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in European countries: A multidimensional approach

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Abstract

Economic insecurity is a key well-being outcome because the anticipation of future economic distress reveals itself as a true threat to current well-being. Insecurity has been shown to affect quality of life and to change an individual's consumption, fertility, labor supply and even political support decisions to mitigate risk. This paper provides evidence on the dimension, nature and distribution of economic insecurity for 27 EU countries during a whole decade by using a multidimensional individual approach that considers both objective and subjective indicators. The young, the less educated and the unemployed living in households with dependent children have significantly higher levels of economic insecurity everywhere. However, insecurity affects the population in the middle-class only in some countries but not in others, and the level of insecurity in liberal regimes is more linked to large income losses than elsewhere. The role of objective versus subjective dimensions is larger in post-transition Eastern European regimes than in long-standing capitalist countries.

Keywords: economic insecurity, welfare regimes, counting approach, multidimensional index, European countries

JEL codes: D63, I31

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1 Introduction

The Great Recession caused an increase in inequality, poverty and material deprivation in several EU countries but also brought to light the importance of another dimension of well-being: economic insecurity. Although there is yet no general consensus in a definition of insecurity in the relevant literature, this phenomenon can be generally understood as the anxiety or stress that individuals feel when they anticipate future economic hazards and the impossibility to recover from them (Bossert and D'Ambrosio, 2013, 2016; D'Ambrosio and Rohde, 2014; Hacker et al., 2010; Osberg, 1998; Osberg and Sharpe, 2002, 2005; Rohde et al., 2015; Rohde, Tang and Rao, 2014; Rohde and Tang, 2018). Research on economic insecurity has been growing in recent years, as the anticipation of future economic distress reveals itself as a threat to current well-being. This decrease in an individual's quality of life may impact many spheres, as their behavior will be modified to mitigate the risk they are currently facing: for instance, by reducing private spending (Benito, 2006; Bowman, 2013), by postponing fertility (Fiori *et al.*, 2013; Mansour, 2018) labor market decisions, decreasing investment in children's education (Boarini and Osberg, 2014; Stiglitz et al., 2009), affecting physical and mental health (Modena et al., 2014; Smith, 2009; Staudigel, 2016; Rohde, Tang and Osberg, 2016; Rohde et al., 2016; Watson, 2017) or increasing the political support for right-wing parties (Lepinteur et al., 2018). Thus, the effect of economic insecurity levels could transcend from the macro level and to the political sphere.

So far, comparative analyses on economic insecurity are still scarce and are based either on multidimensional approaches that use aggregate indices on different insecurity dimensions (Osberg and Sharpe, 2005, 2014; Berloffia and Modena, 2014) or are essentially unidimensional when considering individuals or households (Nichols and Rehm, 2014; D'Ambrosio and Rohde, 2014; Rohde, Tang and Rao, 2014). Most often, approaches to the measurement of insecurity are based only on subjective measures linked to employment or job insecurity (Sverke et al., 2006; Probst et al., 2018) but fail to consider other individual objective risks. Indeed, some largely comparative approaches on individual insecurity focus on employment or job security but avoid approaching economic insecurity as a comprehensive phenomenon.

The main basis for the development of strong welfare regimes in many European countries and in the United States (US) during the last century was the necessity to reduce

both the objective and subjective perceptions of insecurity for post-war populations that frequently suffered from unemployment, low wage, retirement and other life-cycle or business-cycle episodes. As Ranci et al. (2017) underline, the spread of economic insecurity through the middle-class of the United States in the last decade (Hacker, 2008; Frank, 2013) is a true threat to this post-war consensus on the role of the welfare state. Unfortunately, the evidence on the level, extension and distribution of economic insecurity in European societies is much scarcer. Ranci et al. (2017) seem to support the idea that insecurity in Europe is experienced not only by the poor but also by the middle-class and across the varieties of capitalist and welfare regimes. However, these authors base their analyses in a concept that is nearer to economic strain (financial strain, over-indebtedness and material deprivation), which is related more to income volatility and chronic poverty than to a comprehensive measure of insecurity including objective and subjective dimensions.

To provide a comprehensive measure of economic insecurity, Romaguera de la Cruz (2019) has underlined the advantages of using a multidimensional individual economic insecurity index in the European context, considering both subjective and objective dimensions, as well as past experiences and predictions, and following Rohde et al.'s (2015) proposal on insecurity dimensions for Australian data. In fact, a complex phenomenon such as economic insecurity surely calls for a multidimensional approach that allows us to learn about the demographic and socioeconomic characteristics of the most insecure individuals in our societies. In this vein, she proposed adapting Rohde et al.'s (2015) methodology to measure individual insecurity in Europe in a multidimensional way, using longitudinal data from the European Union Statistics of Income and Living Conditions (EU-SILC). We must highlight that this approach adapts the counting method to the economic insecurity field, allowing for the study of both incidence and intensity in one indicator and its decomposition by dimensions or subpopulations.

To proxy objective hazards that individuals may face, we consider large income drops from one year to another, unemployment risk and a probability of extreme expenditure distress. Additionally, subjective indicators of economic insecurity are based on the household's inability to face unexpected expenses, a measure of financial dissatisfaction and an indicator of any changes in the ability to go on a holiday. Subsequently, we aggregate these simple indicators using a counting approach (Atkinson, 2003; Alkire and

Foster, 2011) traditionally used in multidimensional poverty analysis but useful in measuring economic insecurity (Bucks, 2011) and other phenomena, such as multidimensional affluence (Peichl and Pestel, 2013a, 2013b) or labor precariousness (García-Pérez, Prieto-Alaiz and Simón, 2017). We believe this is a comprehensive method with a simple implementation that has several advantages: it is more robust to the way we define dimensions and to the presence of outliers (in comparison to other aggregation methods as principal components analysis (PCA) or a simple mean of dimensions), and it allows us to compute a series of aggregate indicators that facilitate the analysis of insecurity in time and to compare insecurity levels and nature between regions, considering both incidence and intensity in a single measure (the economic insecurity adjusted rate, M_{EI}). This multidimensional individual perspective enables us to identify the most insecure subgroups, the major source of insecurity for the population and the discrepancy between perceptions and objective indicators in each of the welfare state clusters considered, allowing us to better understand the phenomenon to guide social policy design to fight insecurity in the EU. Furthermore, we will also be able to analyze the distribution of insecurity by income decile and the relative importance of each dimension according to the individual's position on the income ladder by welfare state regime.

This paper aims to contribute to the literature on comparative analysis of well-being outcomes by welfare state regimes that has traditionally focused only on impacts on income inequality and poverty and has not yet provided enough evidence on the role of regimes on the dimension and nature of individual economic insecurity in developed countries. Our analysis includes 27 European countries grouped into five welfare state regime clusters that allow us to provide a more general discussion about the extension and distribution of insecurity in different regimes and to identify the different role of each dimension in contributing to a comprehensive measure of economic insecurity.

The paper is structured as follows: Section 2 presents a review of previous results of comparative research on economic insecurity, while Section 3 defines the methodology to construct our insecurity dimensions as well as an insecurity multidimensional index. Section 4 describes the data, presents a brief analysis of the evolution of economic key variables and discusses our main results. The last section concludes.

2 Background

Using aggregate multidimensional measures of economic insecurity, Osberg and Sharpe (2002, 2005, 2014) have measured the levels of economic security in 14 OECD countries as one of their four dimensions of their well-being index (IEWB, Index of Economic Well-Being), showing that Nordic countries (Denmark and Sweden) have the lowest levels of insecurity of these developed countries, while the US, Spain and Canada are within the most insecure of that group. In addition, these authors show that economic security, linked to security from unemployment, illness, single-parent poverty and old age poverty, has had a generally increasing trend since the 1980s up to 2005 in most countries, while since the last recession there are some worrying falling trends. Security levels have decreased in two Nordic countries, Denmark and Sweden; a Central-European country, The Netherlands; and two Mediterranean countries, Italy and Spain. Denmark and Sweden had registered high levels of security for decades, so these recent reductions still preserve their high positions in the general ranking. However, this was not the case for Mediterranean countries. Spain, for instance, with a low security level since the 1980s has experienced small but persistent reductions of security up to 2000 (3.5% from 1980 up to 2000) and then a large reduction from 2005 up to 2014 (a 15% drop). In general, it appears that this negative trend is strongly linked to the large decrease in the security from unemployment and to some decrease in security from single-parent poverty, cushioned by some increase in the security of old age poverty.

Unfortunately, an aggregate measure of security for each society has strong limitations to identify the different socioeconomic or demographic characteristics of the most insecure populations and analyze their contribution to the total security index. To improve this, Nichols and Rehm (2014) undertake a unidimensional individual approach to the study of income risk by using gross and net income as a reference variable and, in line with aggregate multidimensional measures, find that Nordic countries have the lowest levels of economic insecurity while Italy, Spain, France and Germany show the highest when considering gross incomes. As it could be expected, the US reveals itself as the most inefficient tax-benefit system in reducing insecurity, as it is the country with a lower level of security when considering a household's net income. In a similar pattern, Rohde, Tang and Rao (2014) analyze insecurity levels by using downward income instability in Britain, the US and Germany and obtain that insecurity levels based on pre-government incomes are highest in Britain and lowest in Germany, while results for post-government

are highest in the US. Given that insecurity estimates based upon pre-government incomes are heavily concentrated at the lower end of the distribution, they find that some regimes are more effective at smoothing the income streams of these households. Thus, despite austerity and all the pressures to which European welfare states are exposed, regime differences in economic insecurity remain quite resilient.

However, other unidimensional studies of insecurity reach very different conclusions. For example, D'Ambrosio and Rohde (2014), who use information on changes in household wealth to measure insecurity (i.e., focusing on wealth as a buffer stock), find that US households have a higher level of economic security, on average, compared to Italian ones because they own a larger stock of financial assets. Consequently, they find that this has also meant that the large falls in assets' prices during the last economic crisis had a greater impact on US households than on Italian ones. That is, low asset prices had a much larger impact on insecurity for individuals in the lowest tail of the US wealth distribution than for those in the lowest tail of the Italian one. Clearly, in this analysis the omitted role of the public contributory pension system in Italy, which reduces the acquisition of wealth as a buffer stock during employment years to then cover retirement, is a key issue.

Consequently, main conclusions of unidimensional approaches on the level and trend of economic insecurity are highly conditioned to the dimension selected to measure insecurity, which suggests that using a multidimensional approach could be advantageous. Moreover, comparative analysis of economic insecurity using multidimensional individual indices is still scarce, mainly due to the absence of comparable datasets with individualized information on the relevant dimensions that potentially contribute to it. This paper contributes to fill this gap by presenting a comparative study of economic insecurity for 27 European countries clustered in five welfare state regimes.

Our analysis searches for significant differences in the level, evolution and distribution of economic insecurity between European welfare regimes during the Great Recession and the subsequent economic recovery that certainly had an important macroeconomic impact (with large deficits and persistent debt crisis). We choose to classify our 27 countries into five welfare regime clusters, trying to capture the diversity of institutional settings on the basis of Amable (2003) models of capitalism and also considering the

more traditional classification of welfare systems by Esping-Andersen (1990).¹ Our groups are liberal welfare state regimes (Ireland and UK); corporatist regimes (Austria, Belgium, France, Luxembourg, The Netherlands, Czech Republic, Slovenia and Slovakia); Mediterranean regimes (Greece, Italy, Portugal and Spain); social-democratic regimes (Denmark, Finland, Iceland, Norway and Sweden); and Eastern European regimes (Hungary, Bulgaria, Croatia, Romania, Estonia, Latvia, Lithuania and Poland).

The basis of the classification follows the idea that liberal regimes are based in a limited state intervention with (often relatively low) means-tested benefits that transfer risk coverage to individuals. These regimes rely on active measures aiming to improve the employability of the unemployed and have weak trade unions and relatively large wage disparities. In general, the redistributive role of liberal regimes is more equilibrated between generations, due to the intensive use of non-contributory and means-tested benefits and a more limited use of contributory benefits that favor the younger generations with limited employment records and low monthly wages. In turn, corporatist, Continental or Bismarckian welfare state regimes are designed on the basic principle of covering risks through employment relying on insurance-based benefits and old-age pensions, while the influence of unions remains relatively strong (Kretsos and Livanos, 2016). Within them, we can distinguish Mediterranean countries, where the protection role is shared by insurance-based benefits and family aid and where social spending concentrates on old-age pensions, while collective bargaining has traditionally maintained a highly compressed wage structure. As Flaquer (2000) notes, “these nations’ commonalities relate to the family as an institution. They are characterized both by very strong family-orientated values associated with a low degree of individualization and by the lack of an explicit family policy as evidenced by a very limited number of family-friendly social provisions”. In contrast, social-democratic regimes are characterized by the highest level of social protection with a rather universal welfare provision that transfers risk coverage from the individuals to the state, active policies for the reduction of familial determinants of well-being and effective institutional cooperation promoting adequate individual employment match for the unemployed.

¹ We exclude three countries (Cyprus, Malta and Serbia), due to their limited population and their small sample size in EU-SILC. All results included in this paper are also available by country upon request.

3 Methodology

3.1 An individual economic insecurity index

In this paper, economic insecurity is understood as a multidimensional concept, which allows us to use the counting approach method (Atkinson, 2003; Alkire and Foster, 2011) to produce a composite indicator of insecurity as proposed in Bucks (2011) and Romaguera de la Cruz (2019), in a similar methodology to that used by Peichl and Pestel (2013a and 2013b) for the measurement of multidimensional affluence and by García-Pérez, Prieto-Alaiz and Simón (2017) to quantify labor precariousness. Thereby, we will consider the joint distribution of a series of dimensions in which we believe insecurity reveals itself, a different strand to unidimensional analyses of economic insecurity (D'Ambrosio and Rohde, 2014; Nichols and Rehm, 2014; Rohde, Tang and Rao, 2014) or those that focus on the marginal distribution of certain indicators (Ranci et al., 2017).

We compute the economic insecurity index proposed in Romaguera de la Cruz (2019), using Rohde et al.'s (2015) proposal on key insecurity dimensions. This index adopts a mixed strategy between subjective and objective indicators and includes past experiences, as well as predictions about certain risks. As the EU-SILC dataset does not contain people's appreciations regarding their future economic situations, we proxy subjective insecurity by (a) *household's incapacity to face unexpected expenses*; (b) *household's financial dissatisfaction*, as a measure of discrepancy between disposable income and the lowest annual necessary income, assigning a value 0 to satisfied individuals, and (c) *changes in the ability to go on a holiday*, as this is the first expenditure that individuals reduce when anticipating an economic disorder conversely to other basic items (Deutsch et al., 2014).² This indicator is a dichotomous variable that takes the value 1 if the household is unable to afford one week away from home within a year (t), while they reported to be able to do so the previous year ($t - 1$).

The index also includes several objective measures of economic insecurity. In the first place, it considers (d) *income drops* following Hacker et al.'s approach (2010, 2014). That is, insecurity in this dimension means that the individual has experienced a large income fall (equal or over 25%) in household disposable income and current household income

² For further information about the definition of subjective and objective dimensions, see Romaguera de la Cruz (2019).

is below a proxy for permanent income (understood as mean income of all observations in our panel data). As economic insecurity reduces current well-being by anticipating a future economic distress, our index includes probabilities of suffering certain hazards, which could compromise an individual's financial situation. The index considers (e) *unemployment risk* for active individuals in the household through a probit estimation with lagged explanatory variables, accounting for both the risk of not finding a job or losing the current one.³ In addition, to account for difficulties in consumption of basic needs beyond large downward income losses, our economic insecurity index includes a (f) *probability of extreme expenditure distress*, calculated with an ordered probit model at the household level, in which the dependent variable is an indicator from 0 to 3, counting a series of arrears.⁴ This household's probability of extreme consumption distress is obtained by summing up the probability of experiencing two or three of these overdue payments, and it is imputed to each household member.

After selecting the dimensions of economic insecurity, a specific threshold must be established to consider that an individual lacks security in a dimension if situated below it. Thus, if X_{ij} is the observation of individual i in dimension j with $i = 1, \dots, N$ and $j = 1, \dots, D$ and Z_j is the threshold for dimension j , then individual i is insecure in dimension j if $X_{ij} < Z_j$. For the specific case of dichotomous variables, an individual lacks security in a given dimension if the individual meets a certain condition. Once single indicators for each dimension are available, given w_j as weights, we can construct an individual indicator EI_i that counts the number of weighted dimensions in which an individual lacks security with respect to the total number of dimensions:

$$EI_i = \sum_{j=1}^D w_j I_{ij} \quad (1)$$

where I_{ij} is a variable that takes the value 1 if the individual i lacks security in the dimension j and 0 otherwise, and D is the total number of dimensions (in our case, $D = 6$). Each dimension j is weighted by w_j , the relative proportion of the population that does

³ Once this unemployment probability is obtained, a household unemployment risk is imputed to all inactive members. This household unemployment risk is computed as a weighted average between the probabilities of active individuals, giving more weight to those individuals with a higher market income.

⁴ Arrears on mortgage or rental payments, arrears on utility bills and arrears on hire purchase installments or other loan payments.

not lack security in that dimension, thus giving more importance to less frequent dimensions in a reference population. This relative perspective allows us to adapt our economic insecurity index to a given society, as the relevance of each dimension may be different in one country or another depending on national distributions.

The identification of insecure individuals from a multidimensional perspective requires the establishment of a second threshold (k), so that an individual i is considered multidimensionally insecure if $EI_i \geq k$. In practice, it is possible to use different multidimensional thresholds that go from the union criteria—considering an individual as insecure if he lacks security in at least one dimension ($k \geq \min\{w_1, \dots, w_D\}$)—to the intersection criteria (an individual must lack security in all indicators: $k = D$). In this research, we have chosen an intermediate approach: an individual is economically insecure if he is not secure at least in 50% of the sum of weighted dimensions (in this case, $k \geq 3$).

3.2 Aggregate subgroup-decomposable economic insecurity indices

From an aggregate perspective, we can summarize the information on economic insecurity in a particular country or welfare regime by one scalar using a subgroup-decomposable index. First, we can measure the *incidence* of insecurity in a given population using the multidimensional insecurity rate (H_{EI}), calculated as the number of people classified as economically insecure (q_{EI}) above the threshold k divided by the total population (N). Second, we can report on the *intensity* of economic insecurity by using $\mu_{EI}^{q_{EI}}$, i.e., the mean value of the variable EI_i among the economically insecure as well as its standardized mean A ($\mu_{EI}^{q_{EI}}$ divided by the number of dimensions). Moreover, we can calculate the *economic insecurity adjusted rate* (M_{EI}), an adequate social measure of economic insecurity that considers both the incidence and the intensity of the phenomenon:

$$M_{EI} = \frac{q_{EI}}{N} \frac{\mu_{EI}^{q_{EI}}}{D} = H_{EI}A \quad (2)$$

A relevant characteristic of M_{EI} is that it is decomposable by dimensions and by subgroups of a population.⁵ The decomposition into dimensions allows us to express the adjusted multidimensional insecurity rate as:

$$M_{EI} = \sum_{j=1}^D \frac{w_j S_j}{D} \quad (3)$$

where S_j is the proportion of multidimensional insecure people that lack security in dimension j within the total population. Given that we consider the country distribution of insecurity dimensions, we use frequency weights w_j to construct aggregate indicators of economic insecurity. Thus, the relative contribution of each dimension and subgroup in each welfare regime is calculated as a population-weighted average, thereby giving more importance to those countries with a larger population. Additionally, given T subpopulations we can express M_{EI} as a weighted sum of the adjusted multidimensional insecurity rates of each subgroup M_{EIh} :

$$M_{EI} = \sum_{h=1}^T \frac{n_h}{n} M_{EIh} \quad (4)$$

where n_h is the size of subpopulation h and M_{EIh} is the adjusted multidimensional insecurity rate of the corresponding subpopulation h . In this case, a large contribution to overall insecurity of a certain subgroup can be driven by its huge size and not necessarily by a relevant level of insecurity. Thus, only those individuals belonging to subgroups with a contribution to total insecurity above their population weight will have a substantial economic insecurity that policy makers should try to mitigate. Therefore, we calculate a differential contribution as the rate between the adjusted multidimensional insecurity rate of subpopulation h and overall insecurity (or relative contribution of subgroup h with respect to its frequency in the population):

$$DC_{EI} = \frac{M_{EIh}}{M_{EI}} \quad (5)$$

4 Results

We use information from the longitudinal data of the European Union Statistics of Income and Living Conditions (EU-SILC), a standardized survey on income and other

⁵ For more details, see Alkire and Foster (2011).

demographic and socioeconomic variables at a household and individual level. As our main purpose in this paper is to elaborate a comparative analysis of economic insecurity in the European context, we found this dataset to be the most adequate because it gathers homogeneous variables for all countries, thus enabling for sound comparisons between diverse social contexts. To deal with attrition bias, the longitudinal EU-SILC survey is designed as a four-year rotational panel, with few exceptions.⁶ We use all available waves in EU-SILC containing information from 27 countries from 2008 to 2016.⁷

Our income variable is real household equivalized disposable income, deflated by the Harmonized Consumer Price Index at constant 2015 prices and adjusted for household size and composition by using the OECD modified scale. We trim the data by eliminating the 1% tails of this income distribution (Cowell and Victoria-Fesser, 2006) and discard those individuals remaining in the survey only for a single wave (as we need dynamic indicators). Our final pool of data includes 2,113,914 individual observations and all our results are estimated using sample representativity weights.

Table 1 displays our aggregate indicators of economic insecurity by welfare state regime for the whole period of analysis. Economic insecurity is most frequent in Mediterranean and Eastern European welfare regimes: 12.5% of the population living in the Mediterranean region and 10.5% of those individuals in Eastern Europe suffer from insecurity, whereas this happens to only half (6.6%) of those living in corporatist countries and to one third (3.4%) of those living in social-democratic ones. Nevertheless, the fact that only a small percentage of the population suffers from economic insecurity does not imply a lower intensity among those insecure. Intensity is actually very similar in all regimes (on average, individuals suffer approximately from 3.6 insecurity dimensions), except for Eastern countries where this intensity is slightly lower. Thus, if we focus our attention on the economic insecurity adjusted rate (M_{EI}) that combines

⁶ For France, the dataset has a nine-year rotating strategy, whereas Norway has an eight-year rotating panel. Furthermore, Luxembourg offers a pure panel with no rotation design. However, given that we construct dynamic indicators from $t-1$ to t , a different panel design for a country does not significantly affect our analysis.

⁷ All our income variables are referred to the previous calendar year, while other information is related to the year of the interview. We pool all waves from the longitudinal EU-SILC data set containing information from 2008 to 2016 and discard duplicated observations. An individual can only be observed for a maximum of four consecutive waves due to the rotational design of the panel (except for France, Luxembourg and Norway). Our final sample consists of a four-wave panel of individuals corresponding to different interview years.

incidence and intensity when comparing the phenomena across welfare state regimes, results are almost identical to those when analyzing incidence.

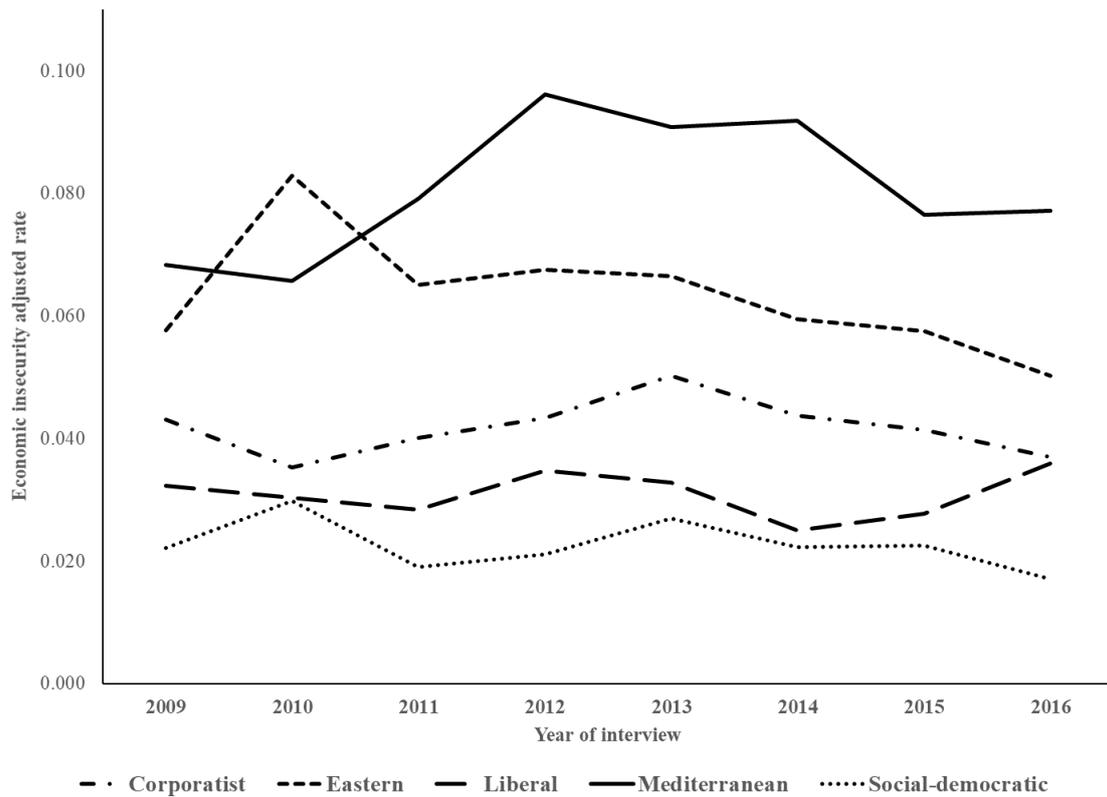
TABLE 1. Aggregate indicators of economic insecurity.

	Corporatist	Eastern	Liberal	Mediterranean	Social-democratic
Incidence (H_{EI})	0.066 (0.001)	0.105 (0.001)	0.048 (0.001)	0.125 (0.001)	0.034 (0.001)
Intensity (A)	0.641 (0.001)	0.612 (0.001)	0.638 (0.002)	0.647 (0.001)	0.650 (0.002)
Economic insecurity adjusted rate (M_{EI})	0.042 (0.001)	0.064 (0.001)	0.031 (0.001)	0.081 (0.001)	0.022 (0.001)

Source: Author's calculations based on longitudinal EU-SILC dataset.

The evolution of insecurity over time is also different depending on the welfare state regime we analyze (Figure 1). In all corporatist, liberal and Mediterranean regimes, the Great Recession was associated with an increase in economic insecurity, even though the rise was relatively larger among the Mediterranean countries. In this region, individuals suffered from relevant household income losses, and there was a large increase in unemployment rates. These two objective dimensions together, with the implementation of large austerity measures in this region and the relatively small size and low efficacy of the tax-benefit systems in improving disposable incomes, has led to a boost in individual anxiety about future economic distress during the crisis. Nevertheless, economic recovery has pushed these countries' insecurity downwards, even if they have not yet returned to their pre-crisis insecurity levels. In contrast, Eastern European regimes display a steady downward trend in insecurity since 2010, which is probably due to positive GDP growth rates as well as a consistent fall in unemployment rates, so that large macroeconomic improvements in the region have helped improve objective insecurity dimensions. Social-democratic countries stand out as the regions with low and very stable levels of economic insecurity since 2009, which suggests that this phenomenon is more of a structural issue in this region and is less subject to changes in the business cycle than in other country groups.

FIGURE 1. Evolution of economic insecurity adjusted rate (M_{EI}). 2009 - 2016.



Source: Author's calculations based on longitudinal EU-SILC dataset.

For an effective public policy design, discovering the major source of insecurity is key. For this purpose, we calculate the relative contribution of each dimension to the overall insecurity adjusted rate for each of our country groups (Table 2). Even if one cannot identify just one dimension that strongly contributes to insecurity in all regions, some patterns are clear. In general, the relative contribution of subjective versus objective dimensions is well-balanced in all regimes, except for Eastern European countries where objective dimensions seem to be more relevant (contributing 62.1% to overall insecurity). Particularly, unemployment risk and the probability of extreme expenditure distress have a larger role in Eastern regimes and account for almost half of their overall economic insecurity adjusted rate. It is true that the late transition of these regimes into capitalism is associated with lower levels of objective well-being than other countries in the European context. In fact, these subjective indicators are less frequent in these societies than the incapacity to face unexpected expenses (with an incidence of 52.9%) and financial dissatisfaction (45.3%). Therefore, even though around half of the population suffers from these two subjective dimensions, they contribute less to global insecurity, as

we consider it more relevant to lack security in those indicators in which most of the population is secure.⁸

Even if Mediterranean and Eastern Europe countries are the most insecure regions, the pattern of relative contributions to insecurity by dimensions is rather different. In Mediterranean regimes, four indicators have a similar contribution, while income drops and changes in the ability to go on a holiday are less relevant. In this case, insurance-based benefits helping cover short-term income drops are better than in liberal regimes but the lack of low means-tested benefits, as well as active employment measures, may increase the role of unemployment risk and extreme expenditure distress in overall insecurity, also influencing subjective indicators.

TABLE 2. Contributions to the economic insecurity adjusted rate (M_{EI}) by dimensions.

	Corporatist	Eastern	Liberal	Mediterranean	Social-democratic
Incapacity to face unexpected expenses	0.193 (0.001)	0.158 (0.001)	0.160 (0.002)	0.188 (0.001)	0.201 (0.002)
Financial dissatisfaction	0.201 (0.001)	0.177 (0.000)	0.174 (0.003)	0.182 (0.001)	0.190 (0.003)
Changes in ability to go on a holiday	0.102 (0.001)	0.071 (0.001)	0.144 (0.003)	0.101 (0.001)	0.116 (0.004)
Income drops	0.113 (0.001)	0.167 (0.001)	0.171 (0.003)	0.149 (0.001)	0.140 (0.004)
Unemployment risk	0.196 (0.001)	0.217 (0.001)	0.166 (0.003)	0.189 (0.001)	0.185 (0.003)
Probability of extreme expenditure distress	0.195 (0.001)	0.211 (0.001)	0.185 (0.002)	0.192 (0.001)	0.168 (0.002)

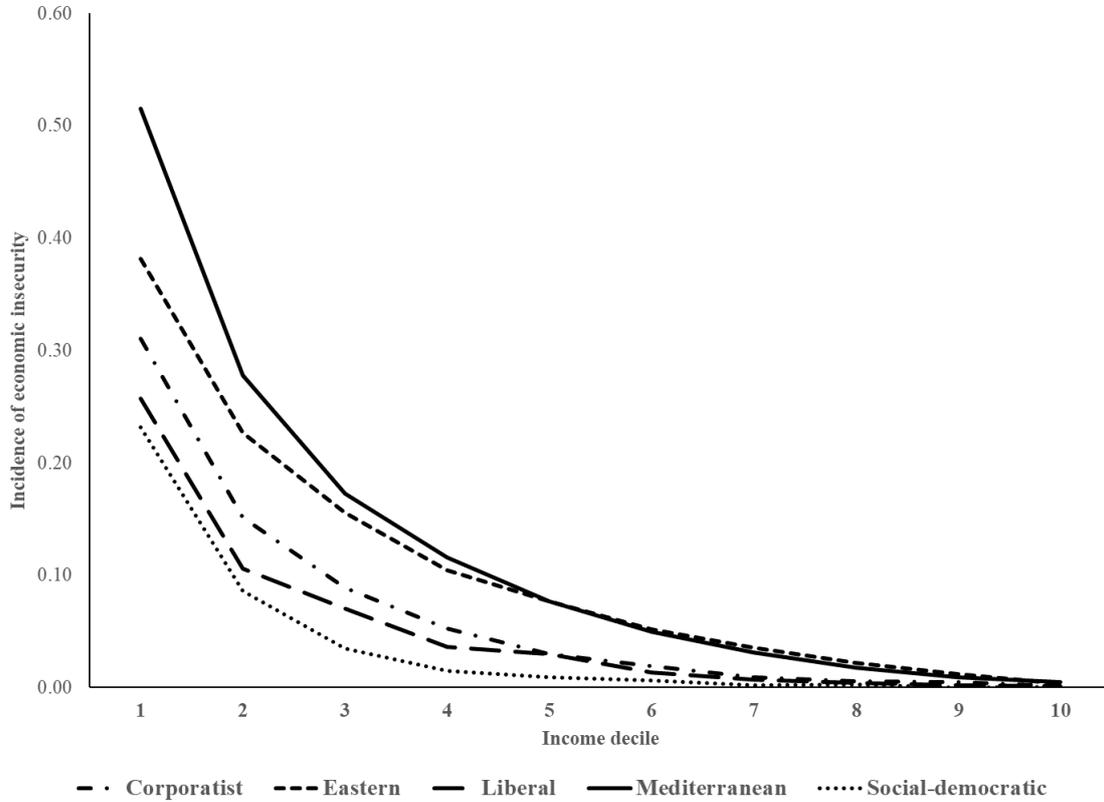
Source: Author's calculations based on longitudinal EU-SILC dataset.

Large income losses have a relatively higher role for those in liberal countries in contrast with the unemployment risk contribution: individuals in this region suffer more from short-term income losses that are not well-covered by its welfare system, which are more focused on active measures to prevent unemployment. In general, except for liberal regimes, the dimension contributing the least is changes in the ability to go on holiday. This result underlines that this dimension is also related to diverse household consumption lifestyles probably conditioned by the different levels of income per capita

⁸ We may recall that we are weighting our insecurity dimensions by the proportion of the population not affected by each one of them. Thus, we are giving less importance to frequent events when producing our insecurity indicators.

between regions and, as it could be expected, affects households at different points of the income and wealth distribution in a different way.

FIGURE 2. Incidence of economic insecurity (H_{EI}) by income decile.



Source: Author's calculations based on longitudinal EU-SILC dataset.

Figure 2 displays the incidence of economic insecurity by income decile, which allows us to examine if there are significant differences between regions related to the diverse welfare systems in place. As expected, insecurity decreases as the level of income grows, despite the region analyzed. In social-democratic countries, insecurity is only relevant for the first and the second income decile, becoming negligible from the fourth decile onwards. In this region, economic insecurity appears to have a stronger correlation with poverty, which is related to a larger universality and effectiveness of welfare provision than in other regimes. For corporatist and liberal regimes, insecurity is an important phenomenon only for those individuals with low and low-middle income. It seems that, even though the configurations of those welfare systems are different, these countries are succeeding in preventing economic insecurity beyond the third decile. Conversely, we can observe that in Eastern Europe and Mediterranean regimes economic insecurity is not only present in low-income deciles but also in middle-income ones. Both regions show a higher incidence of economic insecurity until the fourth decile in comparison with other

regions, and we must also highlight the existence of a relevant group of insecure individuals situated in middle-income deciles because insecurity is noteworthy until the sixth decile. This result puts forward that, for several European countries, focusing only on income-poor groups when studying low well-being in their societies is not enough.

The role of dimensions may also be different for individuals situated in diverse positions of the income distribution. Figure 3 shows the contribution of dimensions to the economic insecurity adjusted rate of two groups: low-income individuals (including those situated up to the third decile) and middle-income individuals (from the fourth to the sixth decile).⁹ The contribution of the incapacity to face unexpected expenses is rather similar for both income groups, as opposed to the contribution of financial dissatisfaction, which is more relevant for the insecurity of low-income individuals. These results suggest that the first indicator captures difficulties in facing expenditure emergencies, which can be understood as transitory distress regarding the individual's position in the income distribution. Nevertheless, financial dissatisfaction captures difficulties in obtaining basic needs, which is a structural problem that affects those with less monetary resources. Also, among the subjective dimensions and, as we would expect, changes in the ability to go on a holiday is more relevant for middle-income deciles than for lower ones. Poor individuals do not cut down this expense, as they probably are not able to ever afford a holiday. Income drops are more important in the lower tail of the income distribution, even though the difference between groups is smaller for Mediterranean and Eastern European regimes, which can be related to the lack of significant means-tested policies in their welfare systems. There is not much divergence between groups in the relative contribution of unemployment risk and the probability of extreme expenditure distress, although we clearly see that the former is more relevant for individuals situated in the middle-class, whereas the latter contributes more to the insecurity of the low-income group.

⁹ We do not include high-income individuals as a relevant group, as the economic insecurity is negligible from the seventh decile onwards.

FIGURE 3. Contribution of dimensions to the economic insecurity adjusted rate (M_{EI}) by income groups.



A final issue for policy design is to learn how economic insecurity is distributed across different subpopulations. Table 3 gathers the differential contribution (DC_{EI}) of diverse sociodemographic groups.¹⁰ For all welfare regimes, the insecurity of women is slightly larger than that of total population, except for Eastern European countries where there are no differences. In general, this differential contribution decreases with age, with those individuals above 65 being the most secure. The insecurity of young individuals (16 – 30) is the highest with respect to general insecurity for all regimes, even though it is relatively lower in Mediterranean and Eastern European regions. It seems that the role of family aid in these welfare-regimes may be relevant: young individuals who anticipate future economic losses choose to stay living with their parents or relatives to cope with these expectations in contrast with other countries such as social-democratic regimes, where emancipation is taking place despite future financial distress. However, our results also underline that social-democratic countries are taking care of the insecurity of children better than any other welfare state. Education appears to have an important role in preventing economic insecurity in all regions. Although the differential contribution for those individuals with secondary education is rather low, only those who reach tertiary education have a lower level of economic insecurity with respect to the whole population.

Unsurprisingly, unemployed individuals show the highest economic insecurity adjusted rate in all regions. Despite the fact that insecurity among unemployed individuals in Mediterranean countries is high, the differential contribution is relatively lower with respect to other welfare regimes, probably due to the large size of this group caused by the huge loss of employment during the Great Recession (especially in Greece and Spain). In social-democratic regimes where unemployment is less frequent, insecurity is more concentrated among those who lack employment. In general, insecurity for households with children is larger than overall insecurity, especially for single-parent households; even though this result is smaller in Mediterranean regimes, pointing to the important role of family aid.

For corporatist and social-democratic regimes, where early emancipation is more frequent, adults living alone suffer from more insecurity with respect to the total population than in other regions. The lack of family support and the incapacity to benefit

¹⁰ If the differential contribution is above one, the group is contributing more to overall insecurity than its population weight. It can be also interpreted as the ratio between the economic insecurity adjusted rate of a certain group and that of the total population.

from economies of scale that provide bigger household structures may be driving this result. In this context, homeownership also seems to matter for economic insecurity: the differential contribution for tenants is above one in all regimes, but it is smaller in those regions where property status is more extended (Eastern European and Mediterranean countries).

TABLE 3. Differential contribution (DC_{EI}) by socioeconomic characteristics.

	Corporatist	Eastern	Liberal	Mediterranean	Social-democratic
Gender					
Female	1.064	1.000	1.039	1.025	1.029
Male	0.935	1.000	0.961	0.975	0.973
Age					
< 16	1.137	1.369	1.247	1.156	0.650
16 – 30	1.497	1.377	1.552	1.365	2.038
31 – 45	1.031	1.035	0.974	1.100	1.020
46 – 65	0.684	0.662	0.615	0.761	0.700
> 65	0.368	0.452	0.244	0.428	0.110
Level of education					
Primary	1.685	1.558	7.231	1.218	0.991
Secondary	1.210	1.151	1.296	1.177	1.243
Tertiary	0.452	0.412	0.607	0.450	0.618
Basic activity status					
Inactive	0.978	0.900	1.018	0.871	1.227
Employed	0.809	0.836	0.791	0.708	0.705
Unemployed	4.502	4.139	4.324	3.303	5.865
Type of household					
One adult without children	1.541	0.738	1.203	1.063	2.349
Two adults without children	0.672	0.571	0.512	0.692	0.630
Other HH without children	0.632	0.728	0.675	0.806	0.667
One adult with children	2.505	2.031	2.209	1.860	2.096
Two adults with children	0.967	1.269	1.060	1.066	0.578
Other HH with children	1.124	1.346	1.530	1.441	0.600
Property					
Tenant	2.315	2.018	2.285	1.986	2.874
Owner	0.416	0.871	0.383	0.707	0.381

Source: Author's calculations based on longitudinal EU-SILC dataset.

5 Conclusions

In this paper, we have analyzed economic insecurity by welfare state regime in a comparative perspective using the counting approach methodology proposed in Romaguera de la Cruz (2019). We calculate a multidimensional and individual index of economic insecurity considering both subjective and objective indicators, as well as past experiences and predictions of future states, based on dimensions suggested by Rohde et al. (2015). These include the incapacity to face unexpected expenses, a measure of financial dissatisfaction and changes in the ability to go on a holiday as subjective dimensions together with other objective indicators such as large income drops, unemployment risk and the probability of extreme expenditure distress.

An individual approach to measuring insecurity allows for a detailed comparative analysis of the level and evolution of insecurity in European countries, studying the relationship between insecurity and the level of income, as well as the contribution of each dimension and different subpopulations to overall insecurity in several welfare regimes. Our analysis provides a sound comparison of economic insecurity levels and evolution in time within a European context using the EU-SILC dataset. The methodology allows us to identify which are the most insecure subgroups in the population and which are the principal sources of insecurity in each region to discover where to focus public action.

Results show that Mediterranean and Eastern European countries are the most insecure regions, while social-democratic countries have the lowest levels of economic insecurity. On average, the economic crisis is associated with an increase in insecurity levels in corporatist, liberal and Mediterranean regimes, while remaining largely stable in social-democratic countries. The role of insecurity dimensions on overall insecurity levels differs between welfare state regimes. In general, the contribution of objective versus subjective dimensions is well-balanced, except for Eastern European countries, where objective dimensions are more relevant. Short-term income losses are relatively more important to liberal regimes, the opposite to the unemployment risk, revealing that its welfare state system is able to avoid insecurity by promoting employment through active employment measures but fails to cover some of the needs due to low means-tested benefits. Changes in the ability to go on a holiday is the least relevant indicator for all

regions, as it affects those individuals in middle-income positions that are suffering from lower economic insecurity levels more.

As one would expect, the incidence of economic insecurity diminishes as we move from the lowest to the highest deciles of the income distribution everywhere. Indeed, we find the most insecure individuals are placed within the first- and second-income decile in all regimes. However, it is crucial to note that it is only in Eastern European and Mediterranean regimes that a relevant group of insecure individuals are placed in intermediate income deciles. This implies that, in contrast with social-democratic, corporatist and liberal regimes, economic insecurity in Eastern European and Mediterranean countries affects a significant part of the middle-class.

We also find that the contribution of each insecurity dimension to overall insecurity differs by income group. There are no large differences between low- and middle-income individuals when analyzing the role of the incapacity to face unexpected expenses, which is more of a transitory distress in contrast with financial dissatisfaction. Income drops contribute more to poor individuals' insecurity, even though the distance between income groups is smaller in Eastern European and Mediterranean regimes, where non-means tested benefits and contributory pensions play an important role.

Interestingly, similar demographic and socioeconomic characteristics imply a relatively higher contribution to general insecurity in all regimes: young individuals, those who have not reached tertiary education, the unemployed and individuals living in households with dependent children. Nevertheless, results show the important role of family aid in Mediterranean and Eastern Europe countries, where individuals who anticipate future economic distress rely on relatives to cope with this expectation. Moreover, the fact that social-democratic regimes are succeeding in preventing insecurity for households with children appears to be related to the universality of its welfare system. Also, homeownership seems to be key everywhere in helping individuals avoid economic insecurity.

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Appendix

TABLE A2. Definition of insecurity dimensions.

Indicator	Variable	Description	Threshold	
Subjective	D1	Incapacity to face unexpected expenses	Household cannot afford an unexpected required expense and pay through its own resources, meaning not asking for financial help, the account must be debited within the required period and the situation regarding potential debts is not deteriorated.	Household cannot face unexpected expenses (= 1)
	D2	Financial dissatisfaction	Difference between lowest annual income to make ends meet (to pay usual necessary expenses) and current household disposable income in relation to needed income. This indicator has a value of zero when the difference is negative (disposable income is larger than needed income).	Household is financially dissatisfied (> 0). Disposable income is smaller than needed income.
	D3	Changes in ability to go on a holiday	Household's incapacity to afford one week away from home in the current period (t), while the household could afford this vacation the previous period ($t - 1$).	Household cannot afford holidays in t while it was able in $t - 1$ (= 1).
Objective	D4	Income drops	Fall in household equivalised disposable income from one year ($t - 1$) to another (t). This indicator takes a value of zero if this fall is not at least of a 25% and current income is not below permanent income.	Household has a large income drop (< 0).
	D5	Unemployment risk	Probability of unemployment (not finding a job or losing the current one).	Individual has a probability of unemployment above the society mean.
	D6	Probability of extreme expenditure distress	Probability of having at least two arrears in the following household payments: (1) mortgage or rent, (2) utility bills, (3) hire purchase instalments or other loans.	Individual has a probability of extreme expenditure distress above the society mean.

Source: Author's own elaboration based on longitudinal EU-SILC dataset.

TABLE A2. Contribution of dimensions to the economic insecurity adjusted rate (M_{EI}) by income groups.

		Corporatist	Eastern	Liberal	Mediterranean	Social-democratic
Incapacity to face unexpected expenses	Low income	0.192 (0.001)	0.162 (0.001)	0.159 (0.002)	0.187 (0.001)	0.198 (0.002)
	Middle income	0.196 (0.001)	0.149 (0.001)	0.161 (0.004)	0.186 (0.001)	0.226 (0.006)
Financial dissatisfaction	Low income	0.207 (0.001)	0.184 (0.000)	0.185 (0.004)	0.196 (0.001)	0.194 (0.003)
	Middle income	0.174 (0.003)	0.155 (0.001)	0.118 (0.007)	0.145 (0.002)	0.163 (0.012)
Changes in ability to go on a holiday	Low income	0.083 (0.001)	0.042 (0.001)	0.121 (0.004)	0.071 (0.001)	0.105 (0.004)
	Middle income	0.179 (0.004)	0.128 (0.002)	0.239 (0.007)	0.188 (0.002)	0.203 (0.015)
Income drops	Low income	0.122 (0.001)	0.178 (0.001)	0.192 (0.003)	0.160 (0.001)	0.150 (0.004)
	Middle income	0.069 (0.003)	0.138 (0.002)	0.083 (0.007)	0.115 (0.002)	0.062 (0.011)
Unemployment risk	Low income	0.194 (0.001)	0.215 (0.001)	0.156 (0.003)	0.185 (0.001)	0.183 (0.003)
	Middle income	0.205 (0.003)	0.226 (0.002)	0.212 (0.006)	0.199 (0.002)	0.192 (0.010)
Probability of extreme expenditure distress	Low income	0.202 (0.001)	0.217 (0.001)	0.187 (0.002)	0.201 (0.001)	0.170 (0.002)
	Middle income	0.177 (0.003)	0.204 (0.001)	0.187 (0.005)	0.169 (0.002)	0.154 (0.010)

Source: Author's calculations based on longitudinal EU-SILC dataset.