

DISCUSSION PAPER SERIES

IZA DP No. 11167

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and Spain**

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ABSTRACT

New Approaches to the Study of Long-Term Non-Employment Duration in Italy, Germany and Spain¹

This study proposes a new approach to the analysis of non-employment and its duration in Germany, Italy and Spain using administrative longitudinal databases. Non-employment includes the discouraged unemployed not entitled to draw unemployment benefits and the long-term inactive. Many of the non-employed individuals will never return to the official labour market. We estimate the magnitude and duration of non-employment, applying the survival methodology developed in recent years to deal with 'workforce disposal'. Long-term non-employment (LTNE) may lead to dramatic changes in individual lifestyles, family and childbearing projects, levels of poverty and welfare at large.

JEL Classification: D1, J0, J1, J6

Keywords: labor economics, inactivity, long-term unemployment, turnover

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PUNCHLINES

- Using administrative longitudinal databases, we estimate the number of workers who leave their job after first entry and disappear forever from the official labour market (“dropout rates”);
- We estimate how many become long-term non-employed (LTNE) and investigate on is the relation between LTNE and discouraged unemployment;
- We find the duration of long-term non-employment to be much longer than any available estimate of long-term unemployment;
- Where do the LTNE’s end up after dropping out of the labour market? We compare LTNE’s with official labour market aggregates and estimates of irregular employment;
- We offer some benchmarking for our LTNE estimates with EHCP survey data: can individual characteristics be traced?
- Finally, we try to explain country differences: How do the institutional settings affect our findings?

1. Introduction

Unemployment figures have reached dramatic levels all over Europe: between 2008 and 2014 the number of unemployed individuals increased from 17 million to 24.8 million (EU 28). In addition, Eurostat recently suggested the existence of over 16 million 'inactive but willing to work', referring for the most part to the discouraged unemployed. Not only is the magnitude of unemployment, official or unreported, a source of grave concern, but also – and perhaps even more – the length of its duration among people of working age. In this study we propose a new approach to the study of non-employment duration, which we find averages around 10-15 years for people in their 30s, and 15-25 years for the 40-50 year olds. Non-employment includes the unregistered unemployed as well as the inactive individuals who would be willing to take a job if they were offered the chance. The difference between the latter and the discouraged unemployed is flimsy. The numbers involved should be a source of major concern.

It is surprising that the literature (not only academic) has so far paid modest attention to the dramatic duration of non-employment among people of working age, and its far-reaching implications for social policy. While long-term unemployment has been the subject of innumerable academic studies, almost all referred to the official data that define long-term as 1 year + (seldom 2 years +). We claim that the length of non-employment duration as is found here poses much more serious and qualitatively different causes for concern.

In this study we set out to compare the main features of long-term non-employment (LTNE) in three countries; Italy, Spain and Germany in 2012. The process leading to increasing LTNE was already under way in a number of EU countries before the dramatic downturn of 2008. The reforms advocated by the EU Commission and implemented almost everywhere since the 1980s aimed at enhancing youth employment opportunities by lowering entry wages and increasing contract flexibility. Apparently this option provided employers with incentives to pursue strategies of rapid turnover and the replacement of young people by different young people doing the same job, with many of the dismissed never to regain employment.

We refer to administrative longitudinal databases available in our countries in order to estimate long-term non-employment. Our methodology replicates the approach developed by Contini and Grand (2014) to estimate 'worker disposal'. Worker disposal refers to the process by which individuals are dismissed shortly after the start of a new job and never regain regular employment: they are, as it were, 'disposed' and eventually may become long-term non-employed. Some will eventually join the irregular, unobservable economy.

The paper is organised as follows: section 2 illustrates the main aspects of labour market developments in our countries. Section 3 provides a short survey of the relevant literature. Section 4 illustrates the administrative databases. In section 5 we present estimates of long-term non-employment magnitude. Empirical survival schedules are displayed and discussed in section 6. Section 7 presents the estimates of long-term non-employment duration. Section 8 addresses the question of the end destination of the non-survivors. Section 9 is dedicated to an exploration of ECHP data that provides additional information on the non-survivors. Conclusions and policy implications close in section 10.

2. Labour market developments

The unemployment situation in many EU countries and the increasing precariousness of work and jobs are well documented and require few comments here. Non-employment and its duration have, on the other hand, attracted much less attention

within the academic literature. In 2014 the EU-LFS reported estimates of the ‘inactive, but willing to work’ (OLF, see Tab. 1) at 16.1 million in the EU(28). In 2014 Italy’s rate was more than double the EU average and far above all the larger EU countries, including Spain whose unemployment rate was much higher than Italy’s.² Many of the inactive are presumably discouraged unemployed who have had regular working activities in the past. A number of those may be working in the irregular economy. As will be explained in section 8, the footprints of these transitions are difficult to discover, and rough estimates of their magnitude and dimensions can be obtained only through appropriate comparisons across statistical aggregates from different sources. As will be shown, our evidence suggests that only a minority of the long-term non-employed will ever return to a regular working life.

Tab. 1: Unemployment and out of labour force figures in 2014

	<i>Unempl.</i>	<i>Unempl. rate</i>	<i>OLF</i>	<i>OLF rate (M+F)</i>	<i>OLF rate (M)</i>	<i>Empl. Rate (M+F)</i>	<i>Youth unempl. Rate (M+F)</i>
Italy	3,229	12.9%	4,234	10.8%	8.5%	55.7%	42.7%
France	3,018	10.4%	1,140	2.8%	2.4%	63.8%	24.2%
Germany	2,082	5.1%	1,512	2.9%	2.2%	73.8%	7.7%
UK	1,974	6.3%	1,963	4.8%	3.9%	71.9%	17.0%
Spain	5,603	24.6%	1,524	5.0%	3.3%	64.8%	53.2%
EU(28)	24,712	10.4%	16,080	4.9%	3.9%	59.5%	22.2%

Source: Eurostat based on LFS

Notes: OLF = Out of Labour Force not searching but willing to work in age 15-64, OLF rate = OLF as percentage of population in age 15-64, Unempl. = unemployment, Youth unemployment rate for age group 15-24

An overview of employment rates, unemployment rates and out of labour force figures is given in Tab. 1. In this regard it is worth mentioning that male participation has been on a downward trend in all the OECD countries since the mid-1990s. The decline of youth participation has a longer history, associated with the end of the baby boom, the increase in school attendance and the rise in female employment in the service sector. Only the participation of the elderly (65+) has been trending upwards, as well as their employment rate.

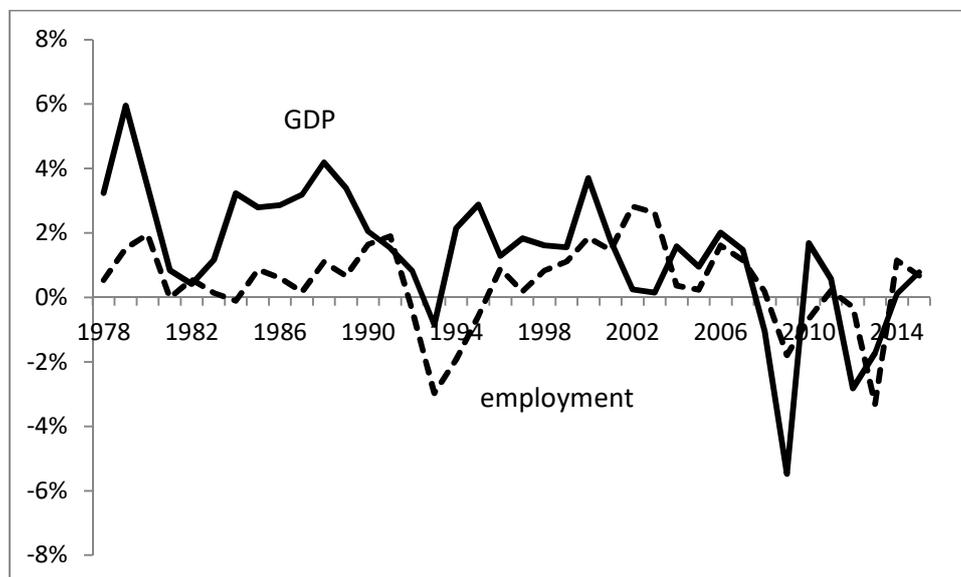
² A plausible, yet untested, explanation for the Italian OLF-exception is that only a small proportion of Italy’s working population is eligible for unemployment benefits: Italy’s reciprocity rate is 32%, against 50% in the UK, 60% in France, 65% in Denmark, 73% in Spain, 94% in Austria and 100% in Germany (OECD figures, although these rates do not imply the same degree of generosity). In Italy there is little incentive to self-report one’s true employment status because the opportunity cost is often close to zero. Where unemployment benefits are generously available, as in Germany, the opportunity cost of misreporting is high because the perceived risk of losing the benefits is high as well. If only half of the Italians classified as inactive but willing to work, were (conservatively) counted among the unemployed – as would be the case anywhere else in the EU – Italy’s unemployment rate would be well above the optimistic 13% reported by official sources in 2013.

2.1 Italy

Italy's unemployment rate hovered around 7-9% from the mid-1990s to 2007, rapidly increasing thereafter to above 12%. In the early 2000s youth unemployment was about 20%, the second highest in the European Union, and rose to 40% and over in 2013. Youth employment had steadily increased from 4.0 million in 1968 to slightly less than 5.0 million in 1990, a consequence of the baby boom and of the increased participation of young women. However, prior to the 1993 recession and in the aftermath of the baby boom, the trend had already sharply reversed, and as of 2008 only 3.4 million young people were in employment. The youth participation rate steadily dropped from 45% in the eighties to 27% in 2013.

Since the turn of the millennium Italy has been outperformed by all the main EU countries, facing a drastic reversal of its main macroeconomic indicators (including falling investment and stagnating productivity). According to ISTAT (National Statistical Institute) overall unemployment reached 2 million individuals at the eve of the 2008 recession, while both the inactive ('but willing to work') and the irregular workers exceeded 3 million. The EU-LFS (Labour Force Survey) reported important comparative data for 2011: Italy's share of 'inactive but willing to work' (OLF) was almost three times the EU average and far above all the larger EU countries, including Spain whose unemployment rate was much higher than Italy's. Many of the inactive are presumably the discouraged unemployed who have had regular working activities in the past. Many may be working part or full-time in the irregular economy. The size of Italy's rate of inactivity is also a consequence of the historical downward trend of male participation. But, in this respect, Italy has not fared differently from many EU member countries.

Fig. 1: GDP and employment growth in Italy



Source: AMECO, ISTAT (GDP in values of 2010)

Modest coverage against the risk of temporary unemployment was granted by unemployment insurance (UI) under very strict eligibility conditions. Instead an extraordinary income replacement scheme, financed with public funds (80% CIGS = Cassa Integrazione Guadagni), was introduced in 1968 to compensate medium and large firms in core industrial sectors during conditions of structural crisis. CIGS was introduced

as a temporary instrument, but in many cases coverage lasted for a number of years during which workers were retained on the firm payroll.

Measures aimed at increasing employment opportunities for the young were implemented at the end of the 1970s, with a generous tax exemption scheme in southern Italy (phased out in the mid-1990s), and the so-called CFL (training and work contract) of 1991 aimed at young people below the age of 30. In 1996 the Treu Reform Package completed the liberalisation of temporary contracts and introduced forms of contract work (referred to as 'co.co.co.' contracts), which were *de-facto* disguised dependent work, exempt from firing costs and subject to very low social security contributions. The latter left workers almost completely unprotected by any form of welfare coverage. In 2000-2001 the implementation of two EU directives on part-time work and on fixed-term contracts added new elements of flexibility to the system.

The share of non-standard contracts, relatively stable at around 50% until the mid-1990s, picked up after the Treu Reform Package, reaching 65% of all initial hires in 2000, and over 70% by 2008. The Treu legislation merely sanctioned and legalised practices that were already widely used. The upward trend of non-standard working arrangements is an unambiguous signal of increasing labour market flexibility, and is also found in several EU countries, although it is not as extreme as in Italy. According to authoritative opinions (in the first place the Bank of Italy in several Annual Reports), one of the underlying causes of the fall in labour productivity in Italy is the excessive utilisation of temporary, low-pay and high-turnover working contracts, accompanied by the corresponding lack of incentives for employers to invest in human capital.³

The long stagnation of the Italian economy (Fig. 1) is one of the main determinants of the process leading to the formation of LTNE.⁴ Even more importantly, the reforms aimed at enhancing youth employment opportunities often provided employers with incentives for pursuing the strategy of worker turnover and quick replacement, both direct causes of premature exit in the absence or near-absence of appropriate active measures of re-training and guidance.

An overview of Italy's labour market is not complete without mentioning the irregular/ parallel/ hidden economy. Based on a variety of rough macroeconomic indicators, ISTAT puts the number of irregular workers in 2009 at about 3 million, 2 million of which completely submerged and 1 million double-job holders. The large majority of double-job holders are men, while the fully irregular working women are about half the number of fully irregular working men. In addition, about half of the young school leavers (aged 15-24) searching for their first job, may also be active at least part-time in the unobserved economy.

2.2 Spain

The Spanish labour market had been heavily regulated before the arrival of democracy in 1975. After Franco's death in 1975 changes were introduced to relax some

³ The present government has passed new legislation aimed at reducing the extent of precarious jobs (The Jobs Act, introducing the 'contract with increasing protection'): its impact will have to be evaluated in the years to come.

⁴ LFS transition probabilities from non-employment to employment dropped from well above 8% in the early 80s to about 5% at the beginning of the millennium. Similarly, numbers of those moving from unemployment to employment decreased from 27% to 18% (Contini and Trivellato, 2005). These are clear indicators of the long-term deterioration of the labour market.

of the previous regulations. The most important one was the legalisation of free trade unions and the abolition of the single trade union in 1977.

It was not until 1980 that the strongest modernisation of the labour relations system was introduced in Spain with the approval of the Workers' Statute. This law assumed every contract to be an open-ended contract as a general case, whereas temporary contracts were intended to be used only for jobs whose nature was temporary. Furthermore, the Worker's Statute maintained most of the restrictions on dismissals.

During the first half of the 1980s, the Spanish unemployment rate experienced rapid growth and climbed to over 20%. This event prompted the Spanish government to introduce a new reform in 1984. This was the first reform designed to liberalise the use of temporary contracts and to reduce dismissal costs for this type of contract. The most important element of the reform was the fact that it eliminated the requirement that the activity associated with a temporary contract had to be of a temporary nature. After three years, the contract cannot be renewed, and the worker must either be fired or must be offered a permanent contract by their current employer. Furthermore, another advantage of this type of contract is that firing costs at termination are very low (8 days per year of tenure but they can even be zero in some cases). As a result of this legislative change, the proportion of male employees aged 15-24 under temporary contracts increased from less than 40% to over 70% in less than five years after the approval of the reform (See García-Pérez et al. 2016).⁵ Between 1985 and 1994, over 95% of all new hires were employed through temporary contracts and the conversion rate from temporary into permanent contracts was only around 10% (Güell and Petrongolo 2007). Thus, the main concern with the liberalisation of temporary contracts after 1984 was that it generated a huge segmentation in the Spanish labour market between unstable low-paying jobs and stable high-paying jobs, without helping to reduce unemployment.

In 1994, as a result of a shift in direction, and in light of these concerns, new regulations limited the use of temporary employment contracts to seasonal jobs; the definition of fair dismissals was widened by including additional 'economic reasons' for them. In practice, however, employers continued to hire workers under temporary contracts for all types of jobs. This perceived ineffectiveness of the 1994 reform led to a new reform in 1997, which was eventually extended in 2001. The 1997 reform created a new type of permanent contract, with lower severance costs in the event of unfair dismissal and fiscal incentives in the first two years of the contract (i.e., reductions of employers' payroll taxes).⁶ However, rather than trying to limit the use of temporary contracts by further possibly ineffective regulation, these new reforms widened the employers' incentives to hire workers from certain population groups under permanent contracts.⁷ The 2001 reform essentially extended the 1997 reform by applying lower subsidies to more worker groups than the previous reform (García-Pérez and Muñoz-Bullón, 2011). These subsidies, however, have not reduced the use of temporary contracts or increased workers' employment stability but, on the contrary, have had only negligible effects on both dimensions because of the important side-effects (basically substitution effects) that such subsidies have entailed (García-Pérez and Rebollo, 2009).

⁵ The rate of temporary employment in the Spanish labour market as a whole moved from less than 10% to over 30% in the same period.

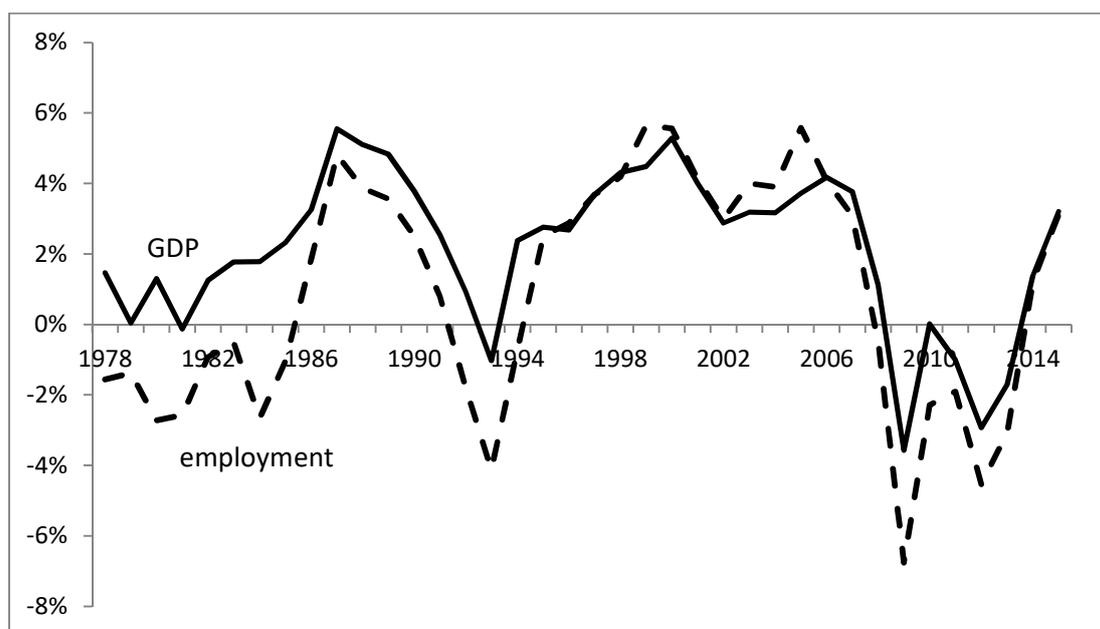
⁶ This was the first time (in 1997) since the Workers' Statute in 1980 that severance costs were changed for permanent workers in Spain.

⁷ In particular, the 1997 reform reduced dismissal costs for unfair dismissals by about 25% and payroll taxes between 40% and 90% for newly signed permanent contracts and for conversions of temporary into permanent contracts after the second trimester of 1997 for workers under 30 years of age, over 45 years old, the long-term unemployed, women under-represented in their occupations, and disabled workers (Kugler et al. 2003).

Recovery after the financial crisis has been difficult, but now Spain's economy may be turning a corner. By the end of 2016, the country was on track to meet, and probably exceed, the government's projection of 2.3% growth. Unemployment was still at 20% but the staggering peak of 27% was far away. The last labour market reforms implemented in 2010 and 2012 have surely contributed to this result. The first one – among other provisions – facilitated the use of permanent contracts with reduced severance pay in the case of unjustified dismissal.

A second major reform was undertaken in February 2012. This comprehensive reform had two main elements. First, it gave priority to collective bargaining agreements at the firm level over those established at the sector or regional level and made it easier for firms to opt-out from a collective agreement and to implement internal flexibility measures as an alternative to job destruction. Second, the provisions of Spain's Employment Protection Legislation were significantly modified, reshaping the definition of fair economic dismissal, reducing monetary compensations for unfair dismissal and eliminating the requirement of administrative authorisation for collective redundancies. In addition, a new permanent contract for full-time employees in small firms was introduced, entailing an extended trial period of one year.

Fig. 2: GDP and employment growth in Spain



Source: INE, AMECO (GDP in 2010 prices)

According to the OECD review of the 2012 Labour Market Reform in Spain (OECD 2014), despite the still difficult economic environment, more firms have been hiring workers on permanent contracts since the new law was passed. Furthermore, this report also credits Spain for improving the competitiveness of firms by facilitating firm-level adjustments in wages and working time in response to a shock. The OECD (2014) estimates that more than half of the 3.2% decline in labour costs in the business sector between the end of 2011 and the second quarter of 2013 is due to the labour reform package. In 2013 the reform also encouraged firms to hire more workers on permanent contracts, by some 30% on average, although the effect on hiring on temporary contracts appeared more limited. Furthermore, the OECD report also noted that Spain's relatively generous unemployment benefits were an important cushion because labour market reforms would force some workers out of work, but it also warned they should be strongly conditioned and withdrawn for people who refused job offers. Spain's spending on jobless

benefits is equivalent to around 3 percent of economic output, the highest level in the OECD, while spending on more active policies, such as job training programmes, is only 1 percent of GDP, mostly in tax breaks and other bonuses for companies that make new hires. Spain remains one of the OECD countries with the most generous severance pay requirements.

2.3 Germany

The German economy underwent a long expansion between 1970 and 1991, interrupted by minor cyclical fluctuations. Real GDP grew at an annual rate of 3.4% in this period. Employment levels in West Germany changed little and only showed a pronounced upswing in the reunification boom, leading to an overall expansion of employment by 9% compared to 1970. In the following 21 years up to 2012, in the then reunified Germany, real GDP increased by an annual rate of only 1.3% and employment replicated the previous 9% growth. Nonetheless, unemployment was trending upwards for most of the time in both periods, leading to a peak in the unemployment rate (11.7%) after the dotcom recession in 2005.

Throughout the 1990s, demography and in-migration would have required a much faster job creation rate than actually happened. Important sources of higher labour supply after German reunification (1990) included the net migration of 2.7 million people from the former Soviet Union up until 2004 (immigrants with German and Jewish origin) and an increased labour market participation of women.⁸ Moreover, East German employment was dropping sharply as a result of de-industrialisation that was brought about by very fast wage convergence after 1991. Despite the historic challenge of reunification, fiscal policy stayed focused on consolidation in preparation for the currency union. No major labour market reforms were enacted in the 1990s. Instead, labour market policy was focused on early retirement and a restructuring of the welfare system with the aim to strengthen its “welfare-to-work” approach.⁹

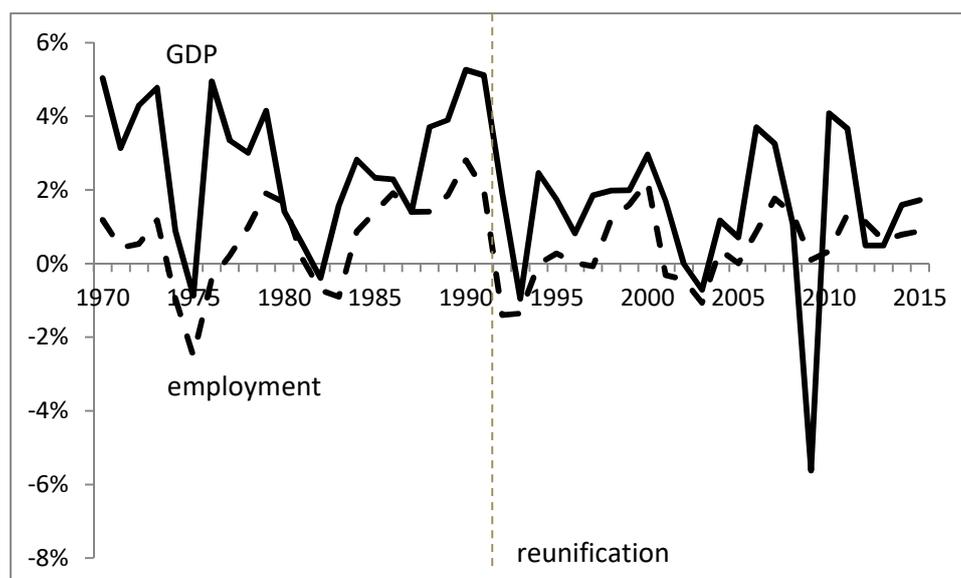
As opposed to the 1990s, the early 2000s were characterised by a lively debate about weaknesses of German employment regulations. Labour market institutions were often seen as the major cause of high unemployment in Germany (Sinn 2003). The enactment of the Hartz labour market reform package in reunified Germany in 2003-2005 largely followed this interpretation (Klinger & Rothe 2012). At the time when the Hartz reforms were discussed in 2003, GDP was dipping downward by 0.7% and the unemployment rate reached 10.5%.¹⁰ The first three parts of the reform package, Hartz I-III, were concerned with creating new types of employment opportunities (Hartz I, incl. subsidies for starting self-employment), introducing additional wage subsidies (Hartz II), and restructuring the Federal Employment Agency (Hartz III). The last step of the reform package, the Hartz IV reform of 2005 significantly reduced the unemployment benefits for the long-term unemployed.

⁸ As a result, the potential labour supply estimated by the BA (Federal Employment Agency) – including all persons who were working or willing to work – climbed from 43 million in 1991 to 45.0 million in 2005 and added another 500,000 until 2012.

⁹ See Wanger (2009). Labour market policy mainly focused on setting up retraining schemes or even employment substitutes for east German unemployed (so-called ABM). Another instrument which was used on a large scale was partial retirement according to laws passed in 1989 and 1996. The aim of this programme was to grant public wage subsidies for a reduction of working time for older workers (making up for larger part of their wage and retirement benefit loss) if a former apprentice or an unemployed person was employed in turn.

¹⁰ In addition, youth unemployment was at 9.9% and the unemployment rate of older workers below pension age (50-65) increased to 25%.

Fig. 3: GDP and employment growth in Germany



Source: AMECO

The employment developments shown in Fig. 3 suggest that those reforms were quite successful. Between 2005 and 2008 the unemployment rate fell from 11.7% to 7.8%. Unemployment barely increased during the Great Recession and then continued its downward trend reaching 5.9% in 2016. While Klinger & Rothe (2012) argue that the Hartz reforms have had some effect, they also show that it has been limited. Dustmann et al. (2014) added that major characteristics of macroeconomic developments such as the trend in wage moderation (as compared to major trading partners) had already set in well before the Hartz reforms. Other factors could be added. First, there was a strong business cycle upswing before the financial crisis. Second, there was a turnaround in demographic net flows in the labour market in about 2005. Third, there has been a pronounced drop in productivity growth since the financial crisis (Klinger and Weber 2014). Firms continued hiring on a net basis even in the crisis year 2009 (that registered a 5.6% drop of GDP), an unprecedented event in history. Weak investment may have been behind the productivity drop after 2008 (average annual growth rate +0.7% from 2008-2015) in addition to the increased use of part-time work, marginal employment (so-called mini jobs, currently paying up to 450 euros) and low-paid agency work.

3. A short survey of relevant literature

Countless academic studies by economists investigate the consequences of long-term unemployment due to obsolescence of human capital, stigma and a perceived signal of 'bad' performance, all of which result in wage loss at the time of re-employment. Here we limit our survey to a few that are of particular interest: Blanchard and Summers (1986), Layard and Nickell (1986), Machin and Manning (1994), Aralampulam (2000), Güell and Petrongolo (2007), Tatsiramos (2009). Their relevance to this paper is, nonetheless, modest as all refer to 'long term unemployment' as defined by official statistics, namely longer than 12 months, and only at times longer than 2 years.¹¹ Unfortunately, the duration of 'long-term unemployment' is reported by Eurostat and OECD as one-year or longer and only in a few instances as lasting more than two-years. This is hardly sufficient to

¹¹ In the USA long-term unemployment is defined as exceeding 27 weeks.

investigate the long-term implications for the labour market and society at large. For a number of EU countries Tatsiramos (2009) estimated unemployment duration based on ECHP data, but his findings are much more optimistic than those reported here.

The negative relationship between the duration of joblessness and the probability of being rehired is an important and more relevant issue: Torelli and Trivellato (1989) study youth unemployment duration in Italy, confirming state dependence; their results are replicated by Addison, Centeno and Portugal (2010) and Contini and Poggi (2012). Some years before Abbring et al. (2005) had indicated that state dependence persists also when selection issues related to workers' heterogeneity are included in the analysis. Mussida and Sciulli (2015) explore the effect of labour market flexibilisation policy for the Italian case and provide evidence that re-employment probabilities decreased after those reforms. According to Machin and Manning (1999), however, state dependence and workers' heterogeneity cannot be identified separately without untenable assumptions. In a recent study Abraham et al. (2016) address the same issue in the analysis of US unemployment during the recession of 2007-2009: they control for heterogeneity using information on individual employment experiences prior to becoming unemployed. These authors find that unemployment is strongly duration dependent and reject the 'bad apple' (heterogeneity) explanation.

The crucial issue of the effective length of spells of unemployment/non-employment is very seldom documented in the literature: Mroz and Savage (2006) report effects on earnings for US workers who experienced youth unemployment as long as 10 years after the unemployment spell; Sullivan and Von Wachter (2009) report that for high-seniority male workers, mortality rates in the year after displacement are 50%–100% higher than would otherwise have been expected. Even twenty years after displacement, they estimate a 10%–15% increase in annual death hazards. If such increases were sustained indefinitely, they would imply a loss in life expectancy of 1.0–1.5 years for a worker displaced at the age of forty.

The recent work of Krueger (2015) is, to our knowledge, the only one that provides an important perspective on the problem of unemployment and non-employment duration. While not denying the well-known issues of skill obsolescence and discrimination on the part of the employers, Krueger strongly emphasises the social problems associated with very long non-employment duration: changes in individual lifestyles, family and childbearing projects, increasing poverty and welfare at large. Moreover, "...once a person leaves the labor force, he or she is extremely unlikely to return (*at work*)". Very low transition rates back into the labour force for the UK are also reported by Gomes (2012).

Studies on the dualization of the labour market are instead relevant for this paper, and more affine to Krueger's recent work. Warnings about the very long-term dangers of dualization were launched by Blanchard and Landier (2001), Blanchard (2006) and Saint-Paul (2004): while the *insider* workers with permanent open-end contracts are protected by the welfare institutions, the protection afforded to the *outsiders* is almost zero. Persistent dualization may undermine cohesion, lead to social dumping and political unrest. Needless to say, the 'disposed' individuals in this paper are *outsiders* in every respect.

Sociologists have paid more attention than economists to the dramatic impact of very long unemployment on lifestyles. Newman (2006) expresses deep concern over millions of people who became downwardly mobile in the USA between the mid-1960s and the mid-1980s as a result of downsizing, plant closings and mergers. Those who suffered the most were the middle-aged computer executives, the blue-collar workers phased out of the post-industrial economy, the middle managers whose positions had been phased out, and once-affluent housewives stranded with children. Keating (2009) discusses the enduring impact of long-term unemployment on developmental health. Brand (2015) indicates a decline in psychological and physical well-being, loss of psychosocial assets,

social withdrawal, family disruption, lower levels of children's attainment at school and well-being. Van Horn et al. (2014) report the results of a field study on a sample of unemployed men in the USA: among the 13% who had been unemployed for more than 2 years, two thirds reported a high degree of stress in their family relationships.

4. The measurement of survival

4.1 Methodology

Our longitudinal databases allow observing the working careers of individual dependent workers and the self-employed, including periods spent in unemployment.

The basic statistic used in this exploration is labour market “survival”. Our use of the term “survival” differs from the standard one found in statistical literature. It refers to the share of individuals observed at work in the official labour market at the end of a given observation window during which they may drop out of the labour market, regardless of any completed periods spent in unemployment or non-employment in the course of their careers (the so-called “survivors”). Survival is estimated by counting the number of individuals employed since a given starting year and still at work at the end of the observation period. The non-survivors are the individuals who have disappeared from the database. If anyone is unobservable for a period of time and then re-appears as employed, that period is considered to be an unemployment spell. Such spells may last for two, three, four years (additional schooling is, obviously, a likely possibility for young men), but they should ultimately lead to re-entry into employment or self-employment. Spells in registered/official unemployment are not counted as periods of absence from the labour market. Our concern refers to individuals who are still a long way from retirement age and seem to disappear altogether from the labour market after a regular job spell.

Fig. 4: Example of counting survival (continuous lines denote employment spells)

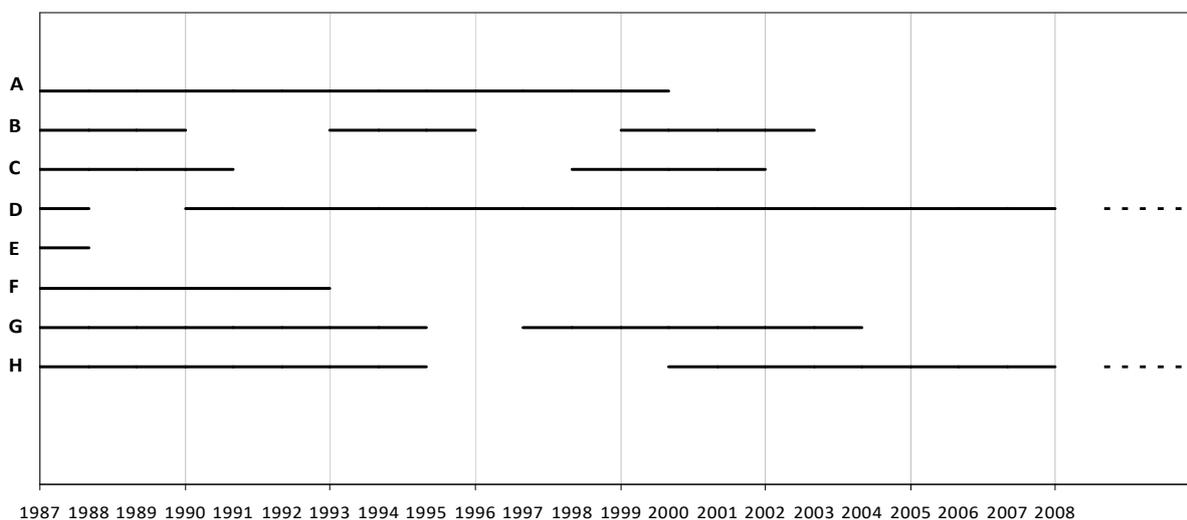


Fig. 4 exemplifies the counting method of a cohort of 8 individuals, A – H, whose work histories are observed between 1986 (the year of entry for all) and 2008. D and E drop out of the labour market two years after entry (but D will re-enter one year later). If the observation window were to end in 1989, survival would be $6/8 = 0.75$. In 2001 the non-survivors are A, E, F, and the 2001 survival is $5/8 = 0.625$. In 2008 the only survivors are D and H, all the others having dropped out before 2008 (leaving survival at $2/8 = 0.25$).

Needless to say, the survivors may have had several spells of non-employment and/or unemployment during the observation period, provided they re-enter official employment or are officially registered unemployed before the end of the window.

4.2 Some notes of caution on comparative analyses of survival

The observation window of the three countries under study is 1980-2012.

Caution is due when comparing survivals from different countries and contexts. Firstly, the survival rates depend on the length of the observation period, and on its timing as it may be affected by the business cycle.

Second, entrants must be in the same age range: age has an important impact on survival; generally the younger entrants survive longer than their older peers.

Third and last, but not least, not all administrative databases include the same forms of working activities: some include all dependent employees but leave out self-employment and civil servants (Germany); others include self-employment but leave out seasonal workers in the agricultural sector and tenured public employees (Italy); others may exclude certain contract typologies. These are problems that must be handled *ad hoc*, integrating our administrative data with different databases, as will be discussed in what follows.

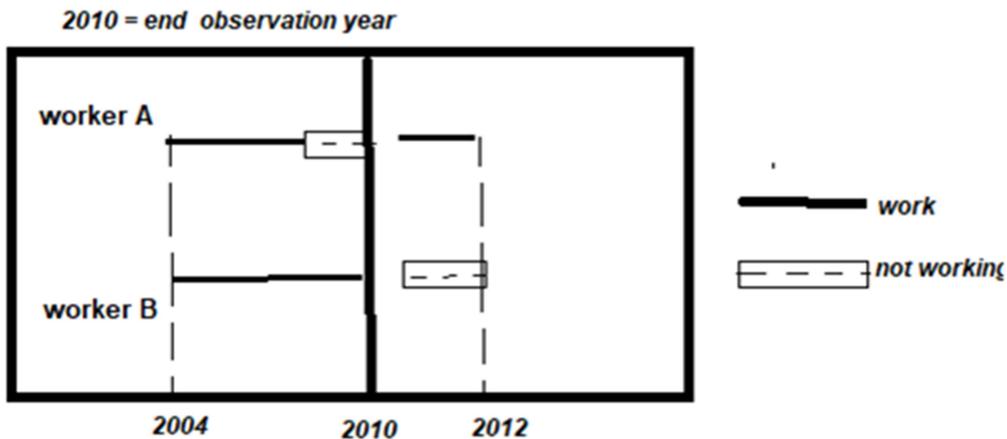
4.3 Censoring

Censoring at the end of the observation period is the cause of upward or downward bias of survival. Hires taking place shortly before the end of the observation window may be followed by spells of joblessness lasting through to the end of the window (Fig. 5, type A). At first sight they appear as non-surviving positions. But many of the workers involved in such spells are back at work within a short time thereafter (1-2 years) and this will downward bias survival. Censoring may bias estimation also in the opposite direction: a number of job spells showing activity at the end of the observation window may be terminated shortly following its end (Fig. 5, B). This will upwardly bias survival.

Unbiasing procedures usually involve statistical estimation. Alternatively, as in our case where individual careers can be observed also some years beyond the common observation window, one can select directly type A and B-workers. Unbiasing is then implemented simply by counting all type-A individuals as survivors and all type-B individuals as non-survivors.

The proposed procedure is somewhat arbitrary to the extent that the length of the period taken into consideration before and after the end of the observation window depends on data availability. In our case, for all three countries, the observed bias is roughly constant, independent of the business cycle: the unbiasing procedure reduces survival by 2-3 p.p. throughout the whole observation period.

Fig. 5: Two examples of truncation bias



Worker type A begins to work in 2004 and disappears a short time before 2010. He starts a new job spell shortly after 2010, in 2011 or 2012. Counting A as disposed would underestimate survival.

TYPE A BIAS is eliminated after computing the standard survival at 2012: (1) proceed as if the observation window ended in 2010; (2) select the individuals who enter in 2004 and disappear in 2008, 2009 and 2010; (3) select those who are back at work in 2011 and 2012; 4) they may be considered as survivors in 2012. Hence the survival rate at 2012 can be adjusted upwards

Type B begins to work in 2004 or thereabout and is still at work in 2010 appearing as survived through 2010. But he is laid off in 2011 or 2012, after 2010. Counting B as survived would overestimate survival.

TYPE B BIAS is eliminated starting from standard survival at 2012

- (1) proceed as if the observation window ended in 2010, as above
- (2) select individuals entered in 2004 and working in 2010;
- (3) check if they are still working in 2011 and 2012;
- (4) if they are NOT, it can be assumed that they are "disposed", and survival should be adjusted downwards.

The choice of 2004 as entry year is a reasonable compromise in order to account for the fact that neglecting the censoring impact associated with short employment spells is the main source of bias.

5. Longitudinal employer-employee databases

5.1 Italy

We use the WHIP longitudinal database originating from Social Security records, a large sample (1:90) representative of the universe of employees in the private sector, the non-tenured employees in the public sector, the self-employed and the professionals, as well as all workers covered by atypical (non-standard) contracts. As of today the WHIP database covers the 1987-2012 period. Included in our analyses is an additional database provided by the Social Security Administration (*Casellario degli Archivi*) which integrates

WHIP's observation window with the working careers of individuals who moved from dependent work into the public sector up until 2012 (Grand and Quaranta 2011).

While prevalent among youths, premature exit takes place at all ages, and young non-survivors will no longer be young as time elapses.¹² WHIP covers individual working careers from entry to retirement on a monthly frequency, with data on skill level, wages, industrial sector, firm size and geographical location, including spells of temporary layoff subsidised by Earning Funds (*C.I.G., Cassa Integrazione Guadagni*). It provides detailed information on workforce dynamics, composition and relative wages, and official unemployment; whereas it does not identify unemployed individuals not entitled to draw benefits. Data on educational attainment is, instead, unrecorded in the WHIP database.

The WHIP database is an (almost) ideal instrument for the study of job matching and employment mobility. It provides much richer detail than LFS-type data, as it captures all employment and non-employment spells on a monthly frequency.¹³ Young people are observed upon entering the 'official' labour market and their entire careers are tracked. School leavers in search of first jobs are instead unobservable as they enter the Social Security records and only become observable upon being officially hired. Many of the non-survivors may have become inactive by discouragement after a long time in joblessness; some are unemployed, but not eligible for unemployment benefits; and a few may have reached retirement age at the time of observation. Many have joined the irregular economy. Some may have left the country¹⁴ and there may be a few others who are of independent means.

5.2 Spain

The Spanish labour market is studied by means of the administrative MCVL (*Muestra Continua de Vidas Laborales*) database that covers all workers, whose first spell of employment was when they were between 16 and 30 years of age. MCVL is a representative sample of the population registered with the Social Security Administration in the reference year. The raw data represent a 4% random sample of the reference population (pension earners, unemployment benefit recipients, employees and self-employed workers) that amounts to approximately 1.2 million individuals each year. Self-employed workers are included but public employees are only partly included in MCVL as long as they contribute to social security (as in the German database, civil servants are not included).

The main characteristic of the MCVL is that it offers retrospective information, i.e. the entire labour history of the workers registered with the Social Security Administration during the year the sample is extracted. Moreover, this dataset has a longitudinal structure from 2005 to 2014, meaning that an individual who is present in a wave and remains registered with Social Security stays as a sample member. In addition, the sample is

¹² Workers in temporary layoff covered by CIGS remain on the firm payroll: therefore they are counted as survivors as all individuals who are officially unemployed.

¹³ Job spells lasting only a few days may therefore be undetectable in WHIP. Especially in recent years the utilisation of 'contract work' has rapidly risen: workers are hired by agencies on a semi-permanent basis, and get leased on demand for jobs that may last only a few days (typical examples are waiters required for special events, actors for the few days of their engagement, nurses on call, etc.). WHIP observes the semi-permanent position with the leasing company, but fails to catch each single job spell.

¹⁴ Foreign workers have been deleted from the database: those who return to their home-country after leaving a position in Italy would be mistakenly counted as non-survivors. We exclude instead, at least for the time being, Italian citizens, mostly university graduates, who find a job abroad and leave the country. Their number has rapidly increased in very recent years, but it was relatively small throughout the period of this investigation.

refreshed with new entrants, which guarantees the representativeness of the population in each wave.

In our estimates, we use the last nine waves (2006-2014), so that only those workers without a connection to the Social Security Administration for at least one day in the last nine years are excluded from our sample. The survival figures are based on a final sample of 271,753 males (those whose first employment spell took place until the age of 30). The total sample of males in the MCVL dataset is composed of 650,008 males, of which there is information on wages for only 412,652 workers.

Only those workers without a connection to the Social Security Administration for at least one day in the last six years are excluded from our sample. Hence, in this database those with such extremely low attachment to the labour market are in some sense under-represented, mainly if they began working much earlier than 2006.

As mentioned above, our sample contains wage data on careers of 412,652 individuals. In the period 1987-96 there are 98,183 male workers entering aged 16-30. The number of new sample entrants each year fluctuates between 6,000 and 13,000, following the ups and downs of overall employment.

As in Italy, there is no information about what these people do after exiting from Social Security data. Some of them, mainly immigrants, leave Spain. Others, mainly young workers and low-qualified women, abandon the labour force or enter the educational system.

5.3 Germany

For the analyses on Germany we used the SIAB database. SIAB (*Stichprobe der Integrierten Arbeitsmarktbiografien*) is one of the administrative datasets supplied by the IAB (*Institut für Arbeitsmarkt- und Berufsforschung*/ Institute for Employment Research) of the BA (*Bundesagentur für Arbeit*/ Federal Employment Agency). The BA administers the German unemployment insurance and therefore has access to social insurance records as well as unemployment benefit data and labour market policy programme data. The SIAB covers the data with a sample/population ratio of 2%, where the population consists of the people registered as dependent employees or recipients of unemployment benefits/participants in labour market policy programmes at some point in time between 1975 and 2014 (see Antoni et al. 2016). The database also contains a limited number of administrative data relating to establishments: number of employees, mean establishment wage, industry code. This data can be merged with the employee data. For East Germany there are no labour market histories in the SIAB data up to 1991. We therefore approximate East German entrants in the years 1980-1992 by multiplying West German entrant numbers by the share of East Germans in the overall German population (East and West including West Berlin) in 1988.¹⁵

The estimation of survival requires both administrative (social insurance and unemployment insurance registers) and survey data. Administrative data of dependent workers is contained in the above-mentioned SIAB database. Self-employment and civil servant spells are not covered by the administrative databases as they do not contribute to the same social insurance schemes as dependent employees. The IAB survival estimate

¹⁵ West German entrant numbers of 1990 ... 1992 already include numerous workers crossing the former border from East Germany (leading to biased "West" German entrant numbers). As a proxy, for those years the entrant number of 1989 was inserted.

must, therefore, be integrated with information retrievable from survey data. The SOEP database released by DIW includes the relevant information on individual working careers: dependent work, apprenticeship, work as a civil servant and self-employment, as well as additional qualitative information and longitudinal weights for a good number of entrants. The integration procedure works as follows. Each year after entry we count the SOEP workers (German nationals¹⁶) who shift from dependent positions into self-employment and/or the civil service and do not return to dependent work until the end of the observation window.¹⁷ The share of such job-shifts is then added to the SIAB survival of dependent employees. The additional survival attributable to those employment forms increases in the observation window: it amounts to 15.4% after 19 years, yielding an overall survival rate of 95% in year 19 after entry.¹⁸ Furthermore, SOEP was also used to estimate shifts into disability pensions that are not counted as disposal.

6. Survival: a survey of results

Graphical analysis of survival is performed on cells defined by cohorts of young male entrants observed at one-year intervals. While the overall observation period 1980-2012 is available for all countries, detailed information on the workers' and employers' characteristics is not. The first observable year of entry with complete information is 1987 in Italy, 1993 in reunified Germany and 1991 in Spain. Also the entrants' age with complete information is not the same: 19-30 in Italy, 16-30 in Germany and Spain. The following dimensions are object of inquiry:

- age group of the relevant cohort
- year of first entry into the labour market
- duration of first employment spell
- economic branch of initial activity
- geographical area
- size of first employer's business
- mobility (movers vs. stayers)
- skill level
- education level
- entry wage

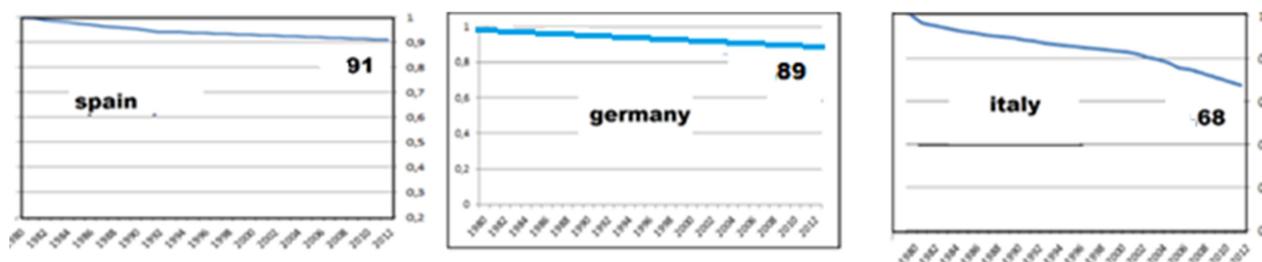
Fig. 6 depicts the three overall survival schedules 1980-2012. More detailed schedules displaying all the relevant dimensions follow.

¹⁶ The two largest other nationalities are Turkish (7.6%) and Italian (1.1%) in SIAB. In the first step of analysis, we kept only the 1,099 German nationals as it is impossible to identify guest workers in SIAB.

¹⁷ This is the case also for civil servants who begin as apprentices (in public service) or serve a probation time under normal social insurance.

¹⁸ The SOEP selection includes individuals who entered dependent work between 1983 and 1993.

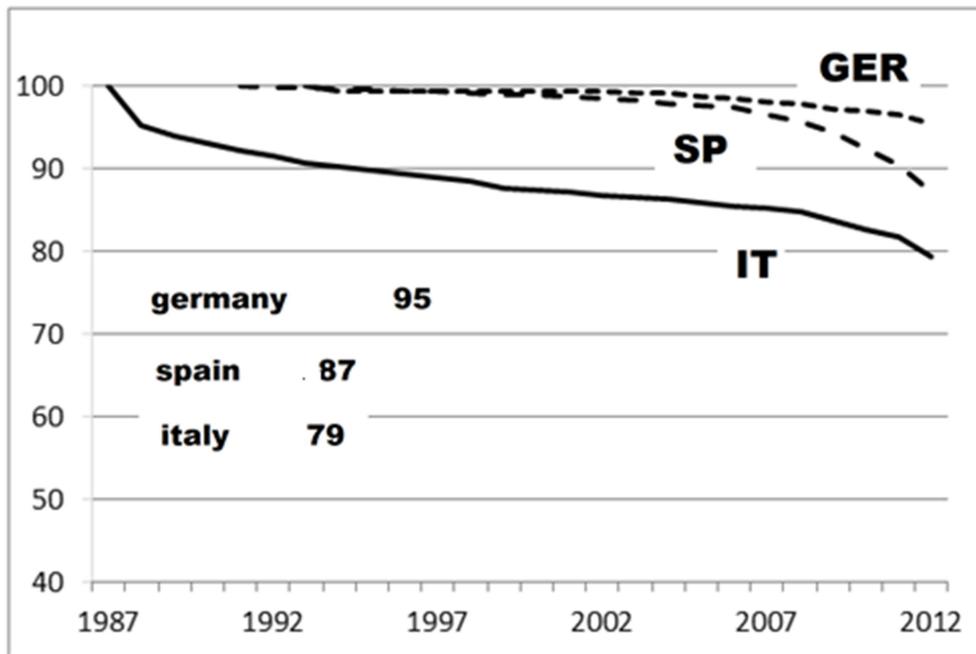
Fig. 6: Survival schedules 1980-2012



- (i) Italy's overall survival rate is 68%. Out of 100 new male entrants aged between 19 and 30 at the start of their careers, 85% 'survive' in the regular labour market after 10 years, 75% after 22 years in 2009, and only 68% in 2012, 32 years after their entry. Survival among individuals who become self-employed in the course of their career is slightly higher.
- (ii) The 32-year survival rate in Spain is 91%, considerably higher than Italy's rate, despite unemployment reaching almost 25%. As previously explained, the explanation lies in the fact that unemployment benefits in Spain are modest but available to all: therefore the great majority of the unemployed will not drop out of the labour force as happens in Italy. It must be emphasized that the average age of Spanish employees is much lower than either of the other two countries under study.
- (iii) The 32-year survival rate in Germany stands at 89%, somewhat lower than the Spanish rate despite the strength of the German economy. High unemployment of older cohorts and the resulting labour market detachment may provide the explanation.
- (iv) It deserves to be noticed that re-entry into self-employment plays an important role in preserving a high level of survival after spells of non-employment in all three countries: it explains about 11 p.p. of survival in Germany, more than 20 p.p. in Spain, and about 18 p.p. in Italy.
- (v) The following survival curves refer to the shorter observation periods for which additional information is available: 1993-2012 for Germany, 1992-2012 for Spain, and 1987-2012 for Italy.

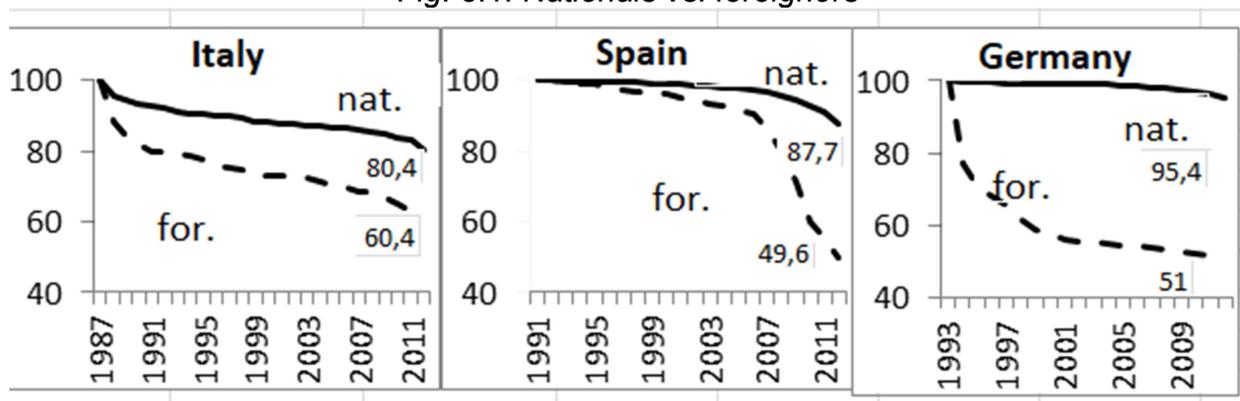
Fig. 7: Three survival schedules on shorter but more informative observation windows

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- (vi) Survival is much lower among foreign workers than native ones in all three countries. However, while differences amongst natives are still substantial, in Germany workers of Turkish origin survive much longer than their peers of any other nationality, indicating sound integration policy and/or the fact that those often had the right to stay, in many cases in the second generation after in-migration. Among other nationalities, seasonal or short term guest workers seem to be much more prevalent.

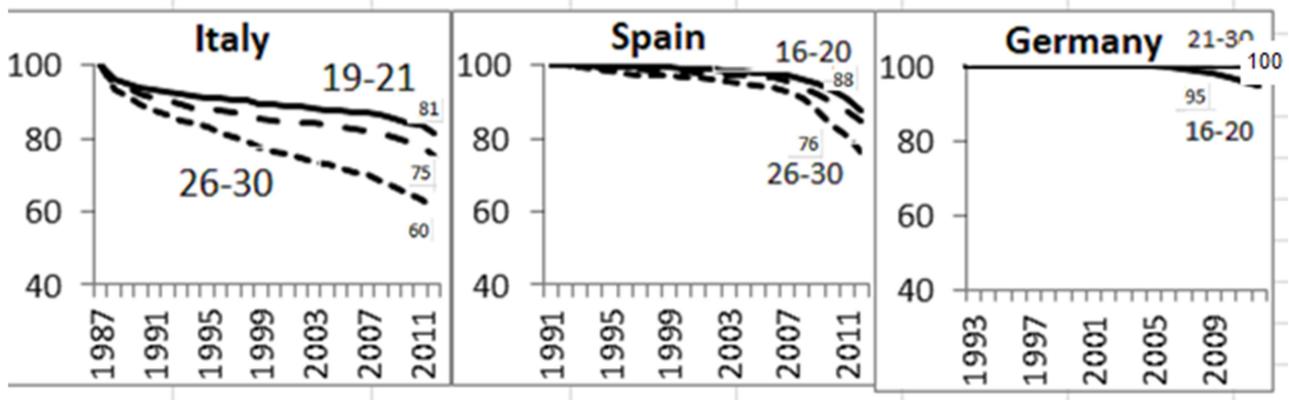
Fig. 8.1: Nationals vs. foreigners



- (vii) The impact of age at the time of entry is similar in Italy and Spain, with young entrants surviving longer than their older colleagues: the difference is much more pronounced in Spain (16 pp between the youngest and the oldest cohorts) than in Italy (only 8 pp). The picture is reversed in Germany where there are many changes into tenured civil servant positions among the older entrants. Retirement age is uninfluential on those results as even the few who start work in dependent

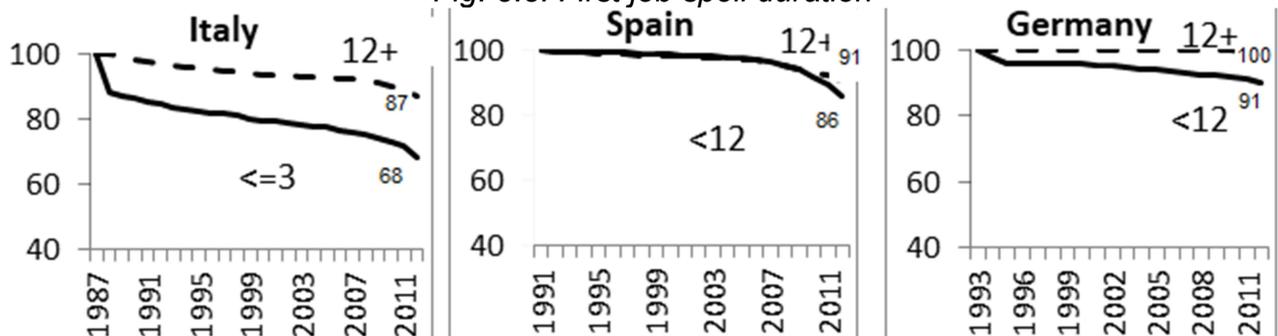
employment at the age of 30 will be in their fifties in 2012, still many years before retirement age.

Fig. 8.2: Age at entry



- (viii) The length of the first employment spell provides an indication of how employers evaluate the ability of the prospective recruits. It is reasonable to assume that employers who interview a promising young person will offer them a relatively longer starting contract than a less interesting candidate. In Italy the survival of workers starting in 1987 with a long initial spell of employment (12 months +) is about 87%, whereas it drops to 68% for those whose first employment spell lasts less than 3 months. The latter are characterised by an abrupt drop of survival in (t+1) and (t+2), followed by a steady decline thereafter.¹⁹ A similar pattern is found in Germany and Spain although the differences are less pronounced (in Spain the very short starting spells have not been recorded separately).

Fig. 8.3: First job spell duration

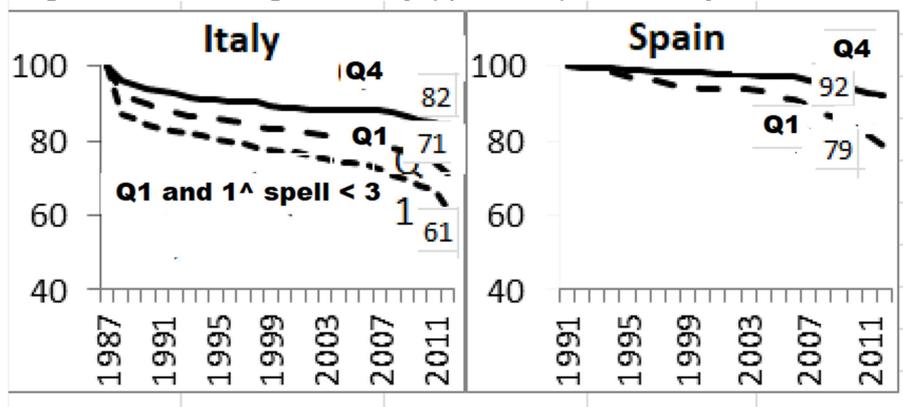


- (ix) An additional indicator of individual ability as it is appraised by the employers at the time of first hire is his starting salary: a promising worker will presumably be offered a higher wage than a less promising one and his survival is likely to be higher for the same reasons indicated above. The differential survival between workers (here, the blue collars) with starting salary in the upper quartile (Q4) of the distribution and those in the lowest quartile (Q1) is remarkable in Italy and Spain (for Germany

¹⁹ While about 80% of all entrants leave their job or are dismissed within two years of initial hire, the majority will re-enter after one or more spells of unemployment.

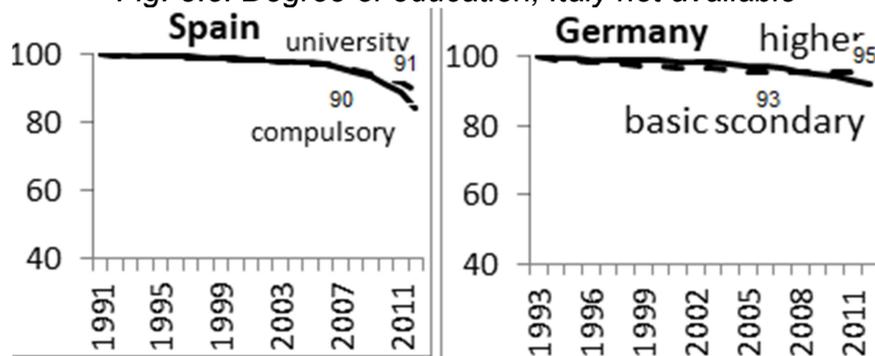
these shares could not be calculated). This finding clearly indicates the value attributed to human capital by the employers. Italy's schedule displays also the survival of those who are likely to be the very least endowed, namely with starting wages in Q1 *cum* initial job spell < 3 months. Overall, bad starts have a strong and persistent effect on future labour market outcomes, even when the future lies 15-20 years ahead. In addition, the ECHP exploration (described in section 9) suggests that the non-survivors are likely to be the least endowed also in terms of education and family background.

Fig. 8.4: Initial wage at entry (quartiles), Germany not available



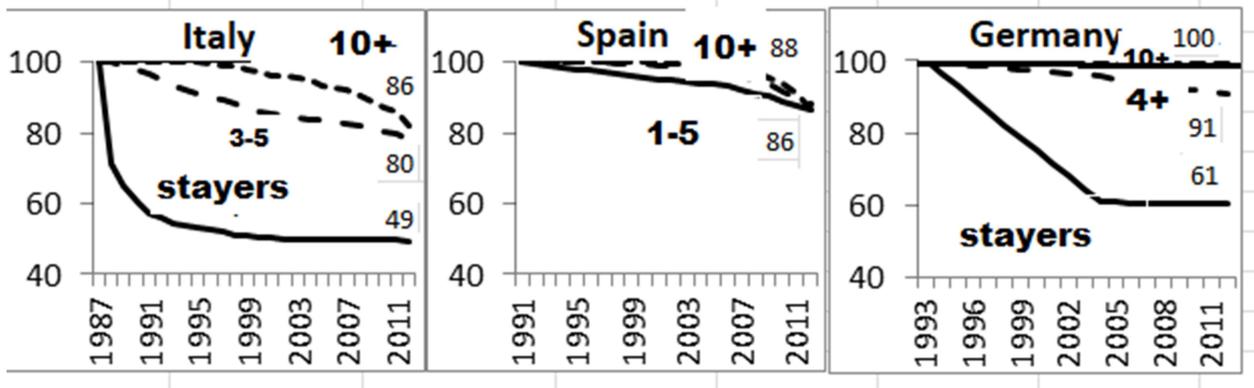
- (x) The education level is observable in Spain and Germany, but not in Italy as schooling is not recorded in the Italian administrative databases. It has a predictable positive impact on survival, but differences are quite small: survival of the less educated reaches 90 and 91% respectively against 93 and 95% for the university graduates. Evidence from the ECHP database (section 9) indicates that educational differences also have a similar impact in Italy.

Fig. 8.5: Degree of education, Italy not available



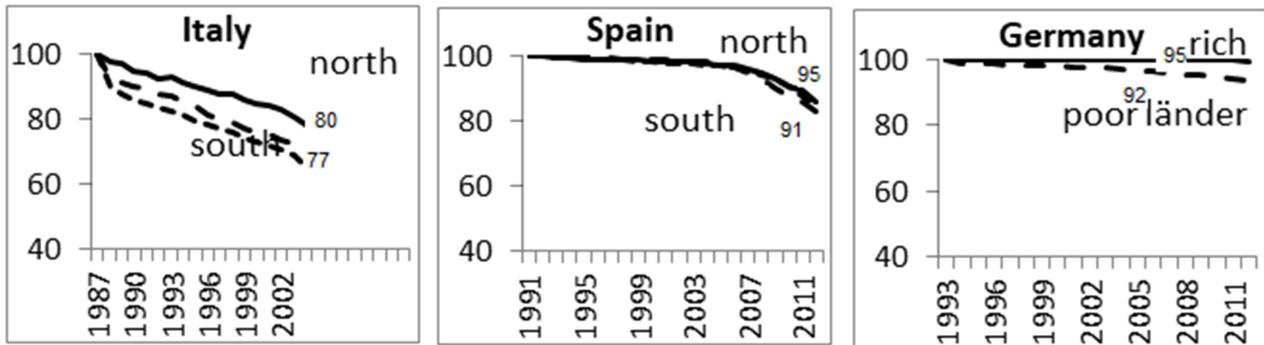
- (xi) The impact of mobility on survival is very important (geographical, as well as job-to-job, often with intervening unemployment spells between job switches). Workers who perceive their job to be at risk start searching for more solid positions, and many appear to be successful. In Germany and Italy the stayers (no moves) are shown separately and display a much lower survival than their moving colleagues: 64% and 49% respectively. Individuals who have moved up to 3 or 5 times in their career survive much longer in Germany and Spain (90 and 89%) and somewhat less in Italy (78%). Frequent movers survive even longer.

Fig. 8.6: Mobility



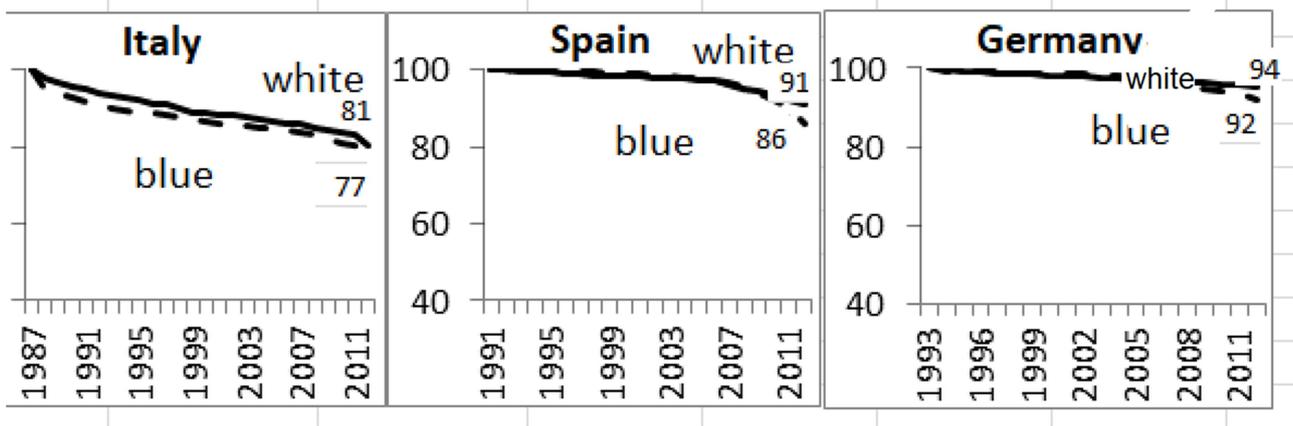
- (xii) The employers' location reflects the different degree of industrialisation and regional wealth. The survival differential is marginal in Germany (the Länder of the West are the rich ones compared to those of the East) and Spain, while they are somewhat larger in Italy between North and South.

Fig. 8.7: Geographical location



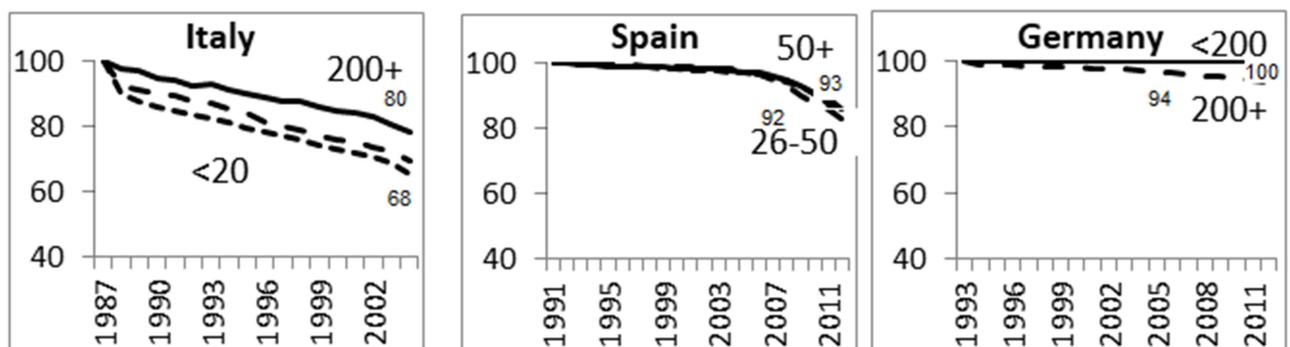
- (xiii) The qualification divide is also important, in line with the idea that human capital makes a difference: white-collar workers survive longer than blue-collar workers everywhere: 95% vs. 92% in Germany, 95% vs. 91% in Spain, 80% vs. 77% in Italy. In this respect, it would have been interesting to have more detailed data according to occupational profile, but, for the time being, it is not available.

Fig. 8.8: Skill qualification



(xiv) The size of the employer's business has a modest effect on survival in Spain where firms are observed above and below the 25-employee threshold. This threshold is probably too low to display interesting differences. In Italy, where establishments with more than 200 employees have been observed separately, the difference is larger and in the expected direction of longer survival. To be sure, lifetime employment in the same establishment was frequent many years ago, but no longer nowadays. As a matter of fact there is a vast body of economic and sociological literature indicating that higher work attachment and loyalty prevail in small establishments where a variety of on-the-job duties are frequently offered instead of repetitive tasks, more opportunities for expanding and upgrading knowhow, personal ties established with peers and employers. There is also empirical evidence that small firms place a higher value on human capital than large enterprises. This fact does not translate, however, into longer survival as small firms are more exposed to the turbulence of economic life, turnover is higher, closures and bankruptcies are frequent events. Nevertheless, survival of entrants in smaller establishments (below 200 employees) is higher in Germany. Here, frequent changes into self-employment seem to play a role for higher survival.

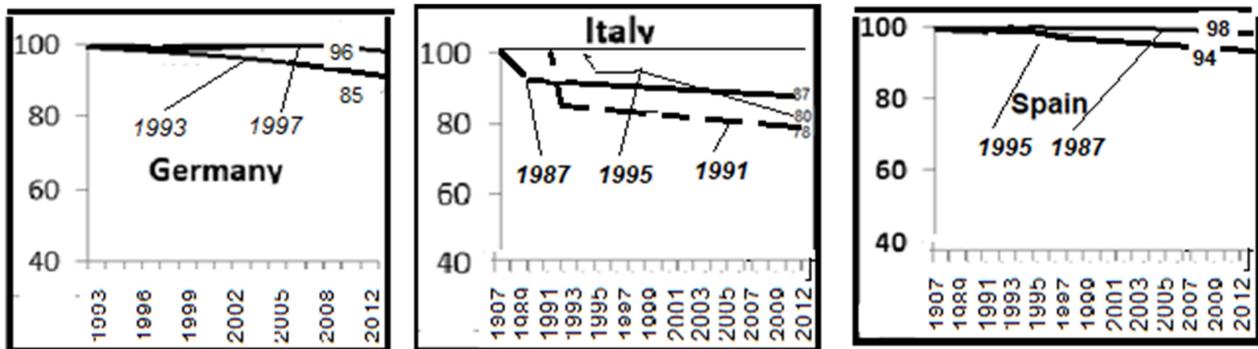
Fig. 8.9: Employer size



(xv) In this graph there are different starting points reflecting the first year of observation of each country (displayed in italic). The business cycle at each cohort's entry does not have a clear impact on survival. In Germany we find practically no difference between the recessionary year 1993 and the slightly expansionary 1997. In Italy

1991-93 were heavily recessionary as shown by the very low survival of the 1991 cohorts. The Italian economy, while never repeating the expansion of the late 1980s, moved into a slow upturn in 1995 that lasted through the early 2000s. In Spain's the cohort entering in 1995 resents of the dramatic 2008 crisis (when the economy plummeted from a healthy 3-4% annual GNP growth through 2006 to a dramatic - 4% in 2008) more than the 1987 cohort. Since 2006 there have been massive re-entries into self-employment of more adult workers entered in 1987 that helped to restore the drop of survival in dependent employment.

Fig. 8.10: Impact of the business cycle



7. Long-term non-employment duration

Statistical estimation of LTNE duration is, for the time being, not available. Here we present some preliminary results obtained with a simple *ad hoc* procedure as follows. The LTNE duration is equal to the area above the survival schedule (Fig. 9).²⁰ Individuals of each cohort are counted in employment (or registered unemployment) year by year during their working life. Once they drop out and no longer re-appear anywhere in the labour market, they are counted as non-employed and their LTNE duration is measured from that moment to the end of the observation window.

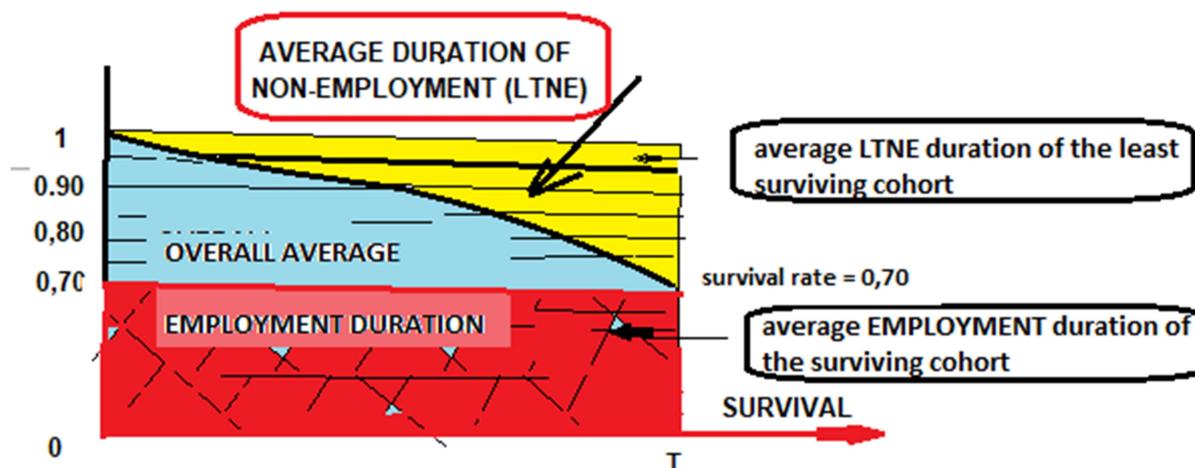
²⁰ More precisely, let $s(t)$ be the downward sloping survival function in an observation window of length T . Average LTNE duration is then given by:

$$\text{average LTNE} = T - \int_0^T s(t) dt$$

Average LTNE is a lower boundary: workers who have survived through T may have had interrupted unemployment spells of any length in the course of their career that are left out of this calculation.

While $s(t)$ is seldom known, average LTNE can be easily calculated from the empirical survival curve. A quick and approximate estimate of average LTNE is one half the length of the observation period, its precision being highest when survival is a straight down-sloping schedule. When it is convex, the average LTNE estimate is downward biased.

Fig. 9: Survival and duration of long-term-non-employment (LTNE)



As explained above, the observation window spans between 1980 and 2012, covering all the male cohorts aged 16-20 entering the labour market in that time window. The LTNE count, therefore, includes all individuals still of working age at the end of 2012. People aged 30 in 1980 will be 62 in 2012. *De facto* the upper limit of the oldest age bracket may occasionally reach 66 as retirement age is not identical in Italy, Germany and Spain, and has been the object of changes during the observation window.

Censoring problems associated with the biasing impact of short employment spells are taken into account as explained in section 4.3.

We deem these results to be a good approximation to those obtainable by statistical estimation (to be presented in a forthcoming script).

Tab. 2 displays the estimated magnitude of uninterrupted long-term non-employment for the three countries under observation, the average LTNE duration and the ratio of LTNE individuals to the male population of working age (MPWA). A good assessment of the relative magnitude of LTNE is provided by its ratio to the male population of working age (16-64), rather than to total workforce that may have margins of ambiguity.²¹ Not surprisingly, in Germany this ratio is 2.9%, much lower than 6.5% in Italy and 6.1% in Spain. If unemployment were calculated as percent of the same denominator, the comparison becomes even more transparent: 3.4% in Germany, 7.2% in Italy and 19.9% in Spain (while the official 2012 male unemployment rates were 5.7%, 10.0% and 24.7% respectively). It is also noticeable the much lower average LTNE duration in Spain (6.2 years), a consequence of the larger share of young LTNE's in Spain compared to Italy and Germany.

Tab. 2: Long-term non-employment magnitude and duration in 2012 (000) in parenthesis the share of LTNE in each age group

Age	LTNE Duration (y)	ITALY	GERMANY	SPAIN
53 ++	25-32y	91 (0.07)	87 (0.12)	0 (0)
47-53	21-24y	99 (0.08)	58 (0.08)	5 (0.005)
38-46	16-20y	260 (0.21)	127 (0.17)	128 (0.13)
32-37	10-15y	361 (0.28)	155 (0.20)	205 (0.21)
26-31	5-9y	405 (0.32)	176 (0.23)	250 (0.26)
16-25	0-4y	45 (0.03)	153 (0.20)	384 (0.40)
Total		1,260	756	973
average LTNE duration (years)		11.6	12.8	6.2
LTNE/ male working age pop (%)		6.5	2.9	6.1
male UN / male working pop. (%)		7.2	3.4	19.9

Tab. 3: LTNE magnitude, average duration and share in male working age population 2012

	OLF	LTNE	avg. LTNE (years)	LTNE/ MPWA	UN/ MPWA	Official UN rate
Italy	1421	1260	11.6	6.5%	7.2%	10.0%
Germany	589	756	12.8	2.9%	3.4%	5.7%
Spain	499	973	6.2	6.1%	19.9%	24.7%

Source: Eurostat based on LFS, own calculations (LTNE, see section 6)

Notes: MPWA = Male Population of Working Age (15-64), UN = unemployment, OLF and UN for age group 15-64

Here again (Tab. 3), Italy, Spain and Germany provide an interesting example of how institutional arrangements impact on the magnitude of unemployment and inactivity. The generous unemployment insurance programmes of Spain and Germany lead dismissed workers to promptly register as unemployed (not counted as LTNE's), while in Italy the programme is so unappealing that self-reporting as unemployed becomes much less frequent and LTNE's more numerous. The number of OLF (estimated from Labour Force Surveys) and LTNE are quite close in Italy and Germany, while the OLF's of Spain are about one half the LTNE's.

The average duration of LTNE is to some extent *built-in* the survival definition, as the length of our observation window is 32 years. It is not, therefore, surprising to find LTNE durations as long as 25-32 years among the older cohorts. The age group (57-66) is relatively small as many individuals have retired before the end of the observation period. The 32-46 age groups are very numerous, with average LTNE durations of 10-20 years. The dramatic aspect of the duration is due to the fact that all these people are prime-age adults who have spent most of their life outside the labour market.

Noticeable country differences are found in the shares of each age group. In Germany the large proportion of older individuals (53++) is attributable to the large inflow of East German workers during the years of reunification. In Spain, instead, the employment increase that took place between 2000 and 2007 explains the much greater presence of the younger cohorts.

8. The big question: where do the ‘disposed’ workers end up?

The crucial question of where all the long-time jobless individuals end up after being ‘disposed’, is still waiting for an answer. The shadow economy is an obvious candidate as end destination. Discovering it, however, is a difficult task as no micro-data of irregular work are available to help with the answer. Rough estimates may be obtained by benchmarking survival data with aggregate LFS indicators and official National Accounts data.

Studies of the irregular/shadow economy are mainly concerned with assessing its size and explaining the macroeconomic conditions that favour its expansion (Schneider et al. 2010, Feige 1979). The shadow economy has largely negative implications affecting macroeconomic objectives as well as social cohesion and the quality and productivity at work. From a macroeconomic perspective, while it may lead to a net addition to GNP, it reduces tax revenues and undermines the financing of social security systems, paving the way for social dumping. From a microeconomic perspective, the irregular economy distorts fair competition and undermines productivity growth. The state of the official economy obviously plays a crucial role in determining people’s willingness to work in the irregular economy. In addition to simple tax evasion, a number of factors have contributed to concerns over a growing scope for undeclared work, the main ones being the growing demand for household and care services and the increasing role of self-employment, disguised employment and sub-contracting.

All measurements of the irregular economy are based on rough macroeconomic indicators. Schneider and Ernste (2002) estimated the share of irregular activities on GNP for several OECD countries: Italy ranks among the highest at 21.5%, Spain’s share is 19.2%; Germany’s is among the low ones with a non-negligible 13.5%. The share of irregular employment in overall employment in Italy and Spain is estimated at around 16% and at 12.5% in Germany. There are no micro-based databases to uncover the economic and social background of irregular workers, nor what happened during their working career that encouraged them to join the irregular economy.²² Some information can be obtained from LFS-type surveys: in the next section (9) we report some encouraging results of a comparative analysis performed on ECHP data.

Tab. 4 summarises data from different sources, including Schneider’s estimates of the size of the EU shadow/irregular economy for the year 2012. None of them translates easily into estimates of irregular employment as labour productivity in irregular activities is

²² Battistin and Rettore (2008) indicate that people who work in the irregular economy are unlikely to reveal their status in the course of LFS interviews for fear of being disclosed. In their view the likelihood of misclassification among the unemployed, the inactive and the irregulars is always high. See also J. Abowd and A. Zellner (1985).

still an open question. Nonetheless the orders of magnitude provide useful insights. In particular, the LTNE estimates of Germany and especially Spain are remarkably close to the available estimates of irregular workers, although less so for Italy

Tab. 4: LTNE and the Irregular Economy

	Unemployed men in 2012 (000)	LTNE (000)	Irregular male workers (000)	Irregular economy as % of GNP (^)
Germany	1,505	756	950 (*)	13.3
Italy	1,766	1,260	1,800 (**)	21.5
Spain	2,957	973	968 (***)	19.2

Sources: (*) IAB estimate; (**) ISTAT National Accounts, (***) estimate based on Schneider and Enste (2002); (^) Schneider and Enste (2002)

9. Benchmarking worker disposal with the ECHP 1994-2002

A natural benchmark of the WHIP estimates of survival is provided by the European Community Household Panel (ECHP), observed between 1994 and 2002 (the final wave of ECHP, thereafter replaced by EU SILC²³). The ECHP survey provides some information on a number of personal characteristics, general income conditions and work contract typology.

We calculate survival in the ECHP data as we have done with the WHIP database on all male individuals (younger than 35 upon first entry as provided in the database) observed in the ECHP sample through to the end of the observation period, whether or not they are at work, and select those who self-report as working until year (t), and not after. Once they are no longer working, but still responding to the ECHP questionnaire, they report either as unemployed or inactive. Their status is similar to the individuals whom we define as LTNE, the main difference being that in the ECHP survey they report their status after the last job termination, in addition to some of the circumstances that led to joblessness. No explicit indications are present on shifts into the black economy, although it is an obvious option for many. The ECHP estimated survival could be higher than the estimate from administrative databases because a number of LTNE who move into the black economy may self-report as 'employed' in the ECHP or refuse to take part in the survey, being counted as part of panel attrition.

The ECHP information is displayed in Tab. 5 and includes three groups of columns. The first one (I) displays the answers of all individuals who responded in each of the years 1994-2002; the second group (II) the answers of the ones who appear to have left work, and therefore comparable to the LTNE; the third group (III) contains the answers of all the numerous people who skipped the item on the contract typology.

All answers (except row A, indicated as raw numbers) are expressed as percentage shares in the relevant group. Many are self-explanatory; some deserve comments where they indicate important differences. Row B shows the share of *as-if* LTNE individuals among all respondents (i.e. the complement of ECHP survival). *As-if* LTNE people appear as being worse off than the other respondents on almost all counts: higher previous unemployment (column II - rows I and J), higher job search activity (row G), lower family income (row M), frequent elementary occupations (row O), more difficulty to make ends

²³ EU SILC has a shorter memory of up to 4 years which is why we chose ECHP for the benchmarking.

meet (row H), lower educational degree (row K). Conversely, high education is less frequently mentioned among the individuals who are disposed (row L).

Row F ('missing answers') reports the frequency of people who skip the answer to the contract typology. Their share is high, almost one third of all sampled individuals in Italy and Germany, and about one sixth in Spain. It is the obvious and correct choice of the self-employed (row T), who represent 20% of all respondents in Italy, 7% in Germany and 12% in Spain. But the choice of not answering the item on the contract typology could also hide some presence in the irregular economy. Row E indicates the answers of respondents who report to have worked in absence of any contract. Rescaling the sample shares of Row E to the respective male populations of working age, we obtain the following orders of magnitude: 760 thousand irregulars in Italy, over 400 thousand in Germany, and 450 thousand in Spain. These numbers cannot be taken as reliable estimates of the extent of irregular work: we are, in fact, discarding all the potential information from the 'missing answers' as no quantitative details are provided. It should be noted, to conclude on this point, that irregular workers may also self-report as regularly employed for fear of being discovered (in which case we would have no hints to help their recognition).

The condition reported after premature exit indicates unemployment for two thirds of the people in Italy and Germany and almost half in Spain (row Q). Its complement, inactivity is reported in row R.

Exit could be the consequence of quitting or of involuntary dismissal: row S reports the frequency of reported cases of voluntary quitting (family reasons, study, military career, better opportunities): it is very high in Italy (60% of answers), very low in Spain (9%), with Germany midway. While the data from Germany and Spain appear coherent with other answers, those from Italy do not. In Germany many report voluntarily quitting and many, coherently, declare to be inactive after their last job; in Spain the high number of involuntary job losses matches the high frequency of unemployed. In Italy, instead, we see many voluntarily quitting *cum* few inactive. A plausible explanation may reside in a common, yet illegal practice followed (especially in the past) by many employers in order to avoid the firing costs associated with unjustified layoffs: at the time of a new hire the worker was requested to sign a letter of voluntary resignation held by the employer. Many newly hired would agree for fear of losing the job. If the employer decided to layoff for whatever reason, the letter would serve to show that it was the employee's voluntary decision to terminate his engagement, and no firing costs could be levied on the employer.

Tab. 5: A summary of information from the ECHP survey

		ALL ENTRANTS (I)			DISPOSED (II)			Missing answer to contract type (III)		
		IT	GER	SP	IT	GER	SP	IT	GER	SP
A	No. of respondents	1025	875	1349	133	66	94	285	284	198
B	Disposed	14	8	7	100	100	100	5	11	7
C	Permanent	17	7	40	31	21	18	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
D	Temp	15	4	42	13	27	61	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
E	No contract	4	2	3	12	1	4	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
F	Missing	28	32	15	35	45	15	100	100	100
G	Searching	17	<i>n.a.</i>	11	35	<i>n.a.</i>	14	15	<i>n.a.</i>	11
H	Difficulty to make ends meet	56	<i>n.a.</i>	56	78	<i>n.a.</i>	66	45	<i>n.a.</i>	48
I	Unemployed	45	31	43	72	30	45	48	18	41
J	Long-T-UN	18	4	23	24	5	21	18	1	26
K	Low edu	32	35	46	55	56	57	30	66	44
L	High edu	8	19	31	5	8	20	11	7	32
M	Q1 fam.inc	25	20	15	33	26	26	22	18	20
N	Q1 pers.inc	52	30	11	34	50	13	17	63	15
O	Elem. Occ	11	5	18	21	6	33	10	1	7
P	High skill	12	4	22	28	21	10	19	24	38
Q	UN at exit	12	6	8	68	44	69	11	16	8
R	INACT at exit	7	8	4	26	54	31	1	6	7
S	voluntary quit at exit (*)		<i>not relevant</i>		60	25	9		<i>not relevant</i>	
T	Self-empl.	20	7	12	6	0	9	71	20	81

Source: own evaluations based on ECHP

10. Conclusion and policy implications

The dilemma of how to effectively deal with youth unemployment is present as ever. Past policy in almost all EU countries was prevalently supply-sided. It was implemented mainly by enhancing contract flexibility and lowering labour costs through subsidies to the employers. Active labour market policies focused instead on setting up training facilities for the young and retraining and upskilling schemes for the adult, long-term unemployed. All in all this approach performed poorly in the aftermath of the 2008 crisis, although serious problems of youth unemployment have been present in the EU since the turn of the

millennium. The supply-side approach yielded non-marginal improvements in the employment outlook in few countries, in Germany probably more than elsewhere.

While we strongly envisage the need to turn to demand-side policies capable to have a direct impact on employment, our explorations suggest also a number of supply-side implications, not applying equally to the three countries under observation:

- (i) A very general indication, valid especially for Italy and, to some extent Spain, is the need to improve the match between demand for higher skills and supply, by investing in the education system and strengthening the placement and re-training agencies (public and private). Excessive worker turnover frequently leading to market dropout hints at problems of unsatisfactory matching. The share of expenditure in active labour market policies (ALMP) in GNP is very low in Spain (0.8%) and especially in Italy (0.6%) compared to Germany (1.1%).
- (ii) We see no scope for introducing additional flexibility to contract termination. Measures aimed at facilitating the transition between precarious jobs and permanent positions are instead very desirable (also in Germany where the dropout rate after termination of *mini-jobs* appears to be quite high).
- (iii) Nor do we see compelling evidence that measures aimed at further reductions of labour costs (mainly by way of tax subsidies) would substantially improve youth employment. As of today the labour cost of young people is already lower than that of their older working counterparts. The incentive to upgrade human capital is lost if the cost of hiring a new recruit is too low compared to the cost of retaining and upgrading young workers already on the job. Moreover, the current practice of high turnover, i.e. replacing people already on the job with new unskilled recruits, generates adverse consequences of premature exit from the labour market and ultimately on long-term non-employment.

Some indications apply specifically to the Italian case:

- (iv) It is crucial to improve the generosity of unemployment benefits. Initial steps in this direction were taken with the Fornero reform in 2011, but almost none has been as yet implemented.
- (v) Less invasive regulation is necessary. A large number of jobs, perfectly legal in many EU countries, are 'irregular' by Italian standards: many low-paid, often part-time or temporary jobs in the service sectors, such as waiters, janitors, salespeople, domestic helpers and caretakers are held mainly (but not exclusively) by young people. A reform on this terrain would restore the incentive to work in the 'regular' economy, enjoying the benefits of social security and at the same time paying very modest taxes.
- (vi) A realistic estimate of Italy's unemployment rate is higher than the official estimate – at least by 3-4 pp - in view of the fact that a large number of individuals self-reporting as 'inactive but available to work' are discouraged unemployed. By the same token, Italy's employment/population rate is also higher than the official one

based on LFS estimates (56% in 2014, against 64% in France and above 70% in Germany and UK), as many individuals who are active in the irregular economy refrain from self-reporting as being 'working' for fear of being discovered.

Demographic trends in the coming decades may improve the job prospects for younger generations: the baby-boomers will begin to retire by 2020-25, and their replacement ought to increase the demand for young workers. A major labour shortage may be round the corner in Europe. And it will spur additional massive migrations of largely unskilled migrants from non EU-countries with high fertility rates. This will be a source of ever-growing governance problems for the European Union, as social unrest will not cease to lurk outside the door.

Bibliography

Abbring, J.H., van den Berg, J. and van Ours, J.C. (2005) The Effect of Unemployment Insurance Sanctions on the Transition Rate from Unemployment to Employment. *Economic Journal*, Vol. 115(505), pp. 602-630.

Abowd, J.M. and Zellner, A. (1985) Estimating Gross Labor-Force Flows, *Journal of Business & Economic Statistics*, Vol. 3(3), pp. 254-283.

Abraham, K., Haltiwanger J.H., Sandusky, K., Spletzer, J. (2016) The Consequences of Long Term Unemployment: Evidence from Matched Employer-Employee Data. *NBER Working Paper No. 22665*.

Addison, J., Centeno, M. and Portugal, P. (2010) Unemployment Benefits and Reservation Wages: Key Elasticities from a Stripped-Down Job Search Approach. *Economica*, 77(305), pp. 46-59.

Antoni, M., Ganzer, A., and van Berge, P. (2016) Sample of integrated labour market biographies (SIAB) 1975-2014, FDZ Datenreport 4/2016.

Aralampulam, W., Booth, A.L. and Taylor, M. (2000) Unemployment persistence. *Oxford Economic Papers*, Vol. 52(1), pp. 24-50.

Ardizzi, G., Petraglia, C. Piacenza and M. Turati, G. (2013) Measuring the underground economy with the currency demand approach: a reinterpretation of the methodology, with an application to Italy. *Journal of Income and Wealth*, Vol. 60(4), pp. 747-772.

Battistin, E. and E. Rettore (2008) Ineligibles and eligible non-participants as a double comparison group in regression-discontinuity designs. *Journal of Econometrics*, Vol. 142(2), 715-730.

Blanchard, O. (2006) European unemployment. *Economic Policy*, Vol. 21(45), pp. 6-59.

Blanchard, O. and Landier, P. (2001) The perverse effect of partial labor market reforms: fixed duration contracts in France. *NBER working paper No. 8219*.

Blanchard, O.J. and Summers, L.H. (1986) Hysteresis and the European Unemployment Problem. *NBER Macroeconomics Annual*, Stanley Fischer, ed. Vol. 1, Fall 1986, Cambridge: MIT Press, pp. 15-78.

- Brand, J. (2015) The far reaching impact of job loss and unemployment. *Annual Review of Sociology*, Vol. 41, pp. 359-375.
- Contini, B. and Poggi, A. (2012) Employability of young Italian males after a jobless period 1989-98. *Labour and Industrial Relations Review*, Vol. 26(1), pp. 66-89.
- Contini, B. and Grand, E. (2014) Estimating Workforce Disposal in the Italian Labour Market, IZA Policy Paper No. 79.
- Contini, B. and Trivellato, U. (eds.) (2005), *Eppur si muove: mobilità e dinamiche del mercato del lavoro*, Il Mulino.
- Dustmann, C., Fitzenberger, B., Schönberg, U. and Spitz-Oener, A.E. (2014) From sick man of Europe to economic superstar : Germany's resurgent economy. *The journal of economic perspectives*, Vol. 28(1), pp. 167-188
- Farber, H.S. (1993) The incidence and cost of job loss: 1982-1991. *Brooking Papers on Economic Activity: Microeconomics*, No. 1, pp. 73-132.
- Feige, E.L. (1979) How Big is the Irregular Economy? *Challenge*, Vol. 22(5), pp. 5-13.
- García-Pérez, J.I., Marinescu I. and Castello, J.V. (2016) Can Fixed-Term Contracts Put Low Skilled Youth on a Better Career Path? Evidence from Spain. IZA Discussion Paper No. 9777.
- García-Pérez, J.I. and Muñoz-Bullón, F. (2011) Transitions into permanent employment in Spain: An empirical analysis for young workers. *British Journal of Industrial Relations*, Vol. 49(1), pp. 103-143.
- García-Pérez J.I. and Rebollo, Y.F. (2009) Do wage subsidies affect the subsequent employment stability of permanent workers? : the case of Spain. *Moneda y Crédito*, nº 228, pp. 65-103.
- Gomes, P. (2012) Labour market flows: facts from the United Kingdom. *Labour Economics*, Vol. 19(2), pp. 165-175.
- Grand, E. and Quaranta, R. (2011) Completamento delle carriere lavorative WHIP con i dati del Casellario degli Attivi INPS. WHIP Technical Report No. 3/2011.
- Grand, E. and Quaranta, R. (2014) La ricostruzione delle informazioni sugli oneri sociali obbligatori e sul costo del lavoro a partire dai dati individuali e di impresa di fonte INPS. *Politica economica*, No. 1/2014, pp. 137-166.
- Güell, M. and Petrongolo, B. (2007) How binding are legal limits? Transitions from temporary to permanent work in Spain. *Labour Economics*, Vol. 14(2), pp. 153–183.
- Hazans, M. (2011) “Informal Workers Across Europe”, World Bank working paper No. 5912.
- Keating, D. (2009) Social interaction in human development: pathway to health and capabilities. In: Hall, P.A. and Lamont, M. (Eds.), *Successful Societies: How Institutions and Culture Affect Health*, N.Y. Cambridge University Press.
- Klinger, S. and Rothe, T. (2012) The impact of labour market reforms and economic performance on the matching of the short-term and the long-term unemployed. *Scottish Journal of Political Economy*, Vol. 59(1), pp. 90-114.

- Klinger, S. and Weber, E. (2014) On GDP-employment decoupling in Germany. IAB Discussion Paper No. 21/2014.
- Krueger, Alan B. (2015) How tight is the labor market? *NBER Reporter*, No. 3/2015.
- Krueger, A.B., Cramer, J. and Cho, D. (2014) Are the long term unemployed on the margin of the labor market?, *Brookings Papers on Economic Activity*, Spring 2014, pp. 229-280.
- Kugler, A.D., Jimeno, J.F. and Hernanz, V. (2003) Employment Consequences of Restrictive Permanent Contracts: Evidence from Spanish Labour Market Reforms, CEPR Discussion Paper No. 3724.
- Layard, R. and Nickell, S. (1986) Unemployment in Britain. *Economica*, Vol. 53(210), pp. S121-S169.
- Lucifora, C. (2004) *Economia sommersa e lavoro nero*. Il Mulino.
- Machin, S. and Manning, A. (1994) The effects of minimum wages on wage dispersion and employment : evidence from the UK Wages Councils. *Industrial and Labour Relations Review*, Vol. 47(2), pp. 319-329.
- Mroz, P. and Savage (2006) The Long-Term Effects of Youth Unemployment. *The Journal of Human Resources*, Vol. 42(2), pp. 259-293.
- Mussida, C., Sciulli, D. (2015) Flexibility Policies and Re-employment Probabilities in Italy. *The B.E. Journal of Economic Analysis and Policy*, Vol. 15(2), pp. 621-651.
- Newman, K.S. (2006) Chutes and ladders : navigating the low-wage labor market. New York, NY, Russell Sage Foundation.
- OECD (2014) The 2012 Labour Market Reform in Spain: A Preliminary Assessment, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264213586-en>.
- Saint-Paul, G. (2004), Dual labour markets, MIT Press.
- Schneider, F., Buehn, A. and Montenegro, C.A. (2010) New Estimates for the Shadow Economies all over the World. *International Economic Journal*, Vol. 24(4), pp. 443-461.
- Schneider F. and Enste, D. (2002) *The Shadow Economy: Theoretical Approaches, Empirical Studies, and Political Implications*. Cambridge University Press, UK.
- Sinn, H.-W. (2003) Der kranke Mann Europas: Diagnose und Therapie eines Kathedersozialisten. Deutsche Rede, Stiftung Schloss Neuhardenberg, Brandenburg. Ifo Institut für Wirtschaftsforschung. München, 2003.
- Sullivan, D. and von Wachter, T. (2009) Job Displacement and Mortality: An Analysis Using Administrative Data. *The Quarterly Journal of Economics*, Vol. 124(3), pp. 1265–1306.
- Tatsiramos, K. (2009) Unemployment Insurance in Europe: Unemployment Duration and Subsequent Employment Stability. *Journal of the European Economic Association*, Vol. 7(6), pp. 1225-1260.
- Torelli, N. and Trivellato, U. (1989) Youth unemployment duration from the Italian labour force survey: Accuracy issues and modelling attempts. *European Economic Review*, Vol. 33(2-3), pp. 407-415.

Van Horn, C.E., Zukin, C. and Kopicky, A. (2014) Left Behind : The Long-term Unemployed Struggle in an Improving Economy. *Work Trends*, Rutgers Institute.

Wanger, Susanne (2009): Altersteilzeit: Beliebt, aber nicht Zukunftsgerecht. IAB-Kurzbericht No. 8/2009.