Trends in the length of long-term unemployment in Europe: an approach using working life tables, 2000-2018

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Abstract

Long-term unemployment has severe negative consequences. However, little is known about how long people could expect to be unemployed for more than one year during their lifespan, and which age groups are spending more time out of work while looking for jobs. We apply demographic techniques to enhance our understanding of long-term unemployment, and use the European Labour Force Survey and mortality data to calculate the time that a person could expect to be unemployed for more than a year in 25 European countries between 2000 and 2018. We identify four groups of countries that are characterised by different trends in the duration of long-term unemployment. Results show very different impact of the 2008 Recession on the length of long-term unemployment in Europe, and it was especially large in Southern and Eastern countries, as well as in Ireland. In addition, although younger workers record higher rates of long-term unemployment, older workers could expect to spend a larger proportion of their working lives unemployed. Finally, we show that, in some countries, the measure of long-term unemployment has been underestimated due to a discouraged worker effect.

Keywords: Discouraged workers. Europe, Long-term unemployment, Older workers, Working life expectancy.

Introduction

Past literature has well-documented the impact of long-term unemployment (LTU) on individuals and societies. At the individual level, LTU has a strong effect on later wages (Barnette and Michaud, 2012), people's mental health and families' wellbeing (Couch et al., 2013; Ervasti and Venetolis, 2010), as well as on the quality of the jobs held among re-employed workers (Pollmann-Schult and Büchel, 2005; Dieckhoff, 2011). In addition, LTU poses several challenges to ageing societies. With shrinking workforces, and legislations to promote activity beyond 50 years old, LTU also has implications on extending working lives. Policies encouraging active ageing and the postponement of the age at retirement collide with the reality of the labour market, where workers have growing difficulties to maintain employment at older ages (Boundy, 2013).

Even though studies on the causes and consequences of LTU are numerous (see for example Bentolila and Jansen, 2016; Duell et al., 2016), little is known about the age range at which people are expected to be long-term unemployed for a significant proportion of their working lives, and how the different economic cycles have altered the length of LTU in Europe. This information will point out differences in men's and women's labour-market attachment, and it will give us some insights on what to expect in front of the current economic downturn due to the COVID-19 lockdown measures, which may rapidly increase levels of LTU.

We aim to contribute to the current knowledge by estimating a synthetic measure of the time spent in LTU during individuals' working lives. This measure summarizes the incidence of LTU, and it can be broken down by age and gender to know at which ages employment is being lost. Our measure of LTU is based on the growing relevance of the concept of working life expectancy. This is an indicator that has been commonly used to describe the number of years that people are expected to be economically active (Siegel,

2012; Loichinger and Weber, 2016; Lozano & Rentería, 2019; Dudel et al., 2019). We build on this indicator to analyse differences in the average time spent in LTU in Europe during different economic cycles, from the beginning of the 2000s to the 2008 Recession, and then the years after this downturn until 2018. This is the last year with full information on employment and mortality rates, and both are needed to calculate working life expectancies. Finally, we test an alternative measure of LTU to call attention to those cases where numbers could hide the real magnitude of structural unemployment. Results of this analysis have important policy implications for governments to understand who are the most vulnerable age groups in the labour market, and will guide policies aiming at extending working lives and promoting activity among the workforce.

1. Background

1.1. Working life expectancy and the length of long-term unemployment

The duration of working life, or working life expectancy, is an indicator that has been used to monitor the EU-2020 strategy on employment (European Commission, 2010). It depicts the number of years that a person at a given age is expected to be active in the labour market throughout his or her life. According to Eurostat estimates, in 2018 the duration of working life at the age of 15 varied considerably across countries, and it ranged from 31.6 years in Italy to 41.7 in Sweden. In addition, the gender gap in the duration of working life is also wide-ranging. In 2018, men at 15 years old were expected to work 1.4 years more than women in Finland, but this was 6.8 in Greece. This indicator has the advantage of summarizing the experience of a synthetic cohort, and it can be easily compared across regions describing trends over time. In addition, it has been argued that working life expectancy is an indicator substantially preferable than calculations based on the average exit age from the labour market because it gives a better idea on how inequalities in the labour market accumulate during the lifespan (Hytti and

Nio, 2004; Loichinger and Weber, 2016). In this paper, we want to measure the duration of LTU during people's working lives using the same method to estimate working life expectancy. LTU has been commonly measured as the percentage of total unemployment (Koch, 2017), but our indicator will give us a better idea of the amount of time that they could expect to be out of the labour market while looking for jobs.

Understanding the length of LTU during the lifetime is key to identify which age groups have been largely exposed to it. Age is one of the most predictive variables for the risk of LTU. Past studies have found that, before the 2008 economic crisis, older workers were more affected than younger cohorts by LTU because their transitions from job to job encountered various obstacles, such as negative stereotypes of older workers that could result in discrimination practices during the recruitment process, the risk of skills obsolescence, and the over-representation of elderly workers in economic sectors facing restructuring (Duell et al., 2016). Nonetheless, youth LTU has emerged as an important problem to tackle especially after the 2008 Recession (Mascherini et al, 2017). Most authors concluded that in the context of economic bust, businesses tend to proceed by the principle of last-in-first-out to cut-down their personnel (Bell and Blanchflower, 2011; Dietrich and Möller, 2016). However, older workers have, in general, a higher risk of experiencing the negative health consequences of unemployment, and they become less re-employable as the time out of the labour market increases (Koen et al., 2013).

1.2. Rates of long-term unemployment in European countries

In Europe, from the 1970s until the end of 1990s, high rates of LTU affected European labour markets. This period has been denoted as “Eurosclerosis” (Boeri and Garibaldi, 2009), and it was the consequence of the combination of over-regulated labour markets and economic stagnation. However, in the decade before the beginning of the 2008

Recession, levels of unemployment went down and tended to converge (Heidenreich, 2015), and this was described as the honeymoon effect (Boeri, 2011).

After 2008, trends in employment and unemployment rates reversed (Emmenegger et al., 2012; Rueda, 2014) and the 2008 Great Recession caused a significant job loss in Europe. It led to higher numbers of unemployed workers and longer spells of unemployment. Nonetheless, the effects of this last economic crisis on employment have not been equal across Europe. Boeri and Jimeno (2015) studied unemployment rates during the Recession in the EU and found that one of the main drivers of cross-country differences was youth unemployment, which ranged from 49.8 per cent in Greece to 7.2 per cent in Germany in 2015. However, the same study found that LTU was more persistent among older individuals between 2008 and 2011. During these years, the majority of the unemployed aged 50-64 in the EU were jobless for more than a year, compared to about 45 per cent of those aged 25-49.

Even though there is evidence that LTU grew considerable after the 2008 Recession (Rueda, 2014; Heidenreich, 2015; Mascherini et al, 2017), we do not know yet how long men and women in Europe could expect to be unemployed during their working lives, and at which ages the length of LTU is longer. This is crucial because consequences of LTU for individuals and families may differ if it is experienced in their 20s or in their 50s, or if it is experienced for long periods of time at different ages. This information is not straight forward when we study unemployment rates.

1.3. Discouraged worker effect

Past literature has pointed out that, especially among older workers, there is a discouraging effect after being in unemployment for long periods of time (Dagsvik et al., 2012; Shao and Ravikumar, 2014). Discouraged workers are those who will not look for jobs when labour markets are slack because they consider their chances of finding a

suitable job too low. There are two ways of approaching the discouraged worker effect. First, conventional theory views the labour supply as determined by individuals' decisions on both participating into the labour market and the hours of work (Hoti, 2017). The main theoretical assumption is that workers evaluate the expected utility of searching for a job and decide to participate in the labour market only if the expected utility of the search exceeds the utility of not working (Dagsvik et al, 2012). Second, other studies calculated the percentage of workers willing to work at the prevailing wage and circumstances of a given labour market, but they are incapable of finding a job. For example, Darby et al. (2001) investigated participation rates during different economic cycles in France, Japan, Sweden, and the US. They found that the discouraged worker effect was prevalent but essentially a female phenomenon, particularly among the 45-54 age group. Maestas and Li (2008) calculated that 13 per cent of older workers in the US were discouraged workers. Nonetheless, Shao and Rakimuvar (2014) concluded that most discouraged workers did not stay in that category too long, and either found a job or exited the labour market.

In this paper, we aim to consider this effect to re-evaluate current measures of LTU, and the length of it during people's working lives. In particular, we ask how much it would change if discouraged workers were included in the definition.

2. Our study

So far, past literature has explored the consequences of LTU among young cohorts and older workers, focusing either on one age group or the other. Yet, little is known about the effect of different economic cycles on the average time spent in LTU during people's life in the European context. Monge-Naranjo and Sohail (2015) pointed out that, even though the Great Recession increased the number of young people in LTU, the composition of the long-term unemployed started to change during the subsequent

economic recovery in Europe, largely affecting older workers. Furthermore, we do not know yet in which countries the length of LTU could be underestimated due to the number of discouraged workers who are being reported as inactive people, which may have increased after the 2008 economic downturn.

By comparing working life expectancies in European labour markets, and capturing time in LTU, we aim to study these three hypotheses:

Hypothesis 1. The duration of LTU is expected to have converged in European countries before the Recession and recorded divergent levels after it. People in Southern and Eastern European countries could have expected to spend a longer proportion of their working lives in LTU than in Northern and Continental Europe.

Hypothesis 2. The duration of LTU has been longer among younger workers in absolute years. However, older workers could expect to spend a larger proportion of their working lives in LTU.

Hypothesis 3. Adding the discouraged worker effect would imply a larger increase in the duration of LTU among older generations than among younger workers.

3. Data and Method

Data come from the European Labour Force Survey (EU-LFS) yearly files from 2000 to 2018¹, and life tables are from the Human Mortality Database (HMD). We included 25 countries for which full information on employment and mortality rates were available during the period under study: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia,

¹ Although the 2019 EU-LFS has already been released by Eurostat, we need to combine it with mortality data from the HMD to calculate working life expectancy, for which 2018 is the latest available year for many countries.

Netherlands, Norway, Poland, Portugal and Slovenia, Spain, Sweden, Switzerland, and the UK.

3.1. Definitions

We defined LTU according to the International Labour Organization (ILO) criteria. Hence, long-term unemployed are defined as persons aged between 15 and 64 years who are not in paid employment or self-employment, and have been actively searching for work for, at least, 12 months.

The EU-LFS also have other interesting information for the purpose of this study. First, among people who were inactive (not in paid employment, and not actively looking for work), we can distinguish between those who wished to work and those who did not, and we can also know if they were unemployed one year ago. We used this information to calculate the average time spent in inactivity, for those who were unemployed one year ago, but would like to work, to estimate the discouraged worker effect. We defined discouraged workers as those who after being unemployed for a certain period of time decided to quit the labour market but would be still willing to work. Unfortunately, the question of “why are you inactive?” is not asked in the survey questionnaire, and hence our measures of discouraged workers have to still be interpreted as a proxy measure. We argue that because they were unemployed a year ago and reported to be willing to work even though they were inactive, they can give us a better idea of the discouraged worker effect.

3.2. Method

EU-LFS allowed us to calculate the prevalence of LTU for each year and age group. We selected men and women between 15 and 65 years old and classified respondents into three age groups: younger cohorts (15-34), midlife cohorts (35-49), and older cohorts (50-

65). Then, we combined LTU prevalence with life tables provided by the HMD to estimate working-life tables and the length of LTU using Sullivan's method (Sullivan, 1971). All analyses were run separately by sex. Working-life tables were closed up to the age of 64, and therefore, in our sample, age is top-coded at 65-plus years old. Inactivity after 65 years old usually depicts retirement since this is the average age at retirement in most countries, and transition back to being employed are generally rare in all the countries considered (Lain and Vickerstaff, 2014).

Mathematically, the remaining working life years (WL) at age x spent in a state j (Long-term unemployed) can be calculated as:

$$WL_j(x) = \frac{1}{l_x} \sum_{i=x}^{65+} t_i L_i,$$

where l_x denotes the survivor function of a life table calculated through the number of individuals who survived at age x , t_i is the proportion of people being long-term unemployed, and L_i is the number of years lived between ages x and $x+a$. Working life expectancy is a synthetic indicator that similarly to life expectancies, it estimates the amount of time that a person at a given age is expected to be in the labour market if he/she experienced the same age-specific mortality and labour market participation rates as the population in the investigated year. All estimates shown in this study are, therefore, based on a synthetic cohort approach. We then adjusted the years in LTU as a proportion of the remaining working life expectancy, separately for men and women. This was done to make straightforward comparison across countries and between age groups and sexes².

Secondly, we decomposed the length of working life into employment, LTU and inactivity by age groups. The purpose of this analysis was to know which groups have

² For example, experiencing five years of LTU between age 15 and 34 is not comparable to experiencing it between age 50 and 64, because those five years are a smaller percentage of their working life.

experienced a larger change in the time spent in LTU before and after the Great Recession.

Finally, in order to calculate the time spent in inactivity after being unemployed and report to be willing to work, we also used Sullivan's method. We then added this time to our LTU measure. All analyses used yearly weights, and were calculated using STATA software, version 14.

4. Results

4.1. The duration of LTU in Europe

We calculated the time spent in LTU as the proportion of the total working life. We opted to show results using proportions, instead of total number of years in LTU, because, as mentioned before, they allowed for direct comparison across age groups and countries. However, results expressed in years are available in the appendix (Figure A1).

In Figure 1, we show results for men and women separately. In the analysis, we identified four different groups of countries. First, countries where the duration of LTU remained below 5 percent of individuals' working lives during the period under study (2000-2018); second, countries with a duration of LTU above 5 percent before and after the 2008 economic recession; third, countries where the duration of LTU was below 5 percent before the Recession and grew above 5 percent after it; finally, those countries where the length of LTU was above 5 percent before the Recession, but remained below 5 as a result of the 2008 economic downturn³. Some countries were classified differently within the four groups according to divergent patterns between the sexes.

³ Even though other thresholds could have been possible, setting it at 5 percent allowed grouping the countries in four clusters that clearly depict similar trends within groups, and different trends between groups.

In the first group, men in Northern European countries (Denmark, Finland, Norway, and Sweden), as well as in Austria, the Czech Republic, France, the Netherlands, Switzerland and the United Kingdom (UK) experienced the lowest duration of LTU in Europe during the period under study. Among women, we identified the same countries, with the exception of Czechia and France, where women spent more than 5 percent of their working lives in LTU either before or after the Recession.

The second group gathered mainly countries in Eastern and Central Europe (Bulgaria, Croatia, Estonia, Latvia, and Slovakia) and Italy. For men, in Bulgaria and Slovakia the duration of LTU was more than 10 percent of their working lives at the beginning of the 2000s, and it was more than 5 percent in Italy, Estonia and Croatia. In these countries, the length of LTU decreased between 2003 and 2009, and then increased again as a consequence of the Recession. Among women, the proportion of time spent in LTU was particularly high in Italy (14.2%), Croatia (12.4%), and Slovakia (13.1%) before the 2008 crisis. However, the duration of LTU after the Recession was lower than before. France was also included in this group in the case of women. They recorded levels slightly over 5 percent of the working life at the beginning of the 2000s, which lately decreased to 4.5 percent between 2006 and 2009, and increased again over 5 percent after the Recession.

In the third group, we clustered those countries with a higher impact of the 2008 Recession on LTU. This mainly happened in Southern Europe (Greece, Portugal, Slovenia, and Spain), Ireland and Hungary, but also in Belgium and France for men. In 2012, men in Greece and Spain were expected to spend 18.3 and 16.1 percent of their working lives in LTU, respectively. In Ireland this was 13.8 percent for the same year, and 11.2 percent in Portugal. In Croatia, the length of LTU also grew as a result of the 2008 Recession, although to a lower extent (5.9%) than the rest of the countries in this

group. Finally, among men, Belgium and France were also classified in this cluster, because even though these countries recorded lower levels of LTU than the rest of the cluster, the 2008 Recession had a negative impact on the duration of LTU compared to their previous levels. Time in LTU grew to 5.5 percent and 5.2 percent in France and Belgium, respectively. Among women, in 2012 the length of LTU was almost 24 percent of females' working lives in Greece, 16.1 percent in Spain, and 10.4 percent in Portugal. In Ireland, women experienced an increase in LTU after the economic crisis but to a lower extent than men due to lower percentages of economic inactivity among females.

Finally, in the last group, we included Poland and Germany for men and added Belgium and Czech Republic for women. In Poland, the duration of LTU at the beginning of the 2000s was around 10 percent of men's working lives, and 13 percent of women's. For both sexes, it decreased to less than 5 percent before the 2008 Recession, and increased again after it, but remaining below 5 percent. In Germany, prior to the Recession, the duration of LTU was around 7 percent, and decreased to less than 3 percent for both sexes in recent years. Women in Belgium and Czech Republic also experienced a longer duration of LTU before the Recession, but it decreased from 2006 onwards, with a small peak over 5 percent in Belgium in 2010.

[Insert Figure 1]

4.2. Differences by age

In Figure 2, we decomposed these trends by age groups. To ease the reading of the results, we only included two countries of each of the groups described in the previous section, but all country-estimates are available in the appendix (Figure A2).

Among men, we found that older workers spent a higher share of their working lives out of the labour market and looking for jobs in all countries, both before and after

the Recession. This was especially significant in countries like Greece, where older workers spent 32.1 percent of their remaining active lives in LTU after the economic downturn, although this was less than 10 percent before it. Ireland and Croatia also showed a longer length of LTU among older workers as a consequence of the economic crisis, being 22.3 and 24.2 percent, respectively. Young and midlife cohorts recorded lower percentages than older workers, and a similar duration of LTU during the period under study. Greece was, however, an exception. Younger male cohorts in this country recorded a higher share of LTU during their working lives compared to midlife generations, with a peak of 25.2 and 21.9 percent, respectively, after the Recession. In Ireland, Croatia, and Italy, young and midlife cohorts also experienced a great impact of the 2008 economic crisis, spending between 12 and 18 percent of their working time in LTU. In Poland and Italy, older workers were also more exposed to longer times out of the labour market (over 20%) at the beginning of the 2000s, although young and midlife males also recorded a longer duration of LTU compared to other countries. In Germany, the duration of LTU was shorter after the Recession than before it among men at all ages. Finally, northern European countries, such as the Netherlands and Norway, recorded a smaller impact of the 2008 economic downturn on the duration of LTU, and it remained shorter than in the rest of Europe throughout the period studied for the three age groups.

Among women, the duration of LTU was longer than among men at all ages, with the exception of Ireland. In addition, older women were found to spend a higher proportion of their working lives out of the labour market compared to younger cohorts. In Greece, older women recorded 53.4 percent of their working lives in LTU after the Recession. A long duration of LTU was also experienced by women in Italy and Croatia, although only before the Recession. In 2000, older women in these two countries could expect to spend between 50 and 60 percent of their remaining working lives in LTU. In

Poland, the duration of LTU was also longer before the Recession, and particularly among older women who spent more than 30 percent of their working lives out of the labour market while looking for a job in 2003. In Ireland, the lower duration of LTU among women, compared to men, could be related to their lower activity levels. In this country, older women were also the ones who could expect to experience a longer proportion of their lives in LTU. In Germany, Netherlands and Norway, trends were similar to men, and women in these countries experienced a lower duration of LTU compared to other countries in Europe.

[Insert Figure 2]

4.3. Decomposition analysis by age group

In Table 1, we decomposed gains and losses in working life expectancy by age groups for two different time periods, the first corresponding to the change between economic boom and bust (2000-2009), and a second from bust to economic recovery (2009-2018). The aim of this decomposition analysis was to know which groups have experienced a larger change in the time spent in LTU before and after the Great Recession. We only show results for those countries where time spent in LTU grew at least 10 percent of people's working lives after the economic crisis: Greece, Spain, Portugal, Latvia, and Ireland. Although in Ireland only men experienced such an increase. We additionally calculated which of these gains and losses were translated into other working statuses, such as inactivity and employment.

Between the economic boom and bust cycles (2000-2008), results show that the proportion of time spent in LTU increases in all countries. In Spain, the change in the percentage of time spent in LTU was higher among men than women, and among midlife cohorts, who lost more time in employment than other cohorts. In Portugal, the increase in the time spent in LTU was lower than the experienced in Spain for both sexes and at

all ages. In Greece, young men's time in LTU increased almost 24 percent between 2000 and 2009, and this was 18 percent for midlife cohorts and 6 percent for oldest groups. Increases in LTU were smaller among women in this country, but they lost more time in employment than men. In Latvia, younger men's time in LTU increased 21 percent, whereas the oldest group only gained 5 percent. Women's increased time in LTU during this period was similar, but they also lost more time in employment as well. The length of LTU also increased in Ireland, where younger males gained 16.3 percent of their time in LTU, and again older workers seemed to be less affected by the Recession in terms of gains in the time spent in LTU. Hence, even though older workers recorded a higher share of their working lives in LTU than younger cohorts, the latter were more affected by the 2008 Recession as they gained more time in LTU as a result of the economic downturn.

After the Recession (2009-2018), women's time in LTU seemed to have increased more than men's, and older generations gained more time in inactivity. In Spain, older women gained 5 percent of their time in inactivity, and this was 2.1 percent among older men. In Portugal, older women's time in inactivity increased 7 percent, while female midlife cohorts decreased their time in both inactivity and LTU. Among men, older workers were the only ones whose time in employment decreased in Portugal. In Greece, young and midlife cohorts lost time in LTU, and it increased for older workers. Older men's time in LTU increased 8 percent, and this was 7 percent among women. All workers decreased their time in activity in Greece, with a higher decline among younger cohorts and among men. In Latvia, both men and women lost time in LTU but gained it in inactivity. Finally, in Ireland, midlife cohorts lost 10 percent of their working life in LTU between 2009 and 2018, and this was 6 percent for young generations and 3.1 percent for older. They also lost time in inactivity, but the gains in employment were smaller in other countries.

[Insert Table 1 here]

4.4. The discouraged worker effect

Finally, we questioned whether the length of LTU during the lifespan has been underestimated by not considering the number of discouraged workers. We build on the idea that those who were unable to find a job after several months seeking turned inactive, although they would have continued working had they given the option. In other words, they were inactive because they were unable to find a job. This is the discouraged worker effect that depicts inactivity while willing to work.

We estimated the proportion of time spent in inactivity while willing to work separately by age group and sex. In the figures (figures 3.A-3C), we display those countries where LTU was higher than 10 percent of working life expectancy, and the time spent as discouraged workers at least doubled the time in LTU in one of the years under study. We found evidence that the change of including discouraged workers was especially relevant in eight countries (out of 25) depending on the age group, and it mostly affected older workers.

As shown in Figure 3A, adding the discouraged worker effect among the youngest generations increased the proportion of time spent in LTU in Bulgaria and Italy for both men and women, and in Croatia only among men. Among those in midlife ages (Figure 3B), the length of LTU increased for men and women in Bulgaria, Italy and Latvia, and only among women in Poland. Finally, older workers whose time in LTU doubled when considering the discouraged worker effect were Belgium, Bulgaria, Croatia, Hungary, Italy, Latvia, Poland, and Slovenia (Figure 3C). In Bulgaria, Italy, Latvia, Poland and Latvia, the additional effect changed men's and women's time in LTU. In Italy and Croatia, the change was especially remarkable after the 2008 Recession. In Poland, on the other hand, the difference in LTU when adding the discouraged worker effects was

bigger before the Recession. In Belgium, it only increased women's time in LTU, and in Hungary only men's. However, even though slight increases were observed as a consequence of the Recession, the higher spikes were recorded at the beginning of the 2000s.

Finally, it is worth mentioning that Italy recorded the highest change on the length of LTU when adding discouraged worker to our measure, for both men and women and in all age groups.

[Insert Figure 3]

5. Discussion and Conclusion

In this paper, we calculated the length of LTU, defined as the proportion of people's working lives that they could expect to spend in LTU if they were experiencing at each age the same rates observed in the year under study. When used to depict trends over time, this indicator has the advantage of summarizing the experience of a synthetic cohort at a given period of time. Hence, comparisons of trends across countries allowed us to study the impact of LTU on individuals' lifespan in each country, decomposed by age and sex.

We identified four different groups of countries depending on the length of LTU in different economic cycles. Before the recession, we observed a decline in the time spent in LTU in most European countries. Thus, the expected convergence in the length of LTU forecasted in our first hypothesis was confirmed. However, after the Recession, heterogeneous patterns were recorded. We observed the longest duration of LTU in Southern and Eastern European countries, as well as in Ireland. This went in line with past research (Duell et al., 2016; Mascherini et al., 2017), however, our findings clearly

showed that there have been different patterns before and after the last economic bust cycle in Europe. The length of LTU grew considerable especially in Southern countries and Ireland. The Recession hit these countries when they were experiencing a boom in the economic prosperity, mainly driven by the construction sector and related industries, and services (Kelly et al., 2012, Guardiola and Guillen-Royo, 2014). Ireland was denoted as the “Celtic Tiger”, a term to refer to its rapid economic growth between mid-1990s to late 2000s (Donovan and Murphy, 2013). Men were largely affected by the 2008 Recession due to its impact on the economic sectors that mostly employed male workers. However, after the Recession in Greece, Spain and Portugal, women’s time in LTU has increased over men’s time. Past studies indicated that in Southern regions, the 2008 Recession increased men’s unemployment but in the long-term it had a larger negative impact on women’s working conditions (Karamessini and Rubery, 2013, Addabbo et al., 2015, Lozano and Rentería, 2019). Our results show a similar trend, even though both sexes recorded an increase in the duration of LTU after the economic crisis, women seemed to be trapped in it for longer, pointing at a more negative impact of the Recession on their working life in the long run. The majority of Eastern and Central European countries also recorded an important impact of the Recession on the length of LTU (except for Czechia and Poland), although lower than in Southern countries, but not higher than the duration of LTU before the 2008 economic crisis. In the countries included in our second group, the long duration of LTU before and after the 2008 economic crisis seems to indicate that the exception was the economic bust from 2004-2008. This reinforces the idea of the ‘honeymoon effect’ as pointed out by Boeri (2011). The causes of the long duration of LTU before the Recession could be related to the transition from communist regimes, which increased the rates of LTU (Nesporova, 2002; Ederveen and Thissen, 2007). Another explanation could be the large emigration of

workers in Eastern Europe after the EU-enlargement, which affected the total number of active population in the sending countries between 2004 and 2007 (Elsner, 2013). This could explain why in countries like Bulgaria, Slovakia, Latvia and Croatia, the length of LTU only decreased during the period 2004-2007.

Secondly, we were concerned about the age group that was experiencing more years in LTU, and our second hypothesis predicted that older workers could expect to spend a larger proportion of their lifespan in LTU. Our results found evidence to support this hypothesis. Southern and Eastern countries, again, where the ones where the duration of LTU among older workers was longer. In addition, older women showed much greater proportions of their working lives living with LTU, before and after the Recession, except for Ireland. On the other hand, younger workers' time in LTU were more affected by economic cycles. In our decomposition analysis, we found that between the economic boom and bust cycles (2000-2009), younger cohorts gained time in LTU as the Recession strongly increased youth unemployment. Hence, although older workers spent higher share of their lives in LTU, when we decompose gains and losses between economic cycles, we found that younger cohorts gained more time in LTU relatively as a consequence of the 2008 Recession. Past studies have already pointed out that young workers have been more vulnerable during the 2008 Recession and were trapped in unemployment (Verd, et al., 2019; Dietrich and Möller, 2016). However, our study showed that when we measure the duration of LTU during the lifespan, older workers are spending a higher proportion of their remaining working time in LTU. This adds to the previous knowledge on LTU based on rates and shows that even though economic downturn affects younger workers to a higher extent, in the long-run older workers, and especially women, are more vulnerable in the labor market.

Finally, we explored whether the measure of LTU was being underestimated by not considering discouraged workers, and whether this could explain a part of the variation observed across countries. Our third hypothesis predicted that older workers' time in LTU would be more sensitive to the discourage worker effect, especially in those countries with high LTU levels. It is true that older workers were more affected, and we found that this was only relevant in 10 European countries among older workers. Nevertheless, these countries are not always those with higher levels of LTU, as in the case of Italy, where we observed the biggest change. Italy, although being a Southern European country, did not show as high levels as Greece or Spain, but after adding the discouraged workers to the time spent in LTU, the duration equaled to those of its neighbours. These results have implications for policies encouraging activity in these countries, and the discouraged worker effect may need to be considered as well. To our knowledge, it has not been considered before when defining levels of LTU in Europe.

Further analyses are needed to understand the vulnerability of the age groups spending longer time in LTU, such as capturing differences by educational level, or other socioeconomic characteristics like migration status or income levels. Previous research has shown that an advantaged social class position protects individuals from unemployment (Lahtinen, et al., 2018). However, this could be only added if we had life tables by level of education for each country. Unfortunately, this information is not available, and hence we were unable to control for other factors associated with LTU. Nonetheless, our aimed was placed in pointing out in which countries people are spending a higher proportion of their lives in LTU. In addition, this measure has the limitation of not capturing transitions from one labour-market status to another as it is based on cross-sectional data. Nonetheless, this problem lessens in our case since we are measuring LTU. This implies that we observe those people who have spent at least 12 months in the same

status (unemployment), and, thus, did not experience any transition during the last year. In addition, past calculations have shown that transitions to employment among the long-term unemployed are less likely to occur, especially in a context of economic recession (Scarpetta et al., 2010).

To sum up, the vulnerable workers in terms of time spent in LTU were found in the Southern countries and Ireland (only for men), with older women spending around 50 percent of their active lifetime out of employment. While in other countries the increase duration of LTU seemed to be a consequence of the 2008 Recession, in the Southern regions the slower recovery after it may point to the failure of active labour market policies to reduce unemployment (Card et al., 2015). In addition, our analysis showed that the average unemployment rate hides a high degree of heterogeneity across countries and across age groups. These results can identify future trends in the frame of the current economic crisis caused by the pandemic. We are currently facing the beginning of a potential employment crisis with the current sanitary crisis shutting down business. The analysis of past trends in LTU and how countries have been handling it might call attention to the future impact of this imminent crisis on future LTU, allowing to anticipate dramatic consequences for those groups that we found being more vulnerable, especially in those countries where the length of LTU was not reduced with cycles of economic recovery after the Great Recession.

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Figure 1. Proportion of LTU over active life expectancy among men and women in Europe 2000-2018

Source: EU-LFS 2000-2018, HMD 2000-2018

Figure 2 Proportion of LTU over active life expectancy among men and women in Europe according to age groups, 2000-2018 (selected countries

Male sample

Female sample

Source: EU-LFS 2000-2017, HMD 2000-2018

Table 1. Change in the proportion of working life spent in LTU, employment and inactivity in two different economic cycles, economic boom-and-bust (2000-2009) and economic recovery (2009-2018) among countries where time spent in LTU grew at 10 percent of the working life after the economic crisis

<i>Country</i>	<i>Sex</i>	<i>Age Group</i>	Difference between 2000-2008 (percentage)			Difference between 2009-2018 (percentage)		
			Job	LTU	Inactive	Job	LTU	Inactive
<i>Spain</i>	Men	15-34	-3.7	6.8	0.5	2.1	2.6	-3.7
		35-49	-10.0	11.4	0.7	1.4	2.1	-2.1
		50-65	-6.0	7.5	0.5	0.5	2.0	0.0
	Women	15-34	-8.4	1.6	1.1	2.6	0.5	2.1
		35-49	-10.7	8.6	0.7	1.4	2.1	-0.7
		50-65	-4.5	7.0	0.0	0.5	3.0	0.5
<i>Portugal</i>	Men	15-34	-8.9	7.9	4.2	7.9	3.2	-4.2
		35-49	-6.4	6.4	2.9	7.1	3.6	-5.0
		50-65	-2.0	4.0	0.5	-2.0	2.1	5.0
	Women	15-34	-4.2	4.2	5.3	5.8	-2.6	0.5
		35-49	-7.1	5.0	3.6	5.0	-1.4	-2.9
		50-65	-2.0	5.0	0.5	1.5	6.0	7.0
<i>Greece</i>	Men	15-34	-1.6	23.7	1.6	8.9	2.1	-7.9
		35-49	-0.7	17.9	0.0	4.3	2.0	-6.4
		50-65	0.0	6.0	0.0	4.0	8.0	-4.0
	Women	15-34	-15.3	8.4	3.2	10.5	-4.7	-2.1
		35-49	-13.6	1.4	0.0	4.3	-2.1	-2.1
		50-65	-1.5	0.0	0.0	-3.0	7.0	2.0
<i>Latvia</i>	Men	15-34	-2.6	21.1	3.7	2.1	-4.2	5.3
		35-49	-7.9	15.7	3.6	0.7	-5.0	6.4
		50-65	-3.0	5.0	0.0	0.5	-1.0	3.5
	Women	15-34	-18.4	14.7	4.7	1.6	-5.8	3.2
		35-49	-22.9	14.3	2.9	1.4	-1.6	4.3
		50-65	-12.0	6.5	0.0	0.0	-1.5	5.5
<i>Croatia</i>	Men	15-34	-14.7	16.3	4.2	1.6	-5.8	-7.4
		35-49	-5.7	14.3	2.1	0.0	-10.1	-5.0
		50-65	-0.5	5.5	0.5	-0.5	-3.1	-4.0
<i>Ireland</i>	Men	15-34	-3.7	6.8	0.5	2.1	2.6	-3.7
		35-49	-10.0	11.4	0.7	1.4	2.1	-2.1
		50-65	-6.0	7.5	0.5	0.5	2.0	0.0

Source: EU-LFS 2000-2017, HMD 2000-2018

Figure 3. Proportion of time in LTU considering the discouraged worker effect among men and women according to age group, 2000-20018

3.A. Young cohorts (15-34)

3.B. Midlife cohorts (35-49)

3.C. Older cohorts (50-65)

Source: EU-LFS 2000-2017, HMD 2000-2018

Appendix

Figure A1. LTU Life Expectancy (years)

Male sample

Female sample

Figure A2. LTU Life Expectancy (years) by age group

Male sample

Female sample