Boom, Bust, and Goodbye: Long-Term Unemployment before and after the Great Recession, and the Implications for an Aging Europe

Mariona Lozano[1], Elisenda Renteria[1]

[1]Centre d'Estudis Demogràfics, Universitat Autònoma de Barcelona, Spain

Abstract

In response to aging societies, most governments are promoting economic activity among older workers to extend working lives. Nonetheless, after the Great Recession, the increase in long-term unemployment (LTU) challenged these objectives. Here, we examine the length of LTU across the EU-28 during the last decades (2000-2017). We use the EU-Labor Force Survey and Human Mortality Database to estimate LTU expected years, and decompose changes into age groups. Our results show a strong polarization between the South and the rest of Europe. In Southern countries, people were expected to live up to 5 years unemployed between the ages of 15 and 49, with a small recovery after the economic bust. Estimates were smaller for older workers, but decomposition analyses showed this is because they turned into inactivity. Among women, however, older women gained more time in both inactivity and LTU than younger cohorts, hence being more vulnerable than men.

Keywords: Long-term unemployment, aging, economic cycles, Europe

Introduction

Long-term unemployment (LTU) has been largely discussed in governmental settings due to the social consequences that it has for a nation's well-being. After the 2008 Great Recession, the European Union addressed the issue of LTU and recognized that "prime-age and older workers are affected by the rapid rise in long-term unemployment" and that "this puts them at risk of poverty and present a danger to their employability, the stability of their families and their mental and physical health" (European Commission, 2013). Consequently, LTU has become a major social problem in the EU. However, we do not know yet at which ages people are spending more time out to the labor market, and actively looking for jobs. This is important because consequences of LTU for individuals and families may significantly differ if it is experienced at the age of 22 or at 52 years old.

In addition, from a demographic point of view, LTU not only has negative consequences at the individual-level, it also poses several challenges to aging societies. With shrinking workforces, and legislations to promote active life beyond 50 years old, LTU also has implications for extended working lives. Policies encouraging active aging, and postponing retirement age collide with the reality of the labor market, where workers have growing difficulties to maintain employment at older ages. Even though the literature on the causes and consequences of LTU is large (see for example Bentolila and Jansen, 2016), we do not know yet how many years people are expected to be long-term unemployed during their working life, and at which ages. We aim to contribute to the debate by suggesting a synthetic measure of years spent in LTU that is easily comparable and it can summarize, in a single number, the incidence of LTU during the life-span. We calculate the average time that men and women are expected to be long-term unemployed during their working life, and we pinpoint main trends in Europe. This approach will

allow us to illustrate the experience of different cohorts and it can be readily estimated for different countries. The interest of this indicators lies in its capacity to measure the length of LTU, allowing us to understand who is being more exposed to it, when and where in order to guide public interventions.

This new measure goes in line with the growing relevance of the concept of working life expectancy within the demographic discipline. Working life expectancy is an indicator that has been commonly used in the literature to describe the number of years people are expected to be economically active (Siegel, 2012; Loichinger & Weber, 2016). In terms of the synthesis capability of the indicator, working life expectancy can describe the length of LTU allowing an easy comparison across time and generations. In this sense, the indicator captures the magnitude of the problem at one glance[1].

To sum up, we analyze differences in the average time spent in LTU in Europe between the economic boom cycle (2000-2007), economic bust (2008-2009), and years after the Recession (2010-2017). The novelty of it lies in the measuring how long, and at which ages, European population is expected to be out of the labor market for a period longer than one year, and it has important implications for political intention to extend working lives and promoting activity among older workers.

---

[1] For instance, similar dynamics can be found when comparing mortality rates with life expectancy. Life expectancy captures the prevalence of mortality among individuals of a specific age at a certain time, however, mortality rates are less graphic than the number of years a person is expected to live.

Background

1.1. Economic boom-and-bust cycle in Europe and the evolution of long-term unemployment

In Europe, from the 1970s until the end of 1990s, high LTU affected European labor markets in what has been denoted as "Eurosclerosis" (Boeri & Garibaldi, 2009). However, in the decade before the beginning of the 2008 economic recession, levels of unemployment went down and, in general, European labor markets became more inclusive (Heidenreich, 2015). This was partly due to the reform of national benefit and labor market policies, as well as activation policies proposed by the Organization for Economic Co-operation and Development (OECD), the International Labor Organization (ILO), and the European Union (EU) (Weishaupt, 2011). As a result, structural unemployment was reduced and employments rates increased in many countries during the late 1990s and the beginning of 2000s. This period has been described as the honeymoon effect (Boeri, 2011). After the 2008 recession, however, trends in employment and unemployment rates seemed to have reversed (Emmenegger et al., 2012; Rueda, 2014).

The 2008 Great Recession caused a significant job loss in Europe. It led to higher numbers of unemployed workers and longer spells of unemployment. However, the effects of the crisis on employment have not been equal across Europe. Boeri and Jimeno (2015) studied unemployment rates across the EU, and found that one of the main drivers of European cross-country differences is youth unemployment, which ranged from 49.8% in Greece to 7.2% in Germany in 2015. Moreover, the fear of short-term unemployment turning into a long-term problem is far from being new, and it is well-defined in the literature as the unemployment hysteresis problem. Unemployment hysteresis, or the path-dependent LTU, implies that economic recessions or persistent stagnation cause

unemployed individuals to lose their working skills and become obsolete, or demotivated and depressed (Blanchard & Summers, 1986; Akdogan, 2017).

In Europe, no calculations on the length of LTU during the working life are available, and we do not know yet at which ages workers are spending more than one year looking for employment, and how this phenomena is occurring across European countries. This is important to know because negative consequences of LTU may differ according to age. For instance, several studies have found evidence that unemployment increases suicide rate (Browning and Heinese, 2012, Stuckler et al., 2009) especially among workers aged 40-65. In addition, LTU has also an impact on personal decision among younger workers, such as family-planning and it may reduce fertility (Del Bono et al., 2012; Huttunen and Kellokumpu, 2016).

1.2. Working life expectancy and the length of long-term unemployment: towards a measure of vulnerability in the labor market

Working life expectancy can be described as the expected lifetime in the labor market of individuals at a certain age, if they experienced during their life the same working rates observed in a given year. According to Eurostat estimates, in 2017 the duration of working life at the age of 15 varied considerably across European 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 2017, men at 15 years old were expected to work 1.4 years more than women in Finland, while 6.8 in Greece. This indicator has the advantage of summarize in one number the experience of a synthetic cohort during their lifespan, it is comparable across nations and indicates trends over time. Past research has shown that working life expectancy is an indicator substantially preferable than calculations based on the average exit age from the labor market (Hytti & Nio, 2004).

LTU has been commonly measured as percentage of total unemployment (Koch, 2017), and we want to measure how long is expected to last during life. This approach is relevant because knowing the length of LTU at different ages can give us insight into how labor market inequalities accumulate over time. In this sense, years in LTU can be an indicator of vulnerability during individuals' working lives, and calculated as such allows for direct comparison across countries.

2. Research question

By comparing working life expectancies in European labor markets, and capturing time in LTU, we aim to answer two main question:

(1) How many years were people expected to be long-term unemployed during the economic boom (2000-2007), economic bust (2008-2009), and after the Recession?

(2) Have the 2008 Recession largely affected years in LTU among older workers or younger? Which age groups are spending more time in LTU?

3. Data and Method

Data come from the European Labor Force Survey (EU-LFS) from 2000 to 2017, and life tables from Human Mortality Database (HMD). We included 24 EU-member states for which we had full information on employment and mortality rates, and were classified into 4 major regions: (1) Central and Eastern Europe: Bulgaria, Hungary, Poland, Estonia, Latvia, Croatia, Slovenia, and the Czech Republic, (2) Northern Europe: Finland, Denmark, Norway, Sweden the UK and Ireland, (3) Western Europe: Germany, France,

the Netherlands, Belgium, Austria and Switzerland, (4) Southern Europe: Greece, Spain, Portugal and Italy.

EU-LFS allowed us to calculate the prevalence of long-tern unemployment for each year and age group. Following Eurostat, we define LTU as being out of work, and actively seeking for employment, for at least a year. Lately, we combined it with life tables provided by HMD to estimate working-life tables and the length of LTU using Sullivan's method (Sullivan, 1971). We selected men and women between 15 and 75 years old. Working-life tables were closed up to the age of 75, and therefore, in our sample, age is top-coded at 75-plus years old. Mathematically, the remaining working life years (WL) at age x spent in a state j (Long-term unemployed) can be calculated as:

$$WL_j(x) = \frac{\sum_{i=x}^{75+}\big((1 - t_i)L_i\big)}{l_x},$$

where l_x denotes the survivor function of a life table calculated through the number of people who survived at age x, and $(1\text{-}t_i)\cdot L_i$ is the number of years lived in long-term unemployment at age i. All analyses used yearly weights, and were calculated using STATA software, version 14.

3.1. Methodological considerations

We rely on the Sullivan's method based on prevalence rates. Similar to the estimation of life expectancies, the main principle of the method is to transform one-year experience of a given population into the life-time experience of an artificial cohort experiencing during its life course the same age-specific mortality and labor market participation rates as the population in the investigated year. All estimates shown in this study are, therefore, based on a synthetic cohort approach, which may have limitations in capturing individuals transitions from one employment status to another. However, we are measuring LTU, and

past calculations have shown that transitions to employment among the long-term unemployed are less likely, especially in a context of economic recession (European commission, 2016; Scarpetta et al., 2010). Therefore, although some precaution should be placed in the interpretations of our estimates, life expectancies in LTU provide a convenient measure to summarize the experience of those who spend more than one year looking for employment. For the purpose of this study, calculations of life expectancies in the labor marker have three important advantages. First, our measure has a synthetic capability that is easily comparable across countries. Second, it can be calculated for subpopulations for whom death rates by age are known. Last, but not least, it is easily decomposable into the main effects that account for differences between periods and age groups.

3.2. Decomposition technique

We first 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 experienced a larger change in the time spent in LTU before and after the Great Recession. In addition, for all age groups, we expect the length of working life expectancy to be affected by time in different labor market status, as well as mortality conditions at different ages. However, since transition rates cannot entirely be controlled with our data, we analyze the effect of labor market participation and mortality over life expectancy only for the older age group. After the age of 50, transitions from inactivity to activity in the labor market are rare (Katz et al., 2016). Therefore, we perform a second analysis, only among those aged 50 and over, to decompose differences in total life expectancy by employment status: working, unemployment, retirement/inactivity, and calculate whether the change is attributable to economic cycle effects, or to mortality effects.

Decomposition by type of effect starts from the Sullivan method, and we adapted Arriaga's technique (1984) to calculate changes in working life expectancy by mortality effect or labor-market participation effect. As in the Arriaga's method, we define the direct effect (*DE*), the indirect effect (*IE*), the interaction effect (*I*), and the total effect (*TOT*). Mathematically, it is expressed as follows:

$$TOT_{xy} = DE_{xy} + IE_{xy} + I_{xy} \quad (x \geq y),$$

DE is the change in the number of person-years lived within a specific age-group as a consequence of a change in mortality for that group. *ID* is the number of person-years removed (or added) because of changes in mortality within a specific age-group that decreases (or increases) the number of survivors at the end of that age interval. The interaction effect *I* results from the combination of variation in the number of survivors and the higher (or lower) mortality rates at older ages.

4. Results

Working life expectancy in Europe

In Table 1, we show the percentage of working life (as a proportion of life expectancy[2]) at the age of 15 for all countries in three different years: Economic boom (2000), economic bust (2009), and economic recovery (2017). Within Central and Eastern Europe, results did not show a clear effect of the 2008 Recession on the years in the labor market in Hungary, Slovenia and Bulgaria, and a small effect in Czechia, and Latvia. In Poland, workers lost 2% of their lifetime in the labor market after 2008, but in 2017 it was already recovered. In northern Europe, Denmark, Norway, and Finland recorded a lower percentage of working life in 2017 than in 2000, pointing at a slow recovery after

---

[2] Estimates for life expectancy and the duration of working life in years can be found in the Appendix 1

the crisis. Nonetheless, all estimates in this region were above 55 percent. In Western Europe, the lowest percentage of lifetime in the labor market was recorded in Belgium, but it has been growing since 2000. The highest proportion of working life was found in Switzerland, where people were expected to spend more than 60% of their life in the labor market. Finally, within Southern European countries, Italy recorded the lowest percentage of working life (46 percent), and Portugal the highest (56 percent) in 2017.

[Insert Table 1 here]

The Length of Long-Term Unemployment

Figures 1 and 2 show the evolution of the number of years in LTU for men. Figure 1 correspond to younger ages, and figure 2 depicts population aged 50 years old and over. In Figure 1, results show that there are notable differences across regions, but the effect of the 2008 recession was stronger in Southern Europe and Ireland. In Greece and Spain, it peaked in 2014 when workers were expected to spend around 5 years structurally unemployed and looking for jobs. In addition, whereas Spain showed a certain recovery after the bust-cycle of the economy, there were no signs of recovery in Greece. In Ireland, it went up to 4 years after the crisis, and then decreased again. In Central and Eastern countries, results show a declining tendency between 2000 and the 2008 Recession, and then years in LTU went up as a consequence of the crisis. Nonetheless, these countries experienced a fast recovery after 2015. For all other countries, LTU did not overpass a year, with the exception of Germany before 2008, and France and Belgium after the crisis where numbers are slightly above one year.

[Insert Figure 1 here]

In Figure 2, results for men aged 50 years old and over are shown. In general, the length of LTU was shorter for them compared to those aged 15-49, both before and after the crisis. It tended to reduce during the economic boom-cycle, and it grew during the bust-cycle in all countries. However, regional differences were again remarkable. Spanish men were the ones with the highest duration of LTU, with almost 2 years being structurally unemployed. Decreasing trends of LTU after 2008 were less clear in France and Belgium among older male workers than younger men in these same countries, as well as in Italy and Ireland. One of the interesting analyses is to know whether these workers have lower expectancy in LTU than younger groups because they are less unemployed or because they exit the labor market. Results of this analysis are commented later in the text.

[Insert Figure 2 here]

Figures 3 and 4 show results for women. In Figure 3, trends of LTU showed that, after 2008, Greek women between ages 15-49 spent up to 5 years of their working life actively looking for job, and no signs of recovery seemed to be recorded. In Spain, younger women were expected to be 4 years out of the labor market and actively searching employment. However, in some countries years in LTU for women were higher than for men before the crisis, and in Spain, for example, remained around 2 years even during the economic boom-cycle. In other countries, such as Italy and Ireland, estimates were smaller than among male workers. This is explained by the lower participation rates of women in the labor market in these countries. Within eastern countries, Croatia also seemed to have higher prevalence of LTU among younger females, and trends seemed to decrease after 2015. In Poland, in 2000 women were expected to live 3 years in LTU, then decreased until 2007, and it peaked at 2 years after the 2008 Recession. In both countries, expected years in LTU decreased after the economic bust.

[Insert Figure 3 here]

Finally, in Figure 4 we report the evolution of LTU for women ages 50 years old and over. We observe a similar pattern than younger cohorts, with lower incidence in some of the Eastern countries, Italy and Ireland because of higher inactivity rates. Spain recorded the highest time in LTU among older female workers after the 2008 crisis.

[Insert Figure 4 here]

Decomposition analysis by age groups

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 recovery (2009-2016). We show results for those countries where time spent in LTU grow after the crisis significantly: Greece, Spain, Portugal and Latvia for women, and Ireland, Croatia, Latvia, Greece, Spain, and Portugal for men.

Results are shown in Table 2, where the change in years in employment, LTU and inactivity is reported by 3 groups of 20-age interval[3]. 15-34, 45-54, and a final group with those aged 55 and over. Negative results meant that the average time spent in that particular state was higher during the last year considered than the first one, and positive results meant that time spent was lower. Therefore, negative results are translated into gains, and positive into losses in the average time spent in each working status.

Between the economic boom and bust cycles (2000-2009), results show that the 2008 Recession affected the average time in LTU differently in each country. In Spain,

---

[3] The age variable is grouped into a 5-year interval in the EU-LFS, changes in employment for each 5-age interval group is not shown here but available upon request

women between 15 and 34 years old gained 1.1 year in LTU, but men at the same age lost almost a year (0.7). In Portugal, both men and women lost years in LTU during this period, and the youngest group recorded the highest lost (1.7 years). However, they gained almost a year in inactivity and lost time in employment as well. In Greece, young men and women lost years in LTU during this period as well. In Latvia, on the contrary, younger men gained 3 years in LTU, and women almost 2.

After the recession, results show a more similar pattern in the three Southern countries. Younger men (aged 15-34) seemed to be the ones with higher gains in the time spent in both LTU and inactivity, and similar number of years spent in these two status were gained by older men, both aged 35-54 and 55+. Women, on the contrary, lost average time in LTU and inactivity at younger ages, 15-34, as well as those aged 35-54. However, older women gained time in LTU or inactivity. Therefore, after the Recession, younger men seemed to be spending more time in LTU than older, but among women the dynamic was reserved, and older women gained time in LTU. In Latvia, average time spent in LTU declined, but both men and women at all ages gained years in inactivity. Finally, in Ireland, younger men gained 2.6 years in LTU whereas the oldest groups recorded 2.4. Regarding time in employment, older groups (55 years old and over) gained only a few months of work, and all estimates ranged between 0 and 0.2. Among younger groups, estimates were higher but since transitions could be faster among them, we remain cautious when interpreting the number of years gained among these groups.

[Insert Table 2 here]

Decomposition analysis by type of effect

Secondly, we decomposed gains and losses in life expectancy into two main effects: mortality effect and economic effect. This is shown in Table 3. Due to the on-going nature

of this project, results of this analysis are not available yet, and will be processed during the next few months.

5. Preliminary Conclusion

In this paper, we aimed to estimate the amount of time spent in LTU in Europe before and after the recession. Even though several studies had addressed the causes and consequences of LTU, little is known about the time that people is expected to be without a job during their working life. This is essential to guide social policies aiming at supporting those furthest from the labor market.

We found that, with the exception of Germany and Estonia, the length of LTU during working lives increased after 2008 Recession, but it became a social problem in Southern Europe, Ireland, Latvia, Croatia. In this countries, male younger groups spent more time in LTU than older workers, because the latter probably opted for quitting the labour market as time in inactivity was increased as wellAmong women, we found that older were more affected by the Recession, as their average time in LTU also increased. Among them, time in inactivity also increased, showing that women at older ages were more vulnerable than men after the Recession. In future analysis, we will decompose this gains into the effects of mortality and labor market behaviors to better understand gains and losses in working lives among older workers, for whom the EU aims to increase their activity rates.

References

Akdigan, K. (2017). Unemployment hysteresis and structural change in Europe. *Empiric Economics*, 53, 1415-1440.

Arriaga, E.E. 1984. "Measuring and Explaining the Change in Life Expectancies." Demography 21:83–96

Blanchard, O.J., Summers, L.H. (1986). Hysteresis and the European unemployment problem. In: NBER macroeconomics annual 1986. Vol 1. MIT Press, pp. 15-90.

Bentolila, S., Jansen, M. (2016). *Long-term unemployment after the great recession: Causes and remedies.* London: CEPR Press.

Boeri, T. (2011). Institutional reforms and dualism in European labor markets. In Ashenfelter, O., Card, D. (Eds). *Handbook of Labor Economics*. Vol 4B. Amsterdam: Elseiver, pp.1173-1236.

Boeri, T., Garibaldi, P. (2009). Beyond Eurosclerosis. *Economic Policy*, 24(59): 409-461.

Boeri, T., Jimeno, J.F. (2015). The unbearable divergence of unemployment in Europe. Banco de España. Documento de Trabajo N. 1534.

Browning, M., Heinesen, E. (2012). Effect of the job loss due to plant clousure on mortality and hospitalization. *Journal of Health Economics*, 31(4). 599-616.

Del Bono, E., Weber, A., Winter-Ebmer, R. (2012). Clash of career and family: Fertility decisions after job displacement. *Journal of the European Economic Association*, 10(4): 659-683.

Emmenegger, P., Haüsermann, S., Palier, B., Seeleib-Kaiser, M. (eds). (2012). *The age of dualization: The changing face of inequality in deindustrializing societies*. Oxford: Oxford University Press.

European Commission (2013). Towards social investment for growth and cohesion – including implementing the European Social Fund 2014-2020, COM (2013) 83 final, 20 February 2013.

Heidenreich, M. (2015). The end of the honeymoon. The increasing differentiation of (long-term) unemployment risks in Europe. *Journal of European Social Policy*, 25(4), 393-413.

Huttunen, K., Moen, J., Salvanes, K.G. (2011). How destructive is creative destruction? Effects of job loss on job mobility, withdrawal and income. *Journal of the European Economic Association*, 840-870.

Hytti, H., Nio, I. (2004). Monitoring the employment strategy and the duration of active working life. *The social Institution, Kela.* Social Security and health research: working papers: 38/2004.

Katz, L., Kroft, F., Lange, F., Notowidigdo, M.J. (2016). Addressing long-term unemployment in the aftermath of the Great Recession. In S. Bentolila, M. Jansen (eds). *Long-term unemployment after the great recession: Causes and remedies.* London: CEPR Press, pp. 25-32.

Koch, M. (2017). *Roads to post-fordism: Labour markets and social structures in Europe.* London: Routledge

Loichinger, E., & Weber, D. (2016). Trends in working life expectancy in Europe. *Journal of Aging and Health, 28*(7), 1194–1213.

Long-term unemployment: Council Recommendation– frequently asked questions Brussels, 15 February 2016

Rueda, D. (2014). Dualization, crisis and the welfare state. *Socio-Economic Review*, 12(2): 381-407.

Scarpetta, S., Sonnett, A., and Manfredi, T., 2010. Rising youth unemployment during the crisis: how to prevent negative long-term consequences on a generation? OECD social, employment and migration working papers no. 106. Paris: OECD Publishing

Siegel, J. S. (2012). T*he demography and epidemiology of human health and aging*. Dordrecht: Springer.

Stucker, D., Basu, S., Suhrcke, M., Coutts, A., Mckee, M. (2009). The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *The Lancet*, 374(6986): 315-323.

Weishaupt, J.T. (2011). From the manpower revolution to the activation paradigm: Explaining institutional continuity and change in an integrating Europe. Amsterdam: Amsterdam University Press.

**Table 1. Proportion of Working Life Expectancy in Europe, 2000, 2009, 2017.**

Region	Country	2000	2009	2017
		% of WLE	% of WLE	% of WLE
Central and Eastern Europe	Bulgaria	50.0	53.8	54.7
	Croatia	†	51.4	51.2
	Czech Republic	55.4	54.0	55.7
	Estonia	58.5	59.0	60.8
	Hungary	47.6	48.1	54.9
	Latvia	†	59.7	59.9
	Poland	52.2	50.5	52.6
	Slovenia	51.5	52.7	53.8
Northern Europe	Denmark	61.4	61.8	59.7
	Finland	57.6	56.4	56.7
	Ireland	53.4	54.4	54.4
	Norway	60.6	59.1	57.0
	Sweden	56.6	59.6	61.6
	UK	58.2	57.7	58.5
Western Europe	Austria	52.4	54.5	55.4
	Belgium	47.6	48.9	49.1
	France	49.3	50.6	51.7
	Germany	53.8	55.7	57.8
	Netherlands	55.6	58.8	59.7
	Switzerland	60.8	62.3	62.6
Southern Europe	Italy	43.6	44.2	46.3
	Greece	48.9	48.8	49.0
	Portugal	57.0	56.4	56.4
	Spain	47.6	51.0	51.1

†Note: no information available on LE for 2017. Source: EU-LFS

Source: EU-LFS, HMD

Figure 1

Duration of LTU between ages 15 and 49 - Men
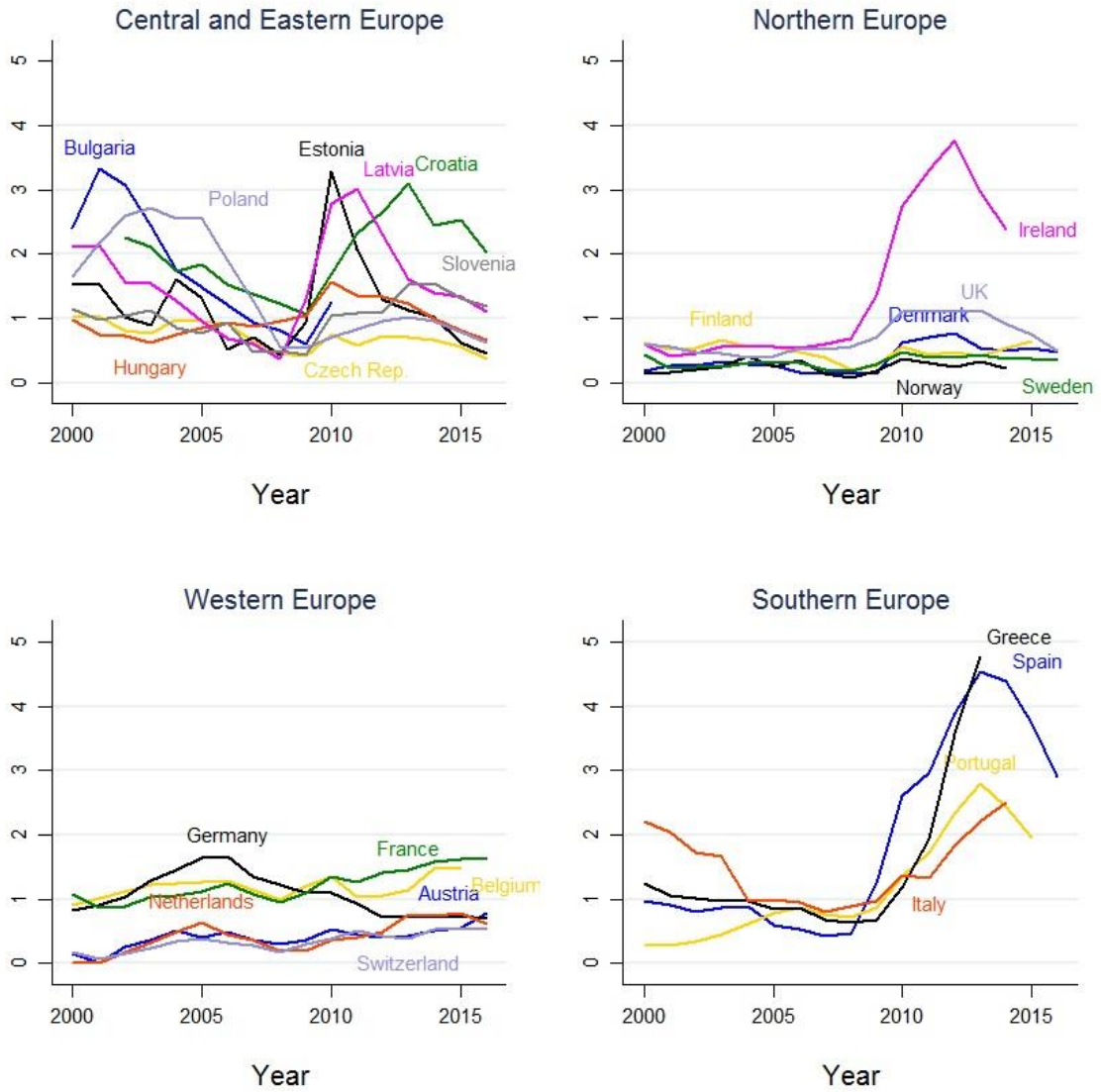
Source: EU-LFS 2000-2017, HMD 2000-2017

Figure 2.

Duration of LTU at age 50 and over - Men

Figure 3.

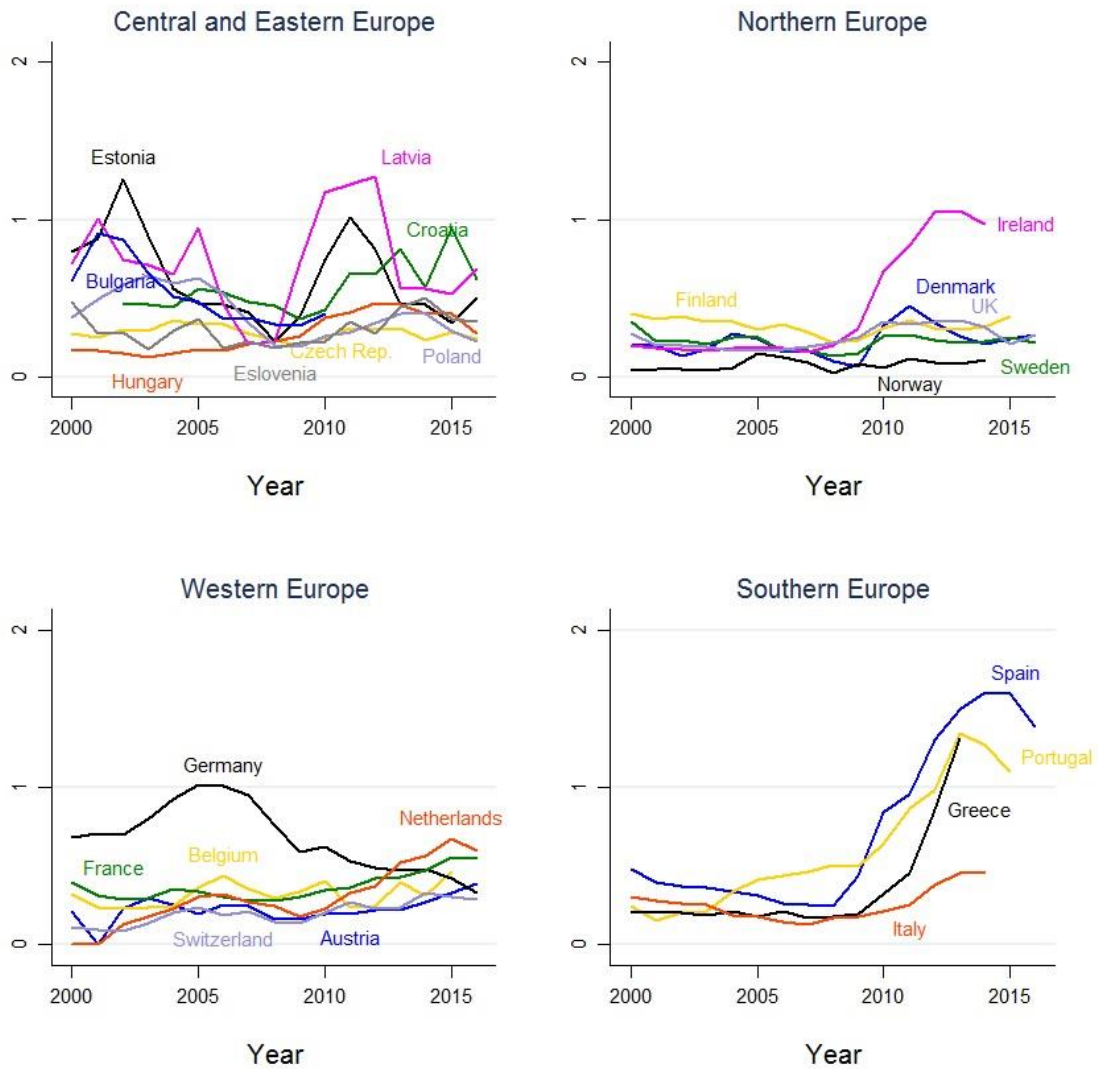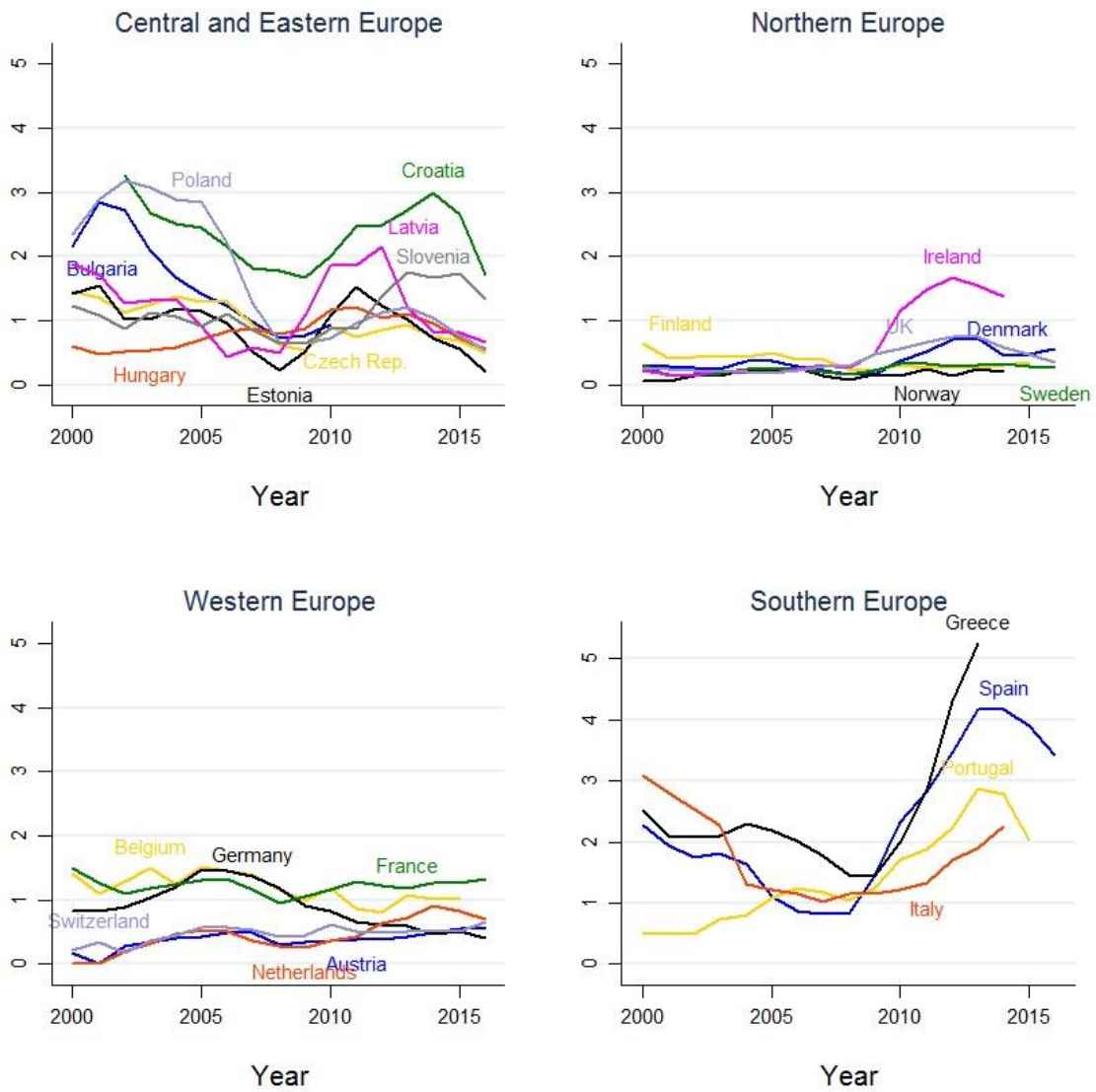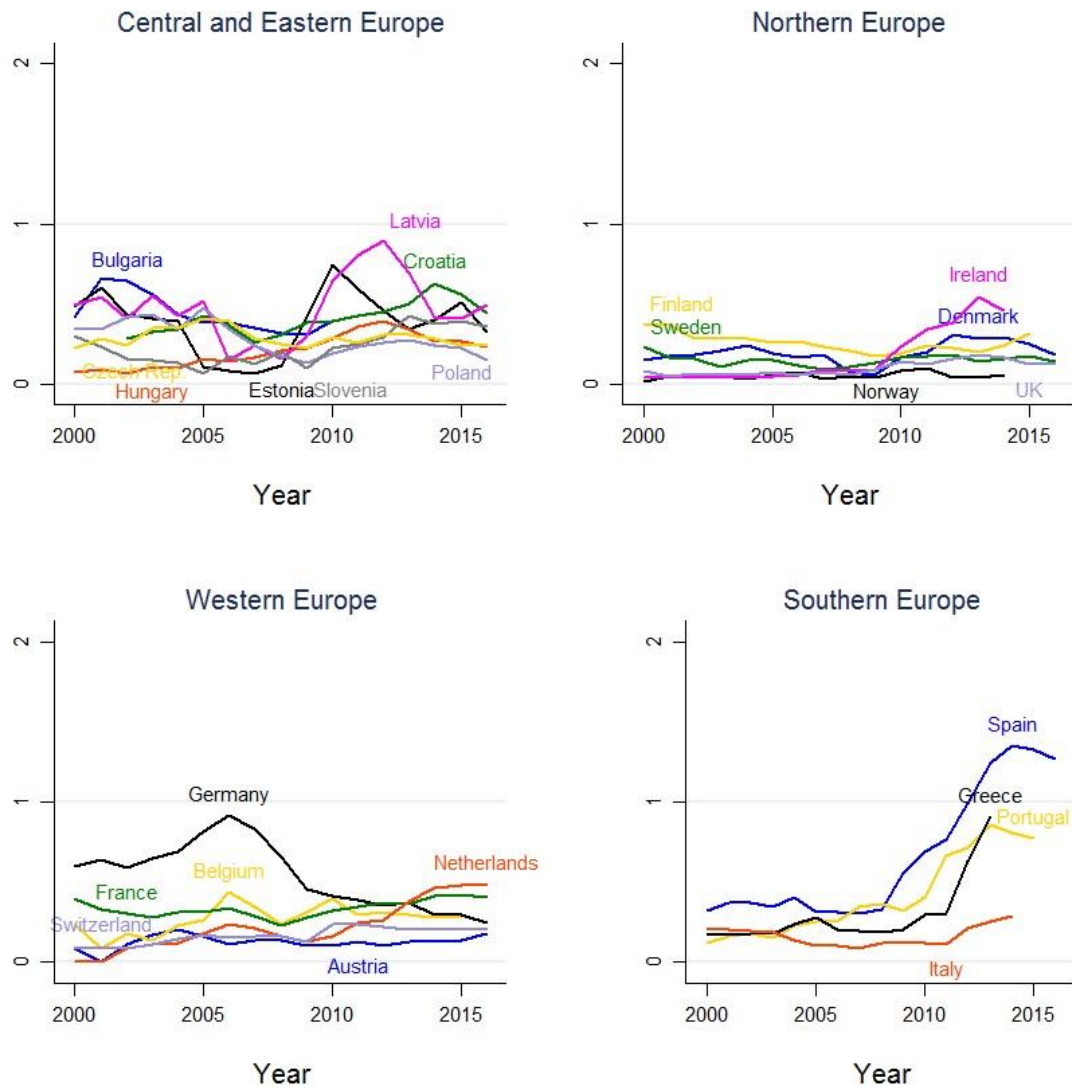Duration of LTU between ages 15 and 49 - Women

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

Figure 4.

Duration of LTU at age 50 and over - Women

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

Table 2. Average time gained and lost in working life between the ages of 50 and 65 in two different economic cycles, economic boom-and-bust (2000-2009) and economic recovery (2009-2016)

Country	Sex	Age Group	Difference between 2000-2009 (in years)			Difference between 2009-2016 (in years)		
			Job	LTU	Inactive	Job	LTU	Inactive
Spain	Men	15-34	1.9	0.7	-0.1	-2.4	-1.4	-1.6
		35-54	0.4	0.3	0.0	-1.3	-1.2	-1.0
		55+	-0.2	0.1	0.0	-0.2	-1.2	-1.0
	Women	15-34	-5.4	-1.1	0.5	-2.5	4.9	1.7
		35-54	-3.3	-1.5	-0.1	-1.2	2.6	1.5
		55+	-0.5	-0.4	0.0	-0.2	-0.8	-0.4
Portugal	Men	15-34	1.5	1.7	-0.7	-1.6	-2.3	-1.9
		35-54	0.7	0.9	-0.4	-0.9	-1.9	-1.2
		55+	0.2	0.6	0.0	-0.2	-1.8	-1.2
	Women	15-34	-0.8	0.4	-0.9	-1.1	0.5	-0.7
		35-54	-0.9	0.5	-0.4	-0.7	-0.3	-0.9
		55+	-0.3	1.0	0.0	-0.1	-1.4	-1.6
Greece	Men	15-34	0.1	6.7	0.4	-4.6	-1.8	-1.6
		35-54	-0.1	3.2	0.1	-1.9	-1.4	-1.4
		55+	0.0	0.9	0.0	-0.2	-1.5	-1.1
	Women	15-34	-3.0	3.8	0.7	-4.0	1.0	0.7
		35-54	-1.6	1.3	0.0	-1.5	0.1	0.0
		55+	0.0	0.2	0.0	-0.1	-1.6	-0.6
Latvia	Men	15-34	-1.0	-3.0	0.7	0.3	0.9	-1.9
		35-54	-1.6	-1.2	0.2	0.0	0.9	-1.5
		55+	-0.9	0.3	-0.1	0.0	0.5	-1.3
	Women	15-34	-4.1	-1.8	0.9	0.2	3.2	-1.2
		35-54	-4.0	-0.8	0.3	0.0	3.2	-1.2
		55+	-1.7	0.0	0.0	0.0	0.7	-1.0
Croatia	Men	15-34	-2.5	1.5	1.0	-1.1	-0.6	-1.9
		35-54	-1.5	0.8	0.3	-0.5	-0.1	-1.8
		55+	-0.5	0.4	0.0	0.0	-0.4	-1.5
Ireland	Men	15-34	2.6	0.0	-0.6	-1.6	-2.7	-1.6
		35-54	0.5	0.0	-0.2	-0.9	-2.6	-1.0
		55+	-0.2	0.0	0.0	-0.2	-2.4	-1.0

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

Appendix 1. Life expectancy (LE), Working Life expectancy (WL) and proportion of the length of working life over total life expectancy (%) at the age of 15 by country, 200, 2009 and 2017

Region	Country	2000			2009			2017		
		LE	WLE	%	LE	WLE	%	LE	WLE	%
Central and Eastern Europe	Bulgaria	58.0	29.0	50.0	59.7	32.1	53.8	60.5	33.1	54.7
	Croatia	ND	30.4		61.9	31.8	51.4	63.5	32.5	51.2
	Czech Republic	60.6	33.6	55.4	62.8	33.9	54.0	64.4	35.9	55.7
	Estonia	57.1	33.4	58.5	60.7	35.8	59.0	63.7	38.7	60.8
	Hungary	57.8	27.5	47.6	59.9	28.8	48.1	61.4	33.7	54.9
	Latvia	ND	31.7		58.6	35.0	59.7	60.4	36.2	59.9
	Poland	59.6	31.1	52.2	61.4	31.0	50.5	63.3	33.3	52.6
	Slovenia	61.7	31.8	51.5	64.7	34.1	52.7	66.4	35.7	53.8
Northern Europe	Denmark	62.4	38.3	61.4	64.4	39.8	61.8	66.5	39.7	59.7
	Finland	63.2	36.4	57.6	65.4	36.9	56.4	67.0	38.0	56.7
	Ireland	62.2	33.2	53.4	65.6	35.7	54.4	67.5	36.7	54.4
	Norway	64.2	38.9	60.6	67.2	39.7	59.1	68.9	39.3	57.0
	Sweden	65.2	36.9	56.6	66.8	39.8	59.6	67.7	41.7	61.6
	UK	63.6	37.0	58.2	65.9	38.0	57.7	66.7	39.0	58.5
Western Europe	Austria	63.9	33.5	52.4	65.9	35.9	54.5	67.1	37.2	55.4
	Belgium	63.4	30.2	47.6	65.6	32.1	48.9	67.0	32.9	49.1
	France	64.7	31.9	49.3	67.0	33.9	50.6	68.1	35.2	51.7
	Germany	63.8	34.3	53.8	65.7	36.6	55.7	66.4	38.4	57.8
	Netherlands	63.8	35.5	55.6	66.3	39.0	58.8	67.2	40.1	59.7
	Switzerland	65.5	39.8	60.8	66.4	41.4	62.3	67.9	42.5	62.6
Southern Europe	Italy	65.4	28.5	43.6	67.2	29.7	44.2	68.4	31.7	46.3
	Greece	64.2	31.4	48.9	65.8	32.1	48.8	66.7	32.7	49.0
	Portugal	62.6	35.7	57.0	65.2	36.8	56.4	66.9	37.7	56.4
	Spain	64.9	30.9	47.6	67.3	34.3	51.0	68.7	35.1	51.1

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