

GreeSE Papers

Hellenic Observatory Discussion Papers on Greece and Southeast Europe



Paper No. 171

Precarious employment in Greece: Economic crisis, labour market flexibilisation, and vulnerable workers

Ilias Livanos and Evi Tzika

**Precarious employment in Greece:
Economic crisis, labour market flexibilisation, and
vulnerable workers**

Ilias Livanos and Evi Tzika

GreeSE Paper No. 171

Hellenic Observatory Papers on Greece and Southeast Europe

Contents

1. Introduction.....	4
2. Precarious employment: definitions and measures.....	5
<i>2.1 Understanding and measuring precarious employment.....</i>	<i>5</i>
3. The state of the Greek labour market during the economic crisis and evidence of rising precariousness.....	6
<i>3.1 Reforms and impacts on the labour market.....</i>	<i>7</i>
4. Methodology and data	11
5. Results and discussion.....	14
6. Conclusions.....	24
References.....	26

Precarious employment in Greece: Economic crisis, labour market flexibilisation, and vulnerable workers

Ilias Livanos¹ and Evi Tzika²

ABSTRACT

The discourse on precarious employment has been growing over the last few years, particularly due to the recent financial crisis. Flexible forms of work, such as part-time or temporary, traditionally seen as a way for boosting employment, have now given way to a new form of work, the so-called precarious employment. Greece has been the European country mostly hit by the economic crisis and the levels of unemployment during the past decade have reached unprecedented levels. Nevertheless, the official levels of unemployment only tell a part of the story. Thousands of workers have been “forced” to accept jobs in positions that would not be their first choice, thus masking the real extent of the problem. This paper utilises data from the Labour Force Survey from both before and during the economic crisis in order to investigate different aspects of precarious employment and how these have been intensified. Ten measures of precarious employment are constructed covering six areas including a) contractual precariousness, b) unsociable hours precariousness c) institutional context precariousness d) income precariousness, e) insecurity precariousness and f) working conditions precariousness. The evolution and intensification of aspects of precarious employment is investigated at a country as well as regional level and across various groups of workers. The findings of the study point towards a continuous deterioration of the employment relationship with impacts on both the structures of the economy and targeted towards specific groups of workers.

Keywords: precarious employment, involuntary employment, regional inequalities, gender equality, economic crisis

JEL codes: J21, R12, R23

¹ Department for Skills and the Labour Market, Cedefop.
Email: ilias.livanos@cedefop.europa.eu

² Economics Research Centre, Department of Economics, University of Cyprus
Email: tzika.paraskevi@ucy.ac.cy

1. Introduction

The years since the onset of the economic crisis, the Greek economy as well as its labour market have experienced dramatic changes. Employment has been severely hurt with unemployment rates reaching unprecedented high numbers. At the same time, Greece has been undergoing a transition from traditional employment to non-standard forms of work, as the case of many other European countries. These include forms of work such as part-time and temporary or working during nights and weekends. At the same time, employment is often coupled with conditions such as unpaid overtime, low salaries or fear of losing their job. All the above are an inevitable consequence of the crisis, as it is a way for employers to cut costs while trying to preserve production. In some of these cases an atypical form of employment, like temporary and part-time work, may as well be willingly accepted by employees as a step to signal their skills and effectiveness at work in order to later achieve better and permanent or full-time contract. On the other hand, however, a significant portion of such employment is occurring simply since the workforce is unable to find a stable, either full-time or permanent, employment contract. Similarly, other types of atypical work (e.g., evening/weekend work) and the adverse working conditions may have an impact on workers' wellbeing. At the same time, the continuously increasing non-standard work is raising concerns as of to what extent the country is exploiting its human capital, how it can achieve long-term economic recovery as well as social concerns about the discouraged and disappointed population who might result in searching for a better job and life abroad.

The phenomenon of precarious employment is by no means new, as even before the economic/debt crisis an unprivileged working class existed in Greece, signalling a troubling labour market (Theodosiou & Pouliakas, 2005; Gialis, Tsampra, & Leontidou, 2017). Nevertheless, the crisis in Greece was accompanied by three Memorandum programmes, including many regulations for the Greek economy. These programmes led to a climate of austerity and uncertainty in Greece, which further deteriorated the economy (Fountas, Karatasi, & Tzika, 2018), and introduced various labour market reforms regarding working time, minimum wages, part-time work that, in turn,

deteriorated the state of the Greek labour market. The result of all these is the prevalence of the precarious employment, implied by job insecurity, lack of social security, limited career prospects, bad working conditions, and the ever-increasing levels of uncertainty in the Greek labour market.

So far, the literature on precarious employment in Greece is limited and has focused on temporary employment, limited working hours and low earnings. Part of the literature has also examined the involuntary non-standard forms of employment in the country (Livanos & Pouliakas, 2019; Livanos & Tzika, 2022). The aim of the present research is to contribute to the existing literature by going beyond the official statistics and investigate various forms of precarious employment and how these vary between genders, regions and sectors. Such an investigation can provide a clearer account of the impacts of the economic crisis on employment and how this is depicted by the rising levels of employment that can be characterised as precarious, coming out either directly from the employment condition (e.g., involuntary temporary or part-time) or the individual/overall context (e.g., fear of job loss, limited PES involvement etc.). For these purposes, data from the European Labour Force Survey (hereafter EU-LFS) are used, for the years 2000 to 2018, so that both the pre-crisis and crisis years are captured. The results of the paper could provide insights to policy makers that can be used to assist in creating a better policy plan so that precarity is reduced and create a more sustainable labour market.

2. Precarious employment: definitions and measures

2.1 Understanding and measuring precarious employment

The concept of precarity in employment has gained much field in research over the last years and especially after the 2008 global financial crisis and the resulting unemployment. The first form of precarious employment was the uncertainty and deteriorating working conditions in the post-war era (Giddens, 1991). Over the years the concept of precariousness has changed form, including various aspects, like lack of job security, temporary contracts, working conditions, working hours, low-paid jobs or limited prospects (Campbell & Burgess, 2018). Another way of defining precarious

employment is any divergence of the standard type of employment (Rodgers, 1989). Increased flexibility in the labour market has raised insecurity onto workers creating the group of precariat workers (Standing, 2011). A broad but to the point definition of “precarious work” was given by Arne Kalleberg (2009) defining as “employment that is uncertain, unpredictable, and risky from the point of view of the worker”. Many researchers have tried to give a definition to precariousness, however it still needs to be even more specified, as it is a vague term.

There are several factors that make the construction of a universally accepted measure of precarious employment very difficult. The first is that there is no commonly accepted definition of the term, as researchers of different scientific fields define it in different ways. Secondly, precarious employment is by nature a multi-dimensional concept, so it cannot be quantified by measuring only one of its dimensions. Additionally, even if a specific definition is to be followed, there is always the problem of a potential lack of data or the need to use data that are not easily identified or included in official statistics (e.g., “shadow economy” activities). Finally, quantifying precarious employment at a comparative world level, or at least European level, is also a very difficult task due to data availability and national contexts.

This paper will concentrate on three measurable aspects, namely precariousness related to the type and characteristics of an employment position, to the institutional context, and precariousness stemming from individual assessments of the employment conditions.

3. The state of the Greek labour market during the economic crisis and evidence of rising precariousness

The years before the outburst of the crisis unemployment did not seem to be such an urgent issue for Greece, as from 1996 until 2008 employment was increasing and the rate of unemployed people was relatively stable and around 10% during the last decade before the crisis. But Greece was probably the EU country that was hurt the most by the global financial crisis and had the highest unemployment rates among the

EU Member States. In 2006 the rate was only 9%, but after the beginning of the crisis it picked up, reaching 27% in 2013, which means that around 1.3 million people in the labour force did not have a job. Later, in 2015 it slightly dropped to 24.5%, to accelerate again and reach the highest value of 28% in 2016. Thereafter employment showed the first signs of recovery, with an unemployment rate of 18.5% in 2018. The group of people mostly hurt by the crisis and with the worst difficulties in finding a job during the crisis were younger ones, as the unemployment rate of those aged 15-24 was 58% and of those aged 25-29 was 43% in 2013. This hard situation forced many people to leave Greece and search for a better future abroad, as it is estimated that between 350 and 427 thousand Greeks emigrated between the beginning of the crisis and 2015 (Labrianidis & Pratsinakis, 2014; Lazaretou, 2016).

Looking at other forms of employment, for instance part-time work, the literature typically claims that the rate of part-time employment is not high, but it nevertheless is one of the fastest-growing forms of non-standard work in the country during the crisis (Gialis, Tsampra, & Leontidou, 2017). To elaborate, it is estimated that the highest increase of part-time work during the crisis was indicated in the high-qualified group of employees, with a significant increase between 2008 and 2011 (Allmendinger, Hipp, & Stuth, 2013). Another interesting fact is that in 2011 the total conversions of full-time contracts to part-time ones reached almost 59% (Koukiadaki & Kretsos, 2012). In Greece, as well as in other Mediterranean countries such as Spain and Portugal, however, even though atypical work increased between 1996 and 2011, this increase was lower compared to other EU countries. Moreover, non-standard work is often seen as a job creator and a way to ensure flexibility for both workers and employers.

3.1 Reforms and impacts on the labour market

During the long-lasting crisis, Greece went through 3 different memorandum programmes, which means programmes of economic adjustment, or in other words bailout programmes to get financial assistance to deal with its debt crisis problem. The first memorandum was signed in the 3rd of May, 2010, by the Greek government and

Troika -a three-body union, consisted by the European Commission, the European Central Bank and the International Monetary Fund- and was ended on March 1st 2012, when the 2nd bailout programme began. It ended on the 30th of June 2015 and was followed by the 3rd and last one signed on the 19th of August of the same year and ended 3 years later, on the 20th of August 2018. These bailout programmes were accompanied by measures that the Greek government needed to apply in order to get financial support. Some of the regulations concerned the labour market and affected the employment relationship during the crisis years. Reforms that led to an increase of temporary employment were the increase of the maximum duration of the fixed-term contracts from 18 to 36 months and the maximum number of months that a company can “borrow” employees from 18 to 36 months. At the same time, the law that would not allow temporary work in the public sector was suspended for 3 years in 2010 (Kennedy, 2018). In addition, they increased from 6 to 9 the total number of months per year that rotating work of 3- or 4-working-days per week can be applied. The salary increments for part-time work of less than 20h/week were cancelled. These regulations might have significantly affected the employment conditions in Greece after 2010. Moreover, the Greek economy was restructured, leading to the shrinkage of the public sector and the increase of sectors in which the so-called “precarious work” is more dominant (e.g. retail, accommodation and catering etc.).

The standard statistics only paint a partial picture and do not often capture the real phenomenon in its full extent. There are some “shaded” areas that real numbers do not easily capture. For example, “hidden unemployment”, (e.g. discouraged workers, who are disappointed that they will not be able to find a better job thus quit searching for a job and exit the labour force or unwillingly accept non-standard jobs, like part-time jobs,) is not incorporated by any official statistics, however, it adds more to the already troubling issue of unemployment. The increasing trend of “hidden unemployment”, discouraged workers and atypical employment is the new norm not only in Greece but generally in Europe.

Overall, precarious employment seems to follow a counter-cyclical pattern (Livanos and Papadopoulos 2019), meaning that it moves in the opposite direction to the economy. Therefore, countries that have been experiencing weak or negative

employment growth or rising levels of unemployment (such as Greece, Spain, Italy) also have increasing levels of precarity. At the same time, there are institutional factors that may affect its levels. For instance, employment strictness is often seen as a deterrent factor from offering standard employment contracts as hiring and firing becomes very expensive for the employer.

Moreover, other than the aggregate, country levels of precarious employment there are significant variations across different groups of workers, with some of them being affected more than others; like women, young workers, non-white ethnic groups, or even people living in specific regions (Green & Livanos, 2015; Green & Livanos, 2017; Livanos, Salotti, & De Vita, 2018; Livanos & Tzika, 2022). In particular, it is supported that the gender differences are not so obvious in the main aspects of the labour market, however they are significant regarding precariousness and job quality, with women being in a worse situation than men (Eurofound, Gender equality at work, 2020). According to research conducted by the European Institute for Gender Equality (hereafter EIGE), it is estimated that 1 out of 5 women, but only 1 out of 12 men, are low paid (Barbieri, et al., 2017). The inequalities regarding precariousness and low-paid work are even more obvious in younger age groups. Another interesting fact about the gender gap in atypical employment is that men are usually more exposed to atypical working hours, like night work or weekend work (Eurofound, Gender equality at work, 2020). In a nutshell, the difficulties of men in employment compared to women are that they have less support and help from colleagues and face more quantitative demands in their work. On the other hand, women are usually lower paid, face adverse social behaviour, are more exposed emotionally, and have less access to training (Eurofound, Gender equality at work, 2020).

Despite Greece being one of the EU countries with high gender inequalities in the labour market, together with Malta and Cyprus they have recorded a noteworthy reduction in the differences between male and female employment rates between the years 2010 and 2015 (Eurofound, 2020). However, the gender gap in precarious work still exists in Greece, like in the rest of the EU, with male workers still being paid relatively higher than female ones, connoting the results of previous research. The gap in Greece is also obvious in the high share of workers who are part-time employed,

which is 32% for females while only 8% for males (Lang, Schömann, & Clauwaert, 2013). Finally, Greece is one of the countries, together with Romania and Czechia, with the highest rates of solo self-employment, which part of the literature considers as a form of atypical work (Allmendinger, Hipp, & Stuth, 2013). In this case, the percentage of solo self-employed men is higher than that of women, thus men's exposure to atypical work is higher in this case.

The problem of precarious employment is not only intense for women, but also for some other vulnerable groups of workers, that literature identifies. Livanos and Tzika (2022) find that for Greece the most vulnerable groups of employees in terms of involuntary non-standard employment are women, non-nationals, group of workers aged 56-65, and low-educated. Other recent evidence has shown that the so-called vulnerable groups of workers, such as low-educated, younger workers, and non-nationals, are in general worse off in the labour market than their counterparts, thus exhibiting high concentration of precarious employment (Livanos & Papadopoulos, 2019). Younger workers are one of these groups. Studies explain this vulnerability towards non-standard forms of work as young workers are to a large share employed in the service sector, where non-standard employment forms are more common. Young groups of workers are also facing in general lower earnings than older ones. Regarding the age groups, other studies support that the most vulnerable groups when examining part-time employment are the younger ones (15-24 years with 29% working part-time) and also the older ones (65+ years with 55% part-time employment) (Lang, Schömann, & Clauwaert, 2013; Eurofound, 2011). Moreover, Livanos and Tzika (2022) find evidence that the older groups are more prone to involuntary non-standard employment (part-time and temporary).

Additional research on precarious work supports that not only young people, but, in particular, the young people who left school early, are even more prone to precariousness (Barbieri, et al., 2017). This is a fact identified for both genders, as both for male and female, the higher the education level the lower the precariousness score. In particular, the most vulnerable group of employees in the EU are the low-educated women, as 45% of them are under precarious employment, while the same share for low-qualified men is 26% and also, they work on average fewer hours per

week (30h/week) than men (38h/week) (EIGE, 2017). Regardless of the age, the lower the educational level, the higher are the possibilities of working involuntarily under non-standard contracts (Livanos & Tzika, 2022).

At the same time, regional variations are also worth investigating, especially since Greece is a highly divided country, with high regional differences both in terms of product and employment (Salvati, 2016). These regional differences are higher than in other countries of Europe. Apart from that, even though Greece seems to have converged to EU averages, evidence from the literature indicates that after the outburst of the crisis the regional differences inside Greece, especially in terms of GDP, have intensified even more (Christofakis & Papadaskalopoulos, 2011). Apparently, the regions of Attica and Central Macedonia produce almost 65% of total Greek GDP (Salvati, 2016). Greece is also the country in the OECD with the highest percentage (73%) of workforce located in areas with a higher than the national average unemployment rate (OECD, 2005).

4. Methodology and data

Bearing in mind the multi-dimensional nature of precarious employment, this paper investigates aspects of precarity that can be measured directly. For this purpose, yearly data from the EU-LFS for Greece are used. The LFS includes data on employment status, previous work, flexible working patterns, working hours, wages, demographic and regional characteristics, education level etc. The EU-LFS is a household survey where the data are estimated by individuals' answers, thus the results may be subjective, as in any case of survey data. The survey is conducted by the national statistical agency of each country, which for the case of Greece is the Hellenic Statistical Authority (ELSTAT). For the purposes of our research, data over the period 2000-2018 are used capturing information on almost 1.5 million workers.

Ten indicators are constructed to examine precarious work, all retrieved from the EU-LFS dataset, building on the work of Livanos and Papadopoulos (2019). These are: 1) involuntary part-time; 2) involuntary temporary; 3) long hours worked; 4) unsociable

hours; 5) weekend work; 6) job insecurity; 7) unpaid overtime; 8) lack of PES involvement; 9) adverse working conditions and 10) underpaid work.

The above indicators can be examined under five broader areas of precarious employment; contract, unsociable hours, insecurity, institutional context, and job conditions. However, these could be further aggregated into three categories related to: the type and characteristics of an employment position; the institutional context; and precariousness stemming from individual assessments of the employment conditions.

Details about the rationale for choosing these indicators as measurements of precarious employment as well as how these have been constructed on the LFS dataset are provided in Box 1.

Box 1: Types and measures of precarious employment in this study

Indicator	Construction from the LFS	Notes	Relation with precariousness
Contract precariousness			
Involuntary part-time	Reason for part-time: <i>"Person could not find a full-time job"</i>	Part-time workers only and applied on those in paid employment, excluding self-employed, family members, etc.	The individual is "forced" to accept a part-time/temporary job due to failure of finding a full-time/permanent one. It shows that such contracts are accepted due to 'lack of choice' for the individual.
Involuntary temporary	Reason for temporary: <i>"Person could not find a permanent job"</i>	Temporary workers only and applied on those in paid employment, excluding self-employed, family members, etc.	
Unsociable hours precariousness			
Long hours	Long hours are measured as those exceeding more than one standard deviation the average of the detailed occupational group	The occupational group refers to 3-digit ISCO.	Such working conditions can be harmful for employees' health due to lack of sleep and can also affect their mental health, too.
Unsociable hours	<i>"Person usually works in the evening/night"</i>		
Weekend work	<i>"Person usually works on Saturdays/Sundays"</i>		
Insecurity			
Insecurity	<i>"Person is looking for another job because of risk or certainty of loss or termination of present job"</i>		This variable captures whether the employee feels "safe" in her/his job. The employment instability which is caused by non-standard

			contracts of work, as this version of precariousness is captured by other indicators in the current work.
Institutional context precariousness			
Unpaid overtime	<i>'Person was engaged in unpaid overtime during the reference week'</i>	There is no distinction over the hours that are counted as "overtime".	The individual is engaged in work that is not paid by the employer. It depicts lack of institutional protection as the worker accepts to work overtime probably due to limited working rights.
PES involvement	PES has not been involved in finding the current job (if the individual has started the job 12 months or less).	The involvement could take place at any time of the job search. The share is presented over the total number of employees.	Employees have not been assisted by the Public Employment Service to find their current job. It shows the absence of help against being unemployed. It suggests that employees have been in a state of precarity.
Job conditions			
Working conditions	"Person is looking for another job because of wish to have better working conditions e.g. pay, working or travel time, quality of work"		It shows dissatisfaction of the employee stemming from the working conditions that s/he is currently in.
Underpaid	Low income is measured as being at least one deviation lower from the average of the detailed occupational group ISCO 3 digit.	The income in the LFS is presented in deciles	Income is a key aspect of measuring precariousness as it indicates whether some minimum standards of living can be achieved and whether the returns to education reward the efforts made.
Precarious score	Sum of all the above indices at the individual level.		Being in more than one category shows the intensity of precarity experienced by the individual.

In addition to the individual variables constructed, a total score is estimated, as a simple sum of all indicators at the individual level which is then averaged at country level. The purpose of this indicator (henceforth precarious score) is to assess how intense the phenomenon of precarious employment is, by assuming that being in more than one category at the same time intensifies the state of precariousness. This may be a crude measure as it assumes that all types of precarious employment have the same weight for the individual while it cannot exclude the possibility that two indicators are highly correlated, so they are influenced by the same cause.

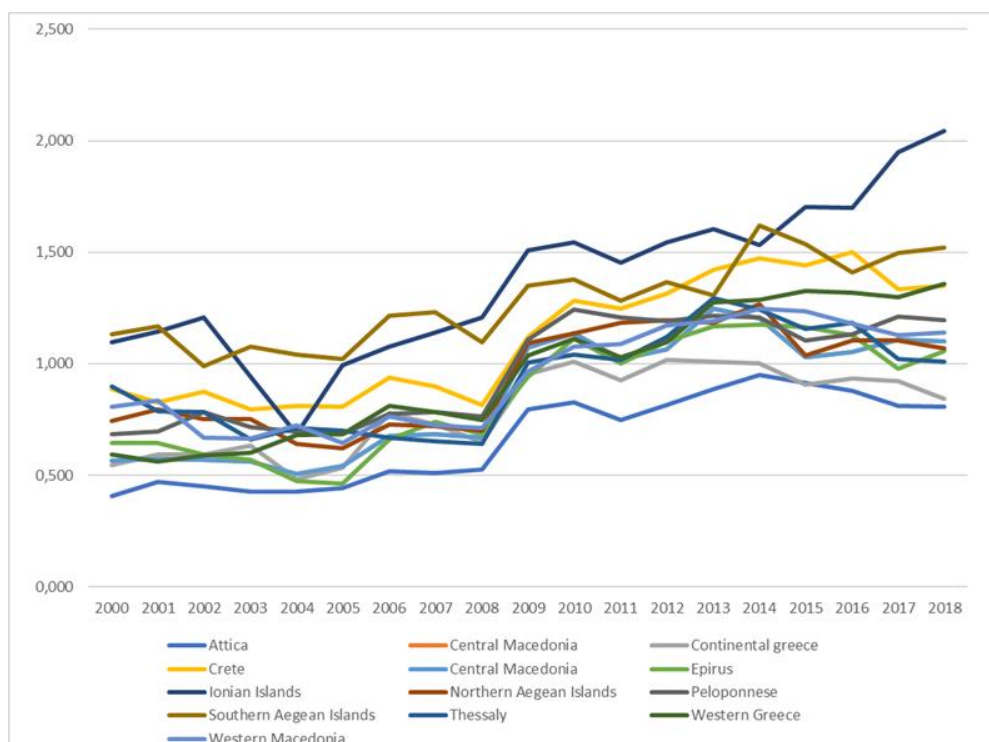
Nevertheless, it can help to understand how precariousness evolves over time and which are the groups with the highest concentration (e.g., by the score increasing over time or being higher for certain groups of workers).

5. Results and discussion

This section presents the results for precarious employment in Greece first by region, then by gender and education group to end with the presentation and analysis of total precariousness and individual precarious indicators for the whole working population.

To start with the geographic divergence, **Figure 1** depicts the total precariousness score for all NUTS-2 Greek regions. We observe that all regions faced an increase in the total precariousness rates after 2008. However, the Ionian Islands have been hurt the most by precarious employment after the crisis, followed by South Aegean Islands and Crete. Common characteristic of these regions is that they are tourism-oriented. According to previous literature tourism-oriented regions, like the Aegean, the Ionian Islands and Crete, have faced high consequences due to the crisis, with the highest fall of GDP during the crisis (Petrakos & Psycharis, 2016). Now, our evidence adds that these regions have the high total precarious employment rates. On the other hand, the region with the lowest rate is Attica, corroborating the findings of previous studies which show that involuntary non-standard employment (hereafter INE) in Attica was less hurt by the crisis (Livanos & Tzika, 2022). This finding can be justified as half of the country's population lives in Athens, the capital of Greece, which is located in Attica. Hence, there are plenty of job market options offered in all sectors, thus it is easier for someone to find a job that fits best for them and not be discouraged thus accept easily precarious jobs. The findings of this paper unveil that the regional disparities in terms of precarious employment have been deteriorated during the crisis period, in contrast to previous literature which concentrates only on part-time and temporary employment (Livanos & Tzika, 2022). The deterioration of precarious employment is a reasonable conclusion, as the increased unemployment levels prove that the labour market has been severely hurt by the long-lasting crisis.

Figure 1 Total precarious employment score for the NUTS-2 Greek regions



Source: Authors' calculations over LFS data for Greece

Table 1 shows how different types of precariousness have evolved over time, focusing on female workers only. As past literature highlights, each gender is more vulnerable in different precariousness factors. For example, women in the EU are typically lower paid than men, while on the other hand the rate of men who work part-time is higher than that of women (Barbieri, et al., 2017). For the case of Greece, comparing the results of Table 1 with similar results for all workers reveal that women are more volatile in contract and in income precariousness. For example, score of involuntary part-time is almost 0.05 for all workers, while it increases to 0.071 when only women are examined. The same for involuntary temporary work, as of the indicator for all workers who are involuntarily under temporary contracts is 0.084 but increases to almost 0.1 when only females are included in the sample. Similarly, it is obvious that women are even more underpaid than male employees. The income conclusion is in line with the results of past literature indicating that men earn in average more than

women. However, in all other precariousness indicators men are in general more volatile to precarious employment than women throughout the years. Specifically, men are, on average, more likely to accept adverse working conditions such as long hours, weekend work, unpaid overtime etc. For example, men have a score in long hours equal to 0.11, while the same indicator is only 0.067 for the female employees. This can be explained by the fact that men are still usually the breadwinners, so they are the ones who will more easily accept working under adverse working conditions with the purpose of not losing their jobs and be able to financially support their families.

Table 1 Indicators on precarious employment for female workers

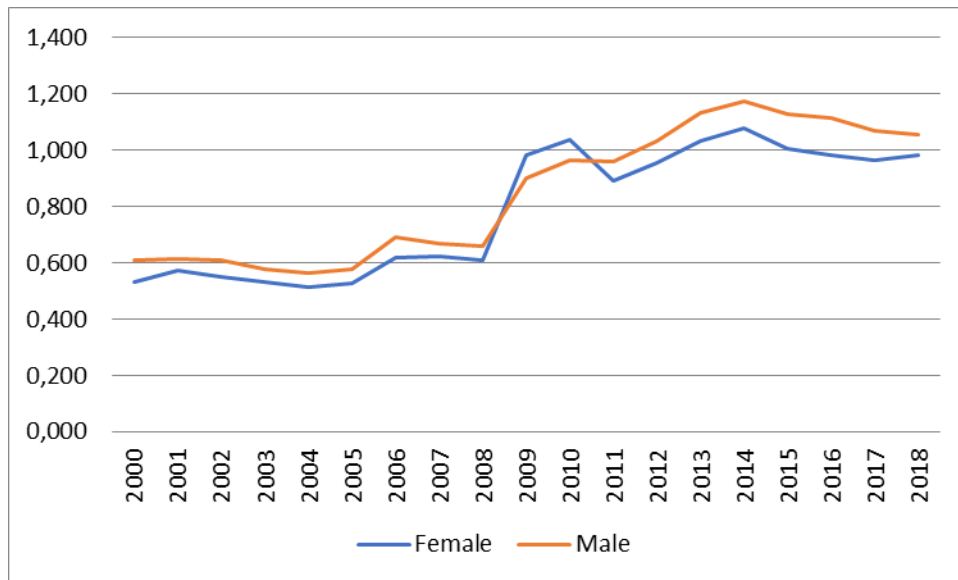
Time	Involuntary part time	Involuntary temporary	Long hours	Unsocial hours	Weekend work	Insecurity	Unpaid overtime	PES involvement	Working conditions	Underpaid	Total precarious employment
2000	0,044	0,117	0,045	0,156	0,225	0,009	0,000	0,000	0,020	0,000	0,531
2001	0,041	0,121	0,048	0,166	0,246	0,010	0,000	0,000	0,013	0,000	0,570
2002	0,047	0,100	0,052	0,168	0,246	0,006	0,000	0,000	0,009	0,000	0,549
2003	0,043	0,100	0,043	0,168	0,235	0,006	0,000	0,000	0,010	0,000	0,531
2004	0,051	0,107	0,050	0,154	0,217	0,008	0,000	0,000	0,017	0,000	0,512
2005	0,054	0,106	0,048	0,164	0,230	0,006	0,000	0,000	0,013	0,000	0,526
2006	0,054	0,094	0,043	0,156	0,209	0,005	0,038	0,116	0,008	0,000	0,618
2007	0,052	0,096	0,037	0,163	0,216	0,005	0,027	0,115	0,009	0,000	0,622
2008	0,050	0,099	0,035	0,167	0,226	0,004	0,027	0,087	0,008	0,000	0,609
2009	0,058	0,102	0,042	0,230	0,267	0,007	0,031	0,111	0,008	0,288	0,984
2010	0,062	0,108	0,044	0,277	0,282	0,008	0,026	0,103	0,006	0,283	1,036
2011	0,067	0,100	0,085	0,266	0,277	0,007	0,030	0,088	0,005	0,114	0,889
2012	0,089	0,090	0,100	0,269	0,270	0,008	0,047	0,087	0,007	0,173	0,955
2013	0,103	0,084	0,100	0,271	0,270	0,009	0,057	0,101	0,005	0,227	1,030
2014	0,107	0,087	0,106	0,286	0,290	0,006	0,039	0,128	0,006	0,238	1,077
2015	0,108	0,083	0,112	0,306	0,306	0,004	0,028	0,127	0,006	0,161	1,005
2016	0,115	0,089	0,106	0,302	0,307	0,003	0,023	0,123	0,007	0,168	0,984
2017	0,113	0,099	0,091	0,295	0,304	0,003	0,026	0,133	0,005	0,164	0,964
2018	0,106	0,102	0,090	0,311	0,298	0,002	0,020	0,136	0,005	0,161	0,984

Source: Authors' calculations over LFS data for Greece

The comparison between male and female workers over time regarding the overall precarious score is presented in **Figure 2**. A first observation to be made is that both genders exhibit the same trend over time, with precariousness rising significantly in 2008 for both, while during most part of the sample the overall score for men is higher than women. This could be again attributed to the role of the breadwinner in the family so especially in times of crisis they have little option but to accept adverse working conditions. In particular, during the outburst of the crisis precariousness rose more sharply for women between 2008 and 2010, even reaching higher levels than

men, the intensification of precariousness for men continued rising fast up until 2014. Thereafter, it has been slightly decreasing for both genders.

Figure 2 Total precarious employment score by gender



Source: Authors' calculations over LFS data for Greece

Table 2 contains the mean values of all indicators for the low-educated employees. In comparison with the overall population, one can conclude that in general the low-educated individuals are more vulnerable to precarious work than medium- or high-educated ones, as the average values are higher when we account only for the low-educated than for the full sample. Low-educated employees may be more prone to being fired, especially during crisis period, thus they will be willing to accept adverse working conditions more easily, in order not to lose their jobs. The indicator with the highest divergence of low-educated workers is the weekend work, as for the whole sample the highest value is 0.334, which is even smaller than the lower value of the same indicator for the low-educated workers. Another indicator where the vulnerability of low-educated is obvious is the involuntary temporary employment, where indicatively in 2018 the score for the full sample is 0.084, while it increases to 0.13 when only the low-educated individuals are considered. This can be explained as low-educated individuals are much employed in the agricultural sector, which is the

sector with the highest INE share, according to previous literature on INE in Greece (Livanos & Tzika, 2022). Only exception is the unpaid overtime indicator, where the low-educated seem to be less vulnerable. This might be explained as the higher-educated workers might be more willing to work overtime, even if they are not paid extra, in order to signal their skills and willingness to work in order to have more chances for a promotion or a higher salary in the future.

Table 2 All precarious indicators for low-educated

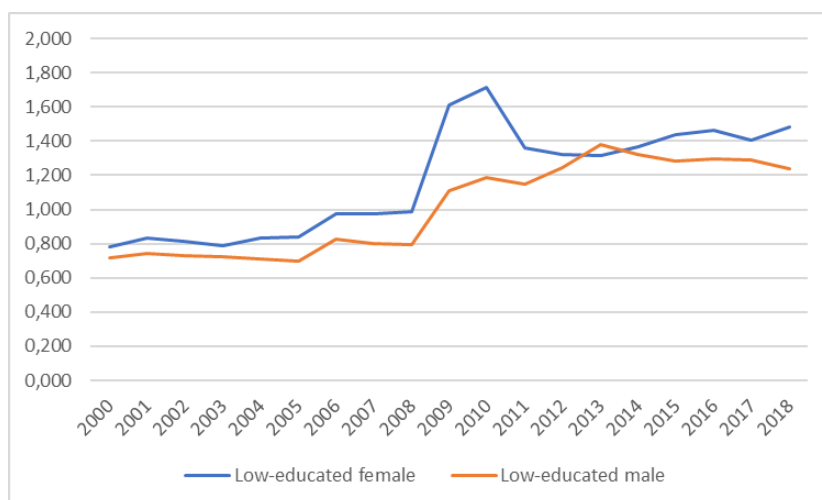
Time	Involuntary part time	Involuntary temporary	Long hours	Unsociable hours	Weekend work	Insecurity	Unpaid overtime	PES involvement	Working conditions	Underpaid	Total precarious employment
2000	0,036	0,145	0,089	0,157	0,335	0,012	0,000	0,000	0,016	0,000	0,735
2001	0,028	0,129	0,102	0,181	0,346	0,009	0,000	0,000	0,011	0,000	0,766
2002	0,031	0,118	0,099	0,176	0,362	0,005	0,000	0,000	0,006	0,000	0,751
2003	0,028	0,118	0,093	0,176	0,353	0,005	0,000	0,000	0,007	0,000	0,740
2004	0,038	0,140	0,096	0,167	0,337	0,008	0,000	0,000	0,013	0,000	0,743
2005	0,038	0,127	0,093	0,167	0,350	0,006	0,000	0,000	0,013	0,000	0,737
2006	0,041	0,112	0,087	0,164	0,337	0,006	0,031	0,147	0,011	0,000	0,866
2007	0,041	0,113	0,079	0,163	0,344	0,005	0,024	0,129	0,009	0,000	0,846
2008	0,037	0,119	0,076	0,167	0,371	0,004	0,025	0,097	0,008	0,000	0,846
2009	0,046	0,124	0,084	0,217	0,409	0,006	0,025	0,135	0,009	0,298	1,243
2010	0,062	0,140	0,083	0,262	0,426	0,012	0,022	0,142	0,007	0,311	1,336
2011	0,080	0,159	0,143	0,278	0,420	0,015	0,021	0,128	0,007	0,082	1,210
2012	0,104	0,141	0,141	0,305	0,412	0,014	0,030	0,124	0,005	0,132	1,268
2013	0,117	0,137	0,157	0,312	0,418	0,018	0,030	0,145	0,005	0,190	1,360
2014	0,126	0,128	0,145	0,301	0,422	0,018	0,019	0,161	0,006	0,181	1,333
2015	0,136	0,121	0,160	0,316	0,433	0,012	0,020	0,170	0,014	0,155	1,331
2016	0,143	0,121	0,167	0,330	0,445	0,008	0,021	0,159	0,015	0,155	1,342
2017	0,128	0,147	0,143	0,315	0,422	0,007	0,022	0,180	0,011	0,149	1,323
2018	0,121	0,149	0,137	0,311	0,426	0,005	0,014	0,173	0,008	0,140	1,309

Source: Authors' calculations over LFS data for Greece

Figure 3 shows the evolution of the precarious score for the low-educated across genders. This figure suggests that low-educated females were hit the hardest compared to their male counterparts, especially during the outburst of the economic crisis with a small bounce back during the first years of economic recovery, remaining however at very high levels compared to the pre-crisis period. Past literature supports that the gender gap regarding atypical employment shrinks as the level of education increases. We can indeed see in

Figure 3 that low-educated women are much more exposed to precarious employment than low-educated men, while in total women have a lower rate of precariousness in the full sample than men.

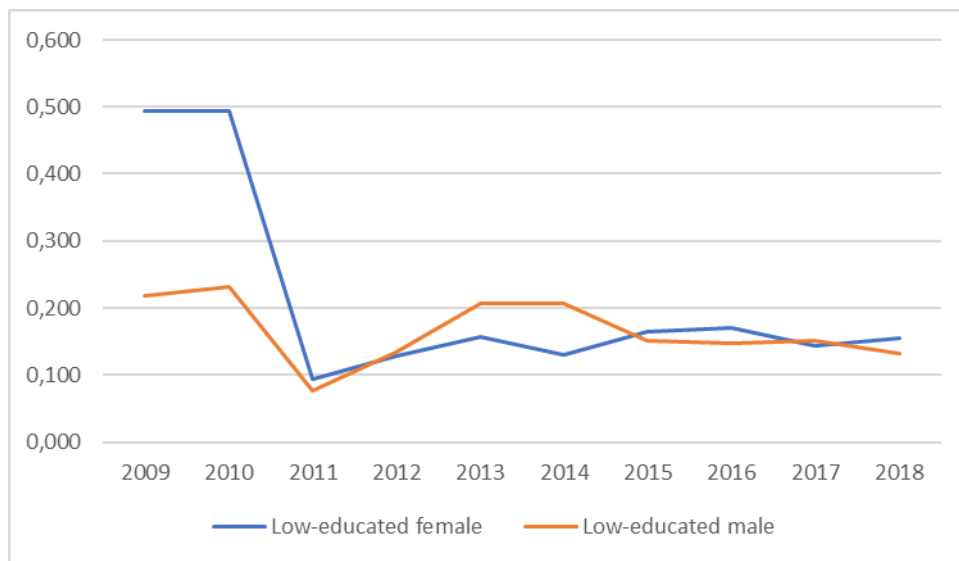
Figure 3 Total precarious employment score for low-educated by gender



Source: Authors' calculations over LFS data for Greece

It is interesting to have a look at the graph of 'underpaid' as depicted in **Figure 4**. The observation here is that the underpaid indicator in the case of low-educated fell sharply in 2011 and remained in low levels afterwards, for both genders. **Figure 4** isolates the 'underpaid' variable for the low-educated and depicts this sharp fall. The much higher rates of underpaid low-educated women are obvious in 2009, 2010. However, in the years that followed the total rate of underpaid low-educated employees fell significantly, especially for the female. Specifically, between 2010 and 2011 the rate of underpaid low-educated females fell almost 60%. This can be explained by the definition of the 'underpaid' indicator itself, as it is estimated based on the deviation from the mean wage (see Box 1). Unfortunately, there are no data for this indicator before 2009, so we cannot compare with the pre-crisis period to see whether the value fell to its initial levels.

Figure 4 Underpaid for low-educated for the two genders



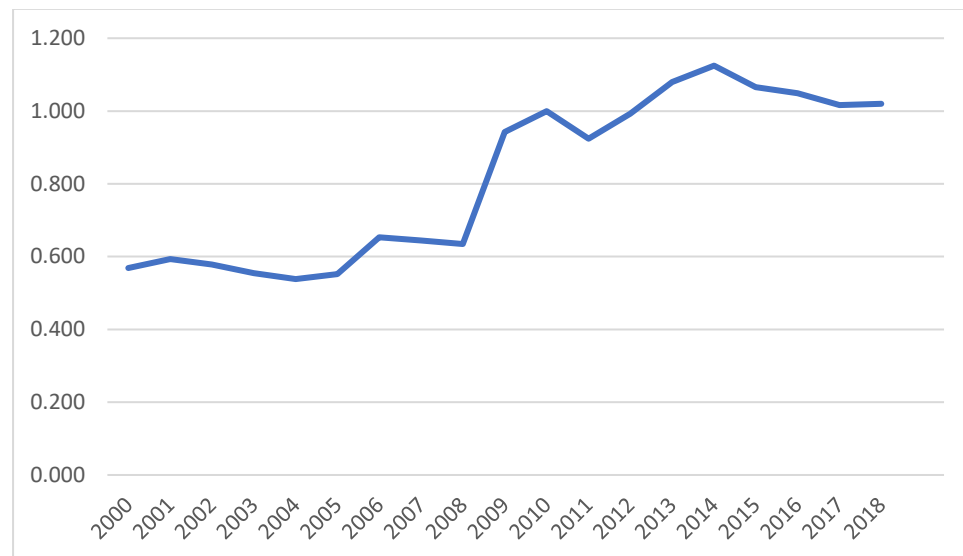
Source: Authors' calculations over LFS data for Greece

Overall, the total precarious score and its evolution over time is found to have increased during the last decade, which comes as no surprise given the long-lasting Greek crisis. .

Figure 5 displays the mean precarious score over the period 2000 to 2018. Looking at the figure we observe that while precariousness was not a big problem for Greece until the outburst of the economic crisis, in 2009 it picked up and remained at levels of above 1 up to 2018 which is the end of our sample. This practically means that while in 2000 a worker (in paid employment) was, on average, in 0.6 categories of precarious employment, from the crisis onwards (i.e., 2009), the situation escalated and in 2014 a worker was in 1.12 categories at the same time. After 2014 the total precariousness score started falling, thus indicating a sign of longer-lasting recovery of the Greek labour market. So, on the one hand unemployment reached unprecedented levels during the crisis, however, on the other hand, it resulted in discouraged workers who would more easily accept non-standard employment contracts, as they could not find standard working contracts or people who bare bad working conditions, unpaid overtime work or working at night or during the weekends because they were afraid

that if they do not they might be left unemployed for many months. This first finding indeed confirms the notion that precarity displays a counter-cyclical pattern, thus elevating during times of economic downturn.

Figure 5 Precarious employment score over time



Source: Authors' calculations over LFS data for Greece

Table 3 contains the annual mean values of all precarious indicators over the period 2000 to 2018. An important observation is that, with minor exceptions, all indicators increased in value right after the burst of the economic crisis and peaked around 2014. This may mean that either the effects of the crisis in the labour market appeared gradually, or the increase of these indicators has been a result of regulations that were applied in the labour market some years after the beginning of the crisis as part of the measures of the memorandum programmes.

Table 3 Indicators on precarious employment

Time	Involuntary part-time	Involuntary temporary	Long hours	Unsociable hours	Weekend work	Insecurity	Unpaid overtime	PES involvement	Working conditions	Underpaid	Total precarious employment
2000	0,026	0,099	0,070	0,149	0,250	0,008	0,000	0,000	0,017	0,000	0,569
2001	0,024	0,100	0,076	0,161	0,258	0,008	0,000	0,000	0,011	0,000	0,593
2002	0,026	0,085	0,078	0,160	0,263	0,005	0,000	0,000	0,009	0,000	0,578
2003	0,023	0,083	0,072	0,158	0,248	0,005	0,000	0,000	0,008	0,000	0,554
2004	0,030	0,090	0,072	0,147	0,235	0,007	0,000	0,000	0,013	0,000	0,538
2005	0,031	0,086	0,071	0,157	0,249	0,005	0,000	0,000	0,011	0,000	0,552
2006	0,031	0,076	0,064	0,149	0,232	0,005	0,041	0,112	0,008	0,000	0,653
2007	0,031	0,079	0,059	0,151	0,237	0,004	0,034	0,104	0,008	0,000	0,645
2008	0,029	0,083	0,059	0,152	0,249	0,003	0,032	0,078	0,008	0,000	0,635
2009	0,037	0,087	0,060	0,211	0,291	0,006	0,034	0,107	0,008	0,208	0,942
2010	0,043	0,092	0,056	0,260	0,309	0,008	0,033	0,099	0,006	0,207	0,999
2011	0,049	0,090	0,107	0,259	0,300	0,008	0,036	0,087	0,005	0,093	0,924
2012	0,063	0,077	0,120	0,270	0,293	0,010	0,051	0,085	0,006	0,149	0,992
2013	0,072	0,075	0,123	0,280	0,305	0,010	0,057	0,101	0,005	0,199	1,080
2014	0,081	0,080	0,129	0,288	0,319	0,008	0,043	0,121	0,006	0,215	1,125
2015	0,085	0,080	0,134	0,309	0,334	0,005	0,033	0,124	0,007	0,142	1,066
2016	0,088	0,080	0,135	0,310	0,333	0,004	0,030	0,120	0,008	0,140	1,049
2017	0,087	0,083	0,119	0,303	0,324	0,004	0,029	0,125	0,006	0,138	1,017
2018	0,081	0,082	0,112	0,313	0,321	0,002	0,024	0,129	0,006	0,134	1,020

Source: Authors' calculations over LFS data for Greece

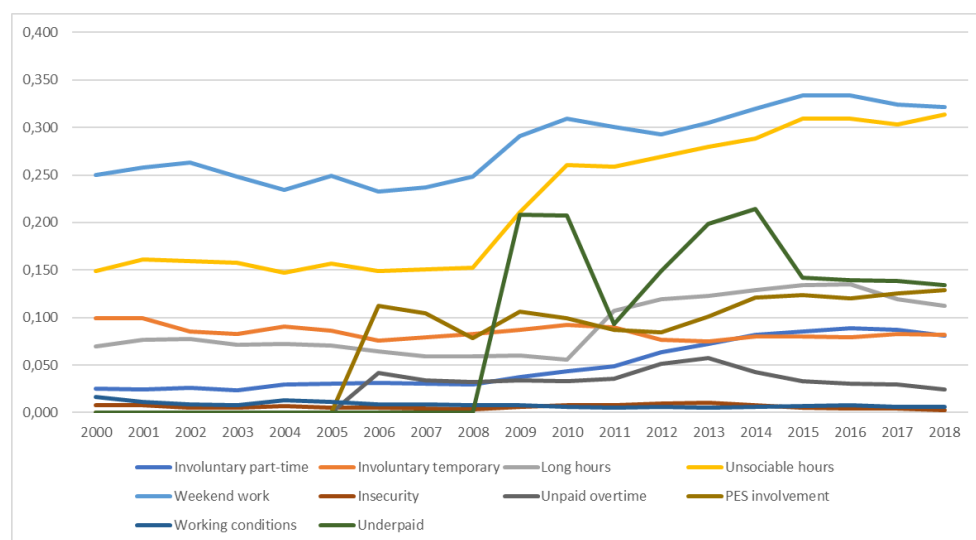
However, a question that may arise is whether precarity de-escalated along with the economic crisis or if it penetrated the working patterns remaining “popular” thereafter. Therefore, it is important to examine the dynamic path of some variable separately, to assess which aspects of precarious employment were affected the most by the crisis, which ones had a quick recovery, and which remain at persistently high levels. The trends of the various aspects of precarious employment captured in this article are presented in **Figure 6**. Some aspects of precariousness showed an upward trend for some years after the beginning of the crisis, like the long hours, the unsociable hours (evening and night work), the weekend work and PES involvement, and remained at higher levels even until 2018, therefore not showing any signs of recovery. Similarly, unpaid overtime work started increasing some years before the crisis, in 2006, and increased even more in 2012-2013, with only slight signs of recovery after 2014. This demonstrates the deterioration of working conditions over time, expressed through the intensification of overtime work and work during unsociable hours or during the weekends. This has several implications for the workforce, regarding health and psychology. For instance, several studies have proven that working overtime leads to higher depression and stress rates (Kleppa, Sanne, & Tell, 2008; Luther, et al., 2017).

Another notable example is that of involuntary part-time work, which did not seem to be a problem up until the beginning of the economic crisis (0.029 in 2008), in other words part-time was mostly seen as an option for flexibility in a worker's life. Nevertheless, thereafter it followed an upward trend, reaching 0.088 in 2016, and slightly de-escalated in 2018 (0.081), however still remaining at higher levels than the pre-crisis period. On the one hand, this can be explained by the various institutional arrangements that took place over the crisis that were favoring the increase of part-time work, often seen as a job creation measure, however also displaying an on-going development of labour market tightness, where jobs are not available and workers have to compromise with some sort of employment (e.g. part-time), which is not satisfying their ambitions.

On the other hand, there are aspects of precariousness that display a clearer counter-cyclical behavior, in other words have peaked during the crisis years but have decreased significantly by 2018, thus not leaving an imprint on tomorrow's labour market. Such examples are unpaid overtime work and job insecurity, which had their peak around 2013 but showed a decreasing trend afterwards. Nevertheless, they portray the stressful situation that workers had to undergo through the economic crisis by constantly fearing to lose their jobs, expressed as looking for a new job or accepting to work long hours, possibly covering for colleagues who were made redundant as an outcome of the crisis.

Moreover, there are some indicators that seem to be less related to the economic crisis. For instance, working conditions and involuntary temporary work, which even though display a state of employment where the employee may not be satisfied with the working conditions and the contractual relationship, seem to be factors more related to the structures of the economy and the labour market rather than being impacted directly by the crisis or the labour market reforms. Nevertheless, this does not mean that such aspects of precariousness are negligible. For instance, involuntary temporary work in terms of the indicator may have about the same score as involuntary part-time in e.g. 2018, but in terms of actual numbers there are many more, as temporary work is much more common in Greece than part-time.

Figure 6 The evolution of indicators of precariousness over time



Source: Authors' calculations over LFS data for Greece

6. Conclusions

This paper attempts to measure and quantify various aspects of precarious employment in Greece, during the decade of the economic crisis and the labour market reforms. Data from the LFS have been utilised for this purpose. Even though it is not possible to capture all aspects of precariousness, the focus of this study has been on features of work, and the individual and overall context that can point towards creating a precarious working environment for the individual. In total, ten distinct indicators have been constructed, which can be grouped into three key dimensions of precarity related to: employment position, the institutional context and the individual assessments of the employment conditions. Of course, further research that would apply a composite indicators methodology would be essential to lead to more robust groupings of precarious employment.

Various interesting conclusions occur from this investigation. First, at a country level, precariousness has been intensified during the period of the economic crisis suggesting, thus, that precarity displays a counter-cyclical behavior. It is a fact that most of the precarious indicators under examination deteriorated during the crisis. To elaborate, indicative of the stressful period during the crisis are the large increases in

the levels of fear of job loss and that of unpaid overtime. Second, certain aspects of work have worsened with no signs of recovery even after the end of the economic crisis, such as long working hours and work over unsociable hours. This finding has implications about the deterioration of the working conditions in Greece and its impact on the wellbeing of the workforce. Third, the continuous increase of involuntary part-time work shows that, as a legacy of the crisis, we are experiencing a tight labour market where workers are struggling to find work of their preference. Fourth, precarious employment had a strong regional focus with regions mainly based on tourism being hurt the most. Such a finding suggests that regional disparities intensified during the period of the economic crisis. Fifth, coming as no surprise specific groups of workers, such as low-educated and female workers, have been hurt the most.

All the above suggest that even though the high levels of unemployment are those typically reported in the news, the impact of the economic crisis on the labour market of Greece is much stronger with implications about the overall structure of the economy and the way work is organised. In the light of the above findings targeted policy intervention would be necessary to mitigate the imprint of the economic crisis on both the economy and the labour market.

References

- Allmendinger, J., Hipp, L., & Stuth, S. (2013). Atypical employment in Europe 1996-2011. *WZB Discussion Paper., (No. P 2013-003)*.
- Barbier, J. C. (2011). " Employment precariousness" in a European cross-national perspective. A sociological review of thirty years of research.
- Barbieri, D., Janeckova, H., Karu, M., Luminari, D., Madarova, Z., Paats, M., & Reingard_e, J. (2017). Gender, skills and precarious work in the EU: research note. *Research note. European Institute for Gender Equality (EIGE)*.
- Campbell, I., & Burgess, J. (2018). Patchy progress? Two decades of research on precariousness and precarious work in Australia. *Labour & Industry: a journal of the social and economic relations of work, 28(1)*, 48-67.
- Christofakis, M., & Papadaskalopoulos, A. (2011). Cohesion policy and regional disparities: The recent experience of Greece. *Local Economy, 26(6-7)*, pp. 517-531.
- Eurofound. (2011). Part-time work in Europe.
- Eurofound. (2020). Gender equality at work. *European Working Conditions Survey 2015 series, Publications Office of the European Union, Luxembourg*.
- European Parliament. (2016). Precarious employment in Europe. Part 1: patterns, trends and policy strategy. *Brussels: Policy Department A*.
- Fleetwood, S. (2001). Conceptualizing Unemployment in a Period of Atypical Employment: A Critical Realist Perspective. *Review of Social Economy, 59(1)*, 45-69.
- Fountas, S., Karatasi, P., & Tzika, P. (2018). Economic policy uncertainty in Greece: measuring uncertainty for the Greek macroeconomy. *South-Eastern Europe Journal of Economics, 16(1)*.
- Gialis, S., Tsampra, M., & Leontidou, L. (2017). Atypical employment in crisis-hit Greek regions: Local production structures, flexibilization and labour market re/deregulation. *Economic and Industrial Democracy, 38(4)*, pp. 656-676.
- Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age. . Stanford university press. .*
- Green, A., & Livanos, I. (2015). Involuntary non-standard employment and the economic crisis: regional insights from the UK. *Regional Studies, 49(7)*, 1223-1235.
- Green, A., & Livanos, I. (2017). Involuntary non-standard employment in Europe. *European Urban and Regional Studies, 24(2)*, 175-192.

- Kalleberg, A. (2009). Precarious work, insecure workers: Employment relations in transition. *American sociological review*, 74(1), pp. 1-22.
- Kennedy, G. (2018). Austerity, Labour Market Reform and the Growth of Precarious Employment in Greece during the Eurozone Crisis. *Global Labour Journal*, 9(3), pp. 281-302.
- Kleppa, E., Sanne, B., & Tell, G. S. (2008). Working overtime is associated with anxiety and depression: the Hordaland Health Stud. *Journal of occupational and environmental medicine*, 50(6), pp. 658-666.
- Koukiadaki, A., & Kretsos, L. (2012). Opening Pandora's box: The sovereign debt crisis and labour market regulation in Greece. *Industrial Law Journal*, 41(3), pp. 276-304.
- Kretsos, L., & Livanos, I. (2016). The extent and determinants of precarious employment in Europe. *International Journal of Manpower*, 31(1), pp. 25-43.
- Labrianidis, L., & Pratsinakis, M. (2014). Outward migration from Greece during the crisis, Final Report. *Project funded by the National Bank of Greece through the London School of Economic's Hellenic Observatory*.
- Lang, C., Schömann, I., & Clauwaert, S. (2013). Atypical forms of employment contracts in times of crisis. *ETUI, working paper series 2013.03*.
- Lazaretou, S. (2016). The Greek brain drain: the new pattern of Greek emigration during the recent crisis. *Economic Bulletin*, 43, pp. 31-53.
- Livanos, I., & Papadopoulos, O. (2019). *The Rise of Precarious Employment in Europe*. Emerald Points.
- Livanos, I., & Pouliakas, K. (2019). The rise of involuntary non-standard employment in Greece during the great economic depression. *Greek Employment Relations in Crisis: Problems, Challenges and Prospects*.
- Livanos, I., & Tzika, E. (2022). Involuntary non-standard employment and regional impacts in Greece. *Italian Journal of Regional Science (forthcoming)*.
- Livanos, I., Salotti, S., & De Vita, G. (2018). Involuntary Non-standard Employment: Evidence from Italian Regions. *Economy, Employment and Skills: European, Regional and Global Perspectives in an Age of Uncertainty*, pp. 269-295.
- Luther, L., Gearhart, T., Fukui, S., Morse, G., Rollins, A. L., & Salyers, M. P. (2017). Working overtime in community mental health: Associations with clinician burnout and perceived quality of care. *Psychiatric rehabilitation journal*, 40(2), p. 252.
- Olsthoorn, M. (2014). Measuring Precarious Employment: A Proposal for Two Indicators of Precarious Employment Based on Set-Theory and Tested with Dutch Labor Market-Data. *Social Indicators Research*, 119(1), 421-441.

- Petrakos, G., & Psycharis, Y. (2016). The spatial aspects of economic crisis in Greece. *Cambridge Journal of Regions, Economy and Society*, 9(1), pp. 137-152.
- Pouliakas, K. (2014). A balancing act at times of austerity: matching the supply and demand for skills in the Greek labour market.
- Pouliakas, K., & Theodossiou, I. (2010). Measuring the Utility Cost of Temporary Employment Contracts Before Adaptation: A Conjoint Analysis Approach. *Economica*, 688-709.
- Rodgers, G. (1989). Precarious work in Western Europe. In G. Rodgers, & J. Rodgers, *Precarious Jobs in Labour Market Regulation: The Growth of Atypical Employment in Western Europe* (pp. 1-19). Geneva: International Institute for Labour Studies.
- Salvati, L. (2016). The Dark Side of the Crisis: Disparities in per Capita income (2000–12) and the Urban-Rural Gradient in Greece. *Tijdschrift voor economische en sociale geografie*, 107(5), pp. 628-641.
- Standing, G. (2011). *Precariat, The New Dangerous Class*. London: Sage.
- Theodosiou, I., & Pouliakas, K. (2005). Socio-economic differences in the job satisfaction of high-paid and low-paid workers in Greece. *Economic Bulletin*, 24, pp. 83-115.
- Vives, A., Vanroelen, C., Amable, M., Ferrer, M., Moncada, S., Llorens, C., . . . Benach, J. (2011). Employment Precariousness in Spain: prevalence, social distribution, and population-attributable risk percent of poor mental health. *International Journal of Health Services*.
- Vosko, L. (2010). *Managing the Margins: Gender, Citizenship, and the International Regulation of Precarious Employment*. Oxford University Press.