view of the upcoming bailout program.
2 May 2010	The 1st Memorandum of Understanding (MoU) is signed by the European Central Bank, the International Monetary Fund and the European Union to prevent Greece's default.
14 March 2012	The 2nd MoU is signed signaling the failure of the former.
5 July 2015	The Greek Bailout Referendum takes place and Greece faces the risk of being ousted from both the Eurozone and the EU.
23 June 2016	Populism in Britain prevails, and the UK becomes the first country that opts for an exit from the EU.
June 2018	The Prespes agreement between Greece and F.Y.R.O.M. is signed to rename the latter as "North Macedonia", a topic that triggers massive protests all over the country.
February 2019	The Prespes agreement is validated.
April 2020	The COVID-19 health crisis appears to "kill" political populism as trust in institutions rises again.

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