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Labour market transitions in Italy: Job separation, re-employment and policy implications

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ABSTRACT/RÉSUMÉ

Labour market transitions in Italy: job separation, re-employment and policy implications

Italy's low employment rate is associated with adverse labour market dynamics characterised differently across different categories of people. Both job separation and re-employment have remained less frequent in Italy, especially among older workers, against the backdrop of rigid employment protection legislation which weighs down job creation, thus re-employment prospects. Working conditions after re-employment tend to worsen, especially for older workers, as seniority is not entirely portable across firms. Prospects on working conditions after re-employment deteriorate with longer unemployment spells, affecting incentives to return to work, especially where social benefits are too generous. Rigid employment protection for incumbent workers has also come at the cost of more frequent labour turnover for temporary workers who face an increasing risk of unemployment, including the more highly educated. The risk of hysteresis effects is significant in particular for those who separated from temporary jobs. The public employment service has to take account of individual cases, adopting intensive programmes such as training where necessary, while in general personalised job search assistance to get jobseekers back to work at early stages is recommended.

JEL Classification : J21, J24, J63, J64

Key Words: Italy, labour market, dualism, job separation, re-employment, working conditions

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Transitions du marché du travail en Italie: cessation d'emploi, retour à l'emploi et implications politiques

Le bas taux d'emploi en Italie est associé à des dynamiques adverses au marché du travail caractérisées d'une manière différente selon les catégories de travailleurs. La cessation d'emploi et le retour à l'emploi à la fois restent moins fréquents en Italie, surtout parmi les travailleurs âgés, dans le contexte de la rigidité de la législation sur la protection de l'emploi qui pèse sur la création d'emploi, et donc sur les perspectives de retour à l'emploi. Les conditions du travail après le retour à l'emploi ont tendance à se dégrader, surtout parmi les travailleurs âgés, car les compétences liées à l'ancienneté ne sont pas entièrement transférables entre firmes. Les perspectives sur les conditions de travail après le retour à l'emploi se dégradent avec un chômage de longue durée, qui affecte les incitations au retour à l'emploi, en particulier lorsque les prestations sociales sont très généreuses. La rigidité de la législation sur la protection de l'emploi pour les travailleurs protégés sous contrat à durée indéterminée s'effectue au prix de la rotation de l'emploi trop fréquente parmi les travailleurs sous contrat à durée déterminée qui rencontrent un risque croissant du chômage, y compris parmi ceux qui sont les plus instruits. Le risque d'effets d'hystérèse est significatif surtout parmi ceux qui ont cessé de travailler sous contrat à durée déterminée. Le service public d'emploi doit tenir compte de cas individuels, en adoptant des programmes intensifs tels que la formation professionnelle si nécessaire, tandis que l'assistance personnalisée à la recherche d'emploi dans les phases initiales est recommandée en règle générale.

JEL Classification : J21, J24, J63, J64

Mots clés: Italie, marché du travail, dualisme, cessation d'emploi, retour à l'emploi, conditions de travail

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LABOUR MARKET TRANSITIONS IN ITALY: JOB SEPARATION, RE-EMPLOYMENT AND POLICY IMPLICATIONS

By Yosuke Jin, Ryotaro Fukahori and Hermes Morgavi[1]

1. Labour utilisation has been low in Italy for decades, reflecting both high unemployment and low labour force participation by OECD standards. The structural nature of this problem is shown by its high equilibrium unemployment rate. The youth unemployment rate, currently around 40%, remains among the highest in the OECD. The labour force participation rate is among the lowest in the OECD, especially among older people. High unemployment and low labour force participation are particularly prevalent in the South and Islands ("*mezzogiorno*").

2. This paper looks at dynamics in the Italian labour market at the individual level – labour turnover, job separation and re-employment, using micro data files (the EU SILC database). It identifies people at a higher risk of experiencing longer spells of unemployment or of falling out of the labour market, while highlighting high costs for workers who either lose a permanent job or are stuck in temporary jobs. It then identifies possible policy solutions to different kinds of jobseekers. The findings in this paper provide background information for the accompanying paper which discusses the most comprehensive labour market reform in decades in Italy (Jin and Lenain, 2015).[2]

3. The main findings in this paper include:

- In Italy, job separation has been less frequent but at the same time re-employment prospects have been more limited, against the backdrop of rigid employment protection legislation. In the wake of the financial crisis, the probability of becoming unemployed has nearly doubled, while the possibility of re-employment has been reduced further especially for temporary workers. As unemployment spells become longer, the risk of losing necessary skills to return to work becomes higher (hysteresis effects).

- The effects of the crisis on labour outcomes differ across different categories of people. Among permanent workers, the more highly educated were relatively well insulated from the risk of

1 . Yosuke Jin and Hermes Morgavi are in the Economics department, OECD. Ryotaro Fukahori, consultant to the OECD at the time of writing this paper, is at Kanazawa Gakuin University in Japan. This paper was originally prepared as a technical background paper for discussions in the Economic and Development Review Committee and on the Economic Survey of Italy published in February 2015. The authors are grateful to Alvaro Pereira, Robert Ford, Patrick Lenain, David Haugh, Paul Swaim, other colleagues in the OECD and several Italian government officials for valuable discussions, comments and suggestions on earlier drafts. Special thanks go to Brigitte Beyeler and Raquel Páramo for assistance in preparing the document. This paper should not be reported as representing the official views of the OECD or of Kanazawa Gakuin University. The opinions expressed and arguments employed are those of the authors.

2 . The enabling law (Law 183/2014), giving mandate to the government to implement the Jobs Act, entered into force in December 2014. The Italian government has already completed the implementing process of the Enabling Law: all the provisions were published on the Official Journal and they have been therefore effective since September 2015.

becoming unemployed. Youth experienced more frequently job separation, most often through end of temporary contract. The share of temporary workers who will not be working at some time horizon has increased after the crisis.

- In general, re-employment prospects for temporary workers are limited and more contingent on the macroeconomic situation than attributed to individual characteristics including educational attainment. The share of temporary contracts in total employment is low, but they are accounting for an increasing share of new hirings and are disproportionately held by youth.

- Older people are less frequently separated from a permanent job but once it occurs they tend to experience longer unemployment spells and more often fall out of the labour market. The length of professional experience does not seem to improve re-employment prospects, while earnings losses tend to be large, as many skills are firm-specific. Their prospects on working conditions after re-employment also deteriorate relatively quickly with longer unemployment spells.

- Significantly weak labour outcomes in the South and Islands ("*mezzogiorno*") are likely to be associated with such factors as low educational attainment, along with institutional problems. Low educational attainment leads to difficulties in labour market insertion, higher risk of job separation and limited re-employment prospects, thereby compounding low labour utilisation.

Overview of the Italian labour market

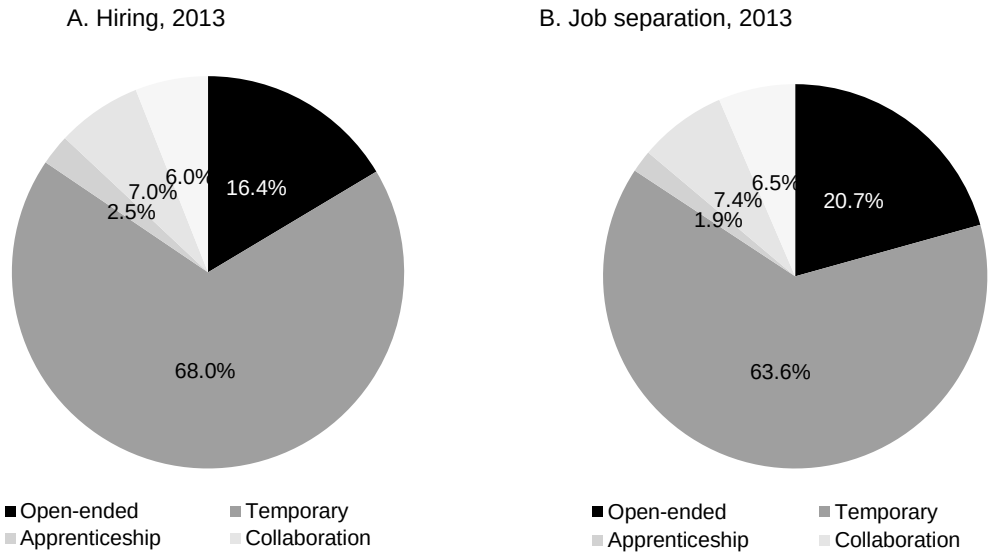
4. In Italy, 24.3 million people were in employment in 2014 – 18.1 million employees, of whom 3.4 million are in the government sector, and 6.2 million self-employed (Ministry of Labour, 2014). The labour market has been divided between those who are well-secured by employment protection legislation and those who are not: those who are well-secured are on an open-ended contract in large firms[3]; while those with flexible employment contracts (e.g. fixed-term contracts) find themselves in more precarious employment situations (fixed-term contracts most often provide the same degree of employment protection, but only during the contract period).

Labour turnover – hiring and separation

5. In Italy, around 9.6 million new contracts were made in 2013, but an even higher 9.9 million contracts were lost during that year (Ministry of Labour, 2014). Temporary contracts and other flexible contracts account for a vast majority of these cases (Figure 1), with much of this "turnover" reflecting the repeated use of flexible contracts for the same positions. Around 20% of new open-ended contracts are accounted for by contract conversion from temporary contracts.

[3] Employment protection is less strict in small firms where the number of employees is at 15 and below.

Figure 1. **Most new hires and job separations relate to flexible contracts**

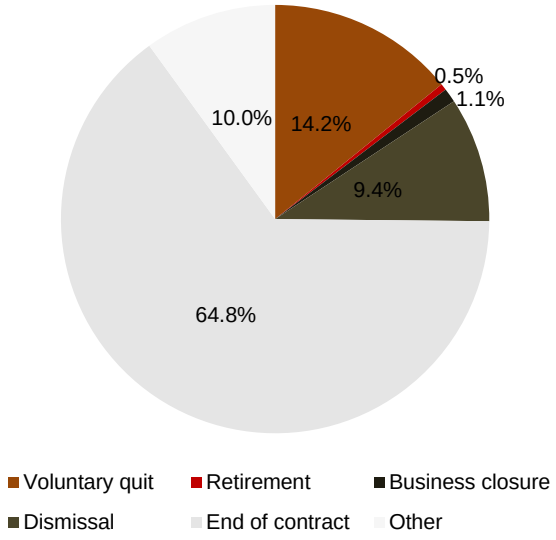


Source: Ministry of Labour, Italy

Reasons for job separation

6. Job separation occurs due to different reasons, but it is involuntary in many cases. "End of contract" accounts for a vast majority of job separation (Figure 2) and this is essentially related to flexible employment contracts. Job separation due to "voluntary quit" and "dismissal" is less frequent, accounting for around 15% and 10% of the total numbers. Dismissal occurs due to redundancy in a vast majority of cases (around 75%, not shown in Figure 2).

Figure 2. **Job separation is involuntary in most cases**



Source: Ministry of Labour, Italy

Flexible employment contracts

7. In Italy, as in many other OECD countries, the share of temporary contracts has increased in total employment. Temporary jobs are disproportionately held by youth. The majority of hirings are in the form of temporary contracts and most of new entrants in the labour market are young people without substantial work experience or bargaining power. The choice of a temporary contract is not a voluntary one: around 86% of temporary workers report that they chose a temporary contract because no permanent contract had been available (OECD, 2014).

Employment Status according to EU-SILC data

8. The paper provides a more detailed portrait of labour market transitions at the individual level drawing on data from the European Union Survey for Income and Living Conditions (EU-SILC). It shows how the employment status of different individuals has evolved, and how they transitioned from employment to unemployment, how unemployed people transitioned back into employment and how their employment conditions have changed after re-employment. Box 1 provides more detailed information about the EU-SILC data.

Box 1. The European Union Survey for Income and Living Conditions (EU-SILC) dataset

This paper uses data from the European Union Survey for Income and Living Conditions (EU-SILC) over the period 2003-12. The EU-SILC micro data files provide detailed information on individuals' employment situation over time as well as characteristics such as age, professional experience, educational attainment and place of residence. For each year, information on around 10000 individuals is available for Italy and the same individuals are followed for up to 4 years, as ¼ of the sample rotates each year.

Contract Type

The EU-SILC dataset makes the distinction between "work contract of unlimited duration" and "work contract of limited duration". In this paper, "work contracts of unlimited duration" without specifying the end of contract are classified as "permanent contracts", while all flexible types of employment contract covering fixed-term contracts, apprenticeship contracts as well as other auxiliary types of contract (such as "*collaborazione"*) are considered as "work contracts of limited duration" and classified as "temporary contracts".

Employment transitions

The EU-SILC dataset provides data on employment transitions such as;

Employment status: employees, self-employed, unemployed, not in the labour force, etc;

Type of employment contract: work contract of unlimited duration, work contract of limited duration;

Change of job since the previous year: yes/no;

Reason for change of job; voluntary quit, end of contract, obliged to stop by the employer (including dismissal and closure of business), retirement, etc.

This paper then uses the following operational definitions:

The probability of becoming unemployed among permanent workers is calculated as: those who were employed at time *t-1* and were unemployed at time *t* as a ratio to those who were employed at time *t-1*. This excludes those who were employed both at time *t-1* and at time t but changed employers between *t-1* and *t*. The latter people tend to have quit voluntarily more frequently. This paper would focus on those who are at greater risks of long unemployment spells.

The information on the reason for change of job is available only for those who changed to a new job and thus not for those who remained unemployed at time *t*. Therefore, this paper cannot strictly differentiate those who voluntarily quit and those who were dismissed. However, those who remained unemployed at time *t*, among those who had been permanent workers at time *t-1*, can be roughly considered as those who were dismissed because they remained unemployed in many cases for certain periods – a sufficiently long time for someone who quit the previous job for better opportunities.

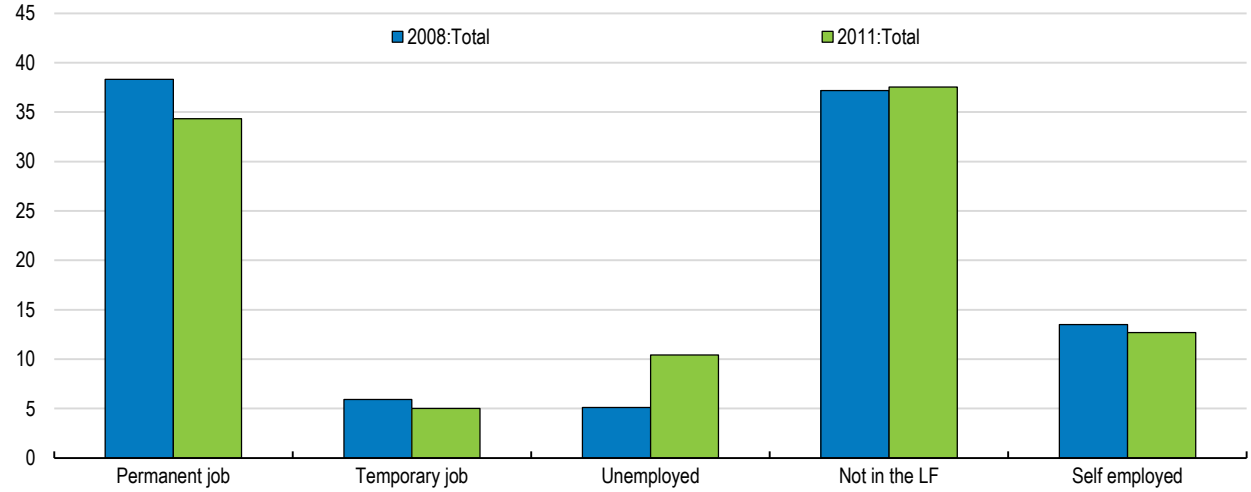
The re-employment rate is calculated as those who were employed at time *t+1* (or at time *t+2*) as a ratio to those who became unemployed at time *t*, as defined above. They are identified as "re-employed at the one year horizon" (or "re-employed at the two year horizon", the latter including those who were already re-employed at the one year horizon).

Note: There was a requirement to limit the number of new apprenticeships, conditioned by the number of previous apprenticeship contracts converted into permanent ones upon completion of the training programme. This requirement was abolished in 2014.

9. The overall composition of the working-age population by employment status did not change very much through the mid-2000s, but the unemployment rate has increased following the crisis (Figure 3). The relative share of temporary workers increased among employees, as the share of permanent workers declined. The share of self-employed workers remained stable over the period in examination. These numbers are broadly identical to the aggregated Labour Force Survey statistics.

Figure 3. **Unemployment has increased in Italy while labour force participation has remained low**

Percentage of working-age people in each employment status, 2008 and 2011



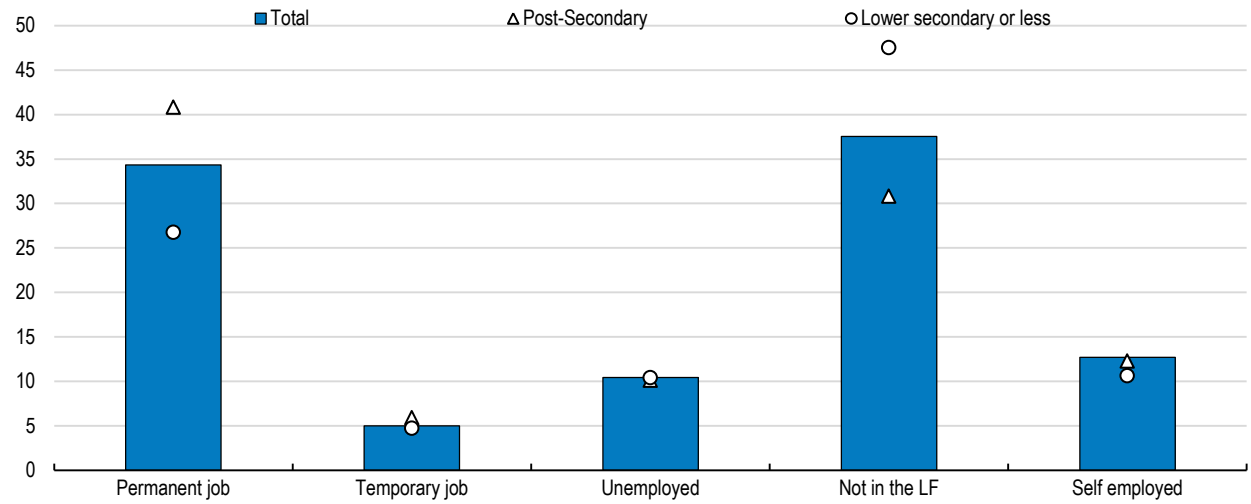
Note: Percentage of people aged 20-60 in each employment status.

Source: OECD Calculations from Eurostat EU-SILC (Community Statistics on Income and Living Conditions) survey.

10. The employment rate rises with the level of educational attainment. It is high among the more highly educated (those with post-secondary qualifications) and this group is also more likely to be employed with permanent contracts (Figure 4). The incidence of temporary contracts does not differ across education groups. No obvious difference exists in terms of the unemployment rate either. However, labour force participation is much lower among the less well-educated (lower secondary education or less), as they become inactive more frequently than other education groups (see below).

Figure 4. **The employment rate rises with educational attainment**

Percentage of working-age people in each employment status by educational group, 2011



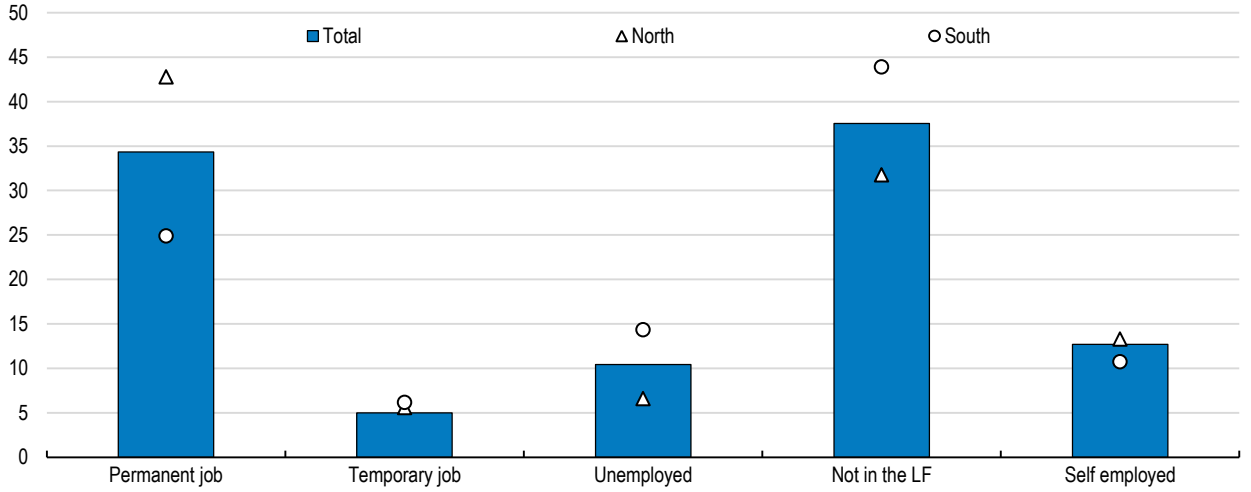
Note: Percentage of people aged 20-60 in each employment status.

Source: OECD Calculations from Eurostat EU-SILC (Community Statistics on Income and Living Conditions) survey.

11. Labour market performance differs sharply across regions in association with differences in its determinants. In the *mezzogiorno*, the unemployment rate is higher, and the share of those out of the labour force is even higher, than in other regions (Figure 5). The share of people in a stable job is markedly low in the *mezzogiorno* compared with North. Such differences in labour outcomes are likely to be associated with other factors, such as the difference in the average level of educational attainment across regions (Figure 6), along with institutional differences (see below).

Figure 5. **Unemployment is high and labour force participation low in South and Islands**

Percentage of working-age people in each employment status by region, 2011

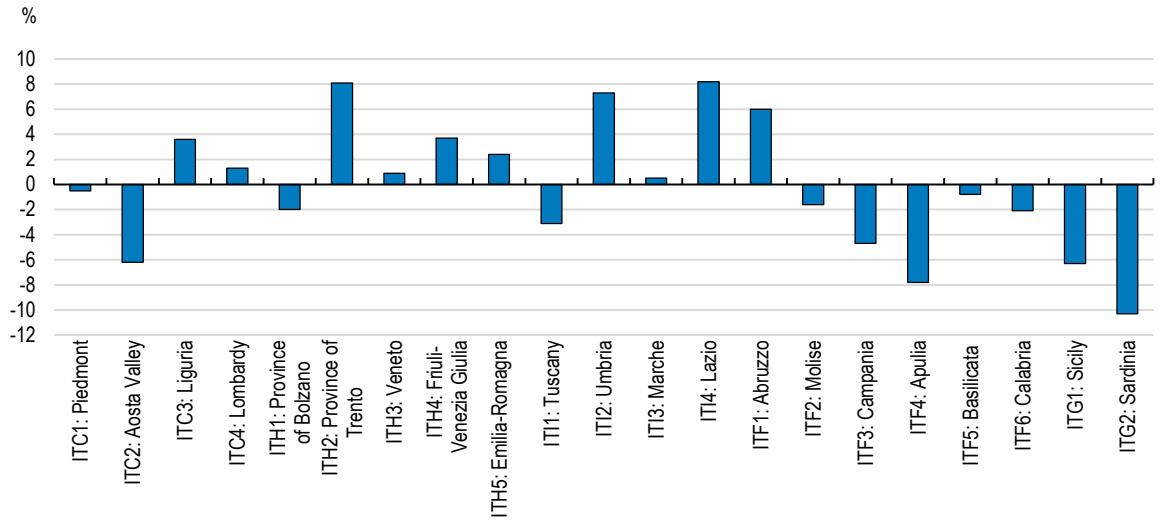


Note: "North" for North West (ITC) and North East (ITH); "South" for South (ITF) and Islands (ITG). Percentage of people aged 20-60 in each employment status.

Source: OECD Calculations from Eurostat EU-SILC (Community Statistics on Income and Living Conditions) survey.

Figure 6. **Educational attainment differs sharply across regions**

Share of labour force with at least a secondary level education: deviation from the national average, 2011



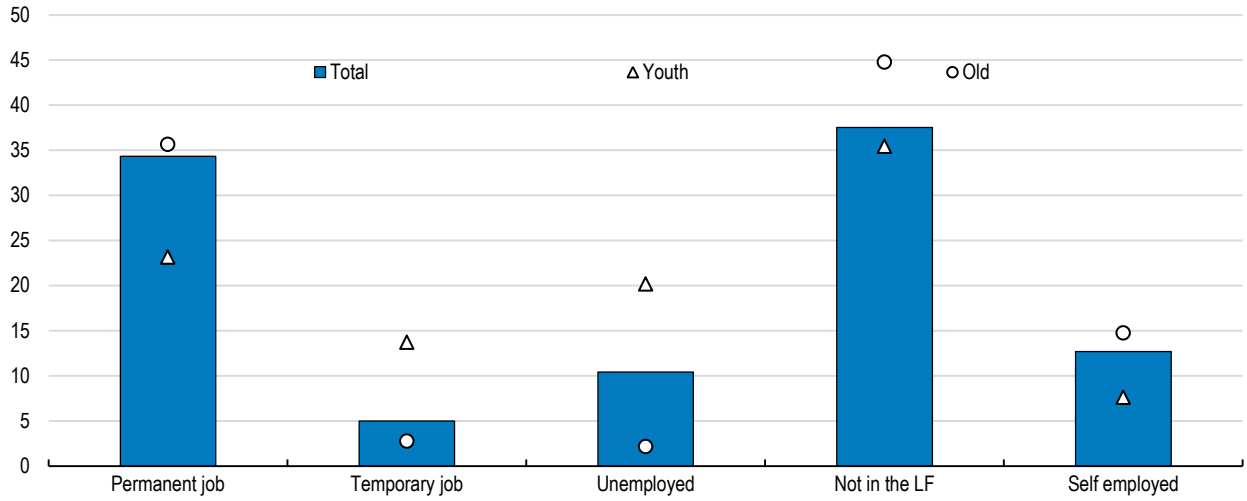
Note: "ITC" North West; "ITH" North East; "ITI" Centre; "ITF" South; "ITG" Islands.

Source: OECD Regional database.

12. Age is clearly related both to employment status and contract type. The proportion of temporary contracts is higher among youth (aged 20-29), than in other age groups (Figure 7), regardless of the level of educational attainment. The increase in the relative share of temporary contracts and the rise in the unemployment rate following the crisis were particularly strong among youth. Labour force participation remains weak among older people (aged 50-59), in spite of an upward shift in recent years (most likely due to the pension reform which linked the pensionable age to increasing life expectancy).

Figure 7. **Unstable employment situation among youth and low labour force participation among older people**

Percentage of people in each employment status by age group, 2011



Note: "Youth" for those who are in their 20s; "Older people" for those who are in their 50s.

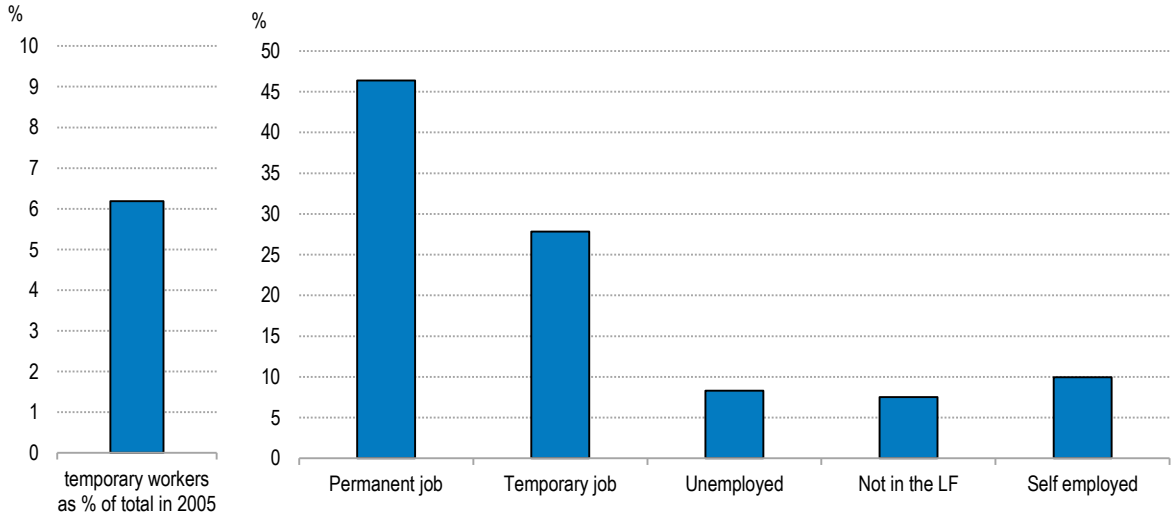
Source: OECD Calculations from Eurostat EU-SILC (Community Statistics on Income and Living Conditions) survey.

Precarious situation for temporary workers

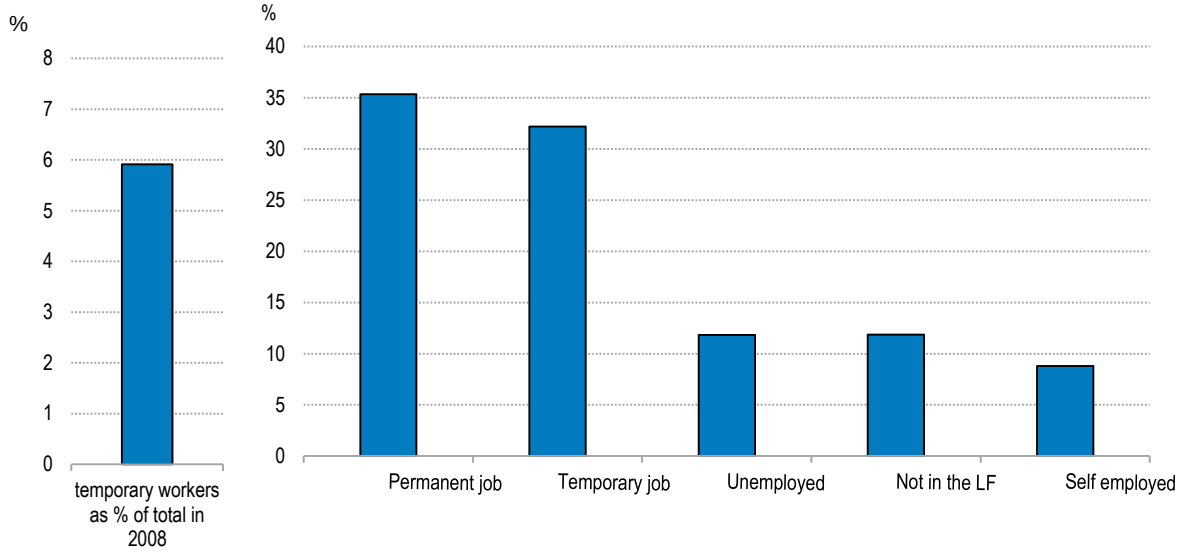
13. In Italy, as in many other countries, employment prospects for temporary workers are limited. Only a third of temporary workers will be working as permanent workers at the three-year horizon (compared with an average of 50% across European countries for which data are available). In contrast, around 25% of temporary workers will be unemployed or will have left the labour market within the same timeframe; this proportion increased after the crisis from around 15% as of 2008 (Figure 8). If this trend continues, while at the same time the use of fixed-term contracts becomes more frequent, the cumulative effects on unemployment and non-employment will become very large over the future.

Figure 8. **Employment prospects for temporary workers are increasingly limited**

A. Employment status as of 2008 among temporary workers in 2005



B. Employment status as of 2011 among temporary workers in 2008



How to read this chart: the left-hand side charts show the share of temporary workers in total population in the initial year (2005 or 2008), the right-hand side charts show the share of people in each employment status (permanent job, temporary job, …) at three-year horizon (2008 or 2011) among those who were temporary workers in the initial year (2005 or 2008).

Source: OECD calculations based on Eurostat EU-SILC (Community Statistics on Income and Living Conditions) survey data.

Unemployment risk for permanent workers

14. Job separation occurs also among permanent workers, and some workers face a greater risk of remaining unemployed for certain periods after job separation. In Italy, the probability of dismissal has been low, in association with relatively strict employment protection legislation (e.g. Boeri and Jimeno, 2005). The relationship between low dismissal risk and relatively strict EPL is also shown in cross-country studies (e.g. OECD, 2009).

15. Notwithstanding relatively strict EPL, the probability of becoming unemployed among permanent workers almost doubled in the aftermath of the crisis, according to the EU-SILC data: as described in Box 1, in this paper, those who had initially been permanent workers at time *t-1* and became unemployed in the following year at time *t* are considered to have become "unemployed". In the following, the probability of becoming unemployed among those who were permanent workers is analysed more in detail.

16. The risk of unemployment declines with the level of educational attainment (Figure 9), as in other countries (OECD, 2013). Those who have post-secondary education had a lower probability of becoming unemployed than those who attained lower-secondary education or less by around 1%. The difference in the probability of becoming unemployed between the more highly educated and the less well educated widened during the crisis, as the former group were comparatively more insulated from such unemployment risk.

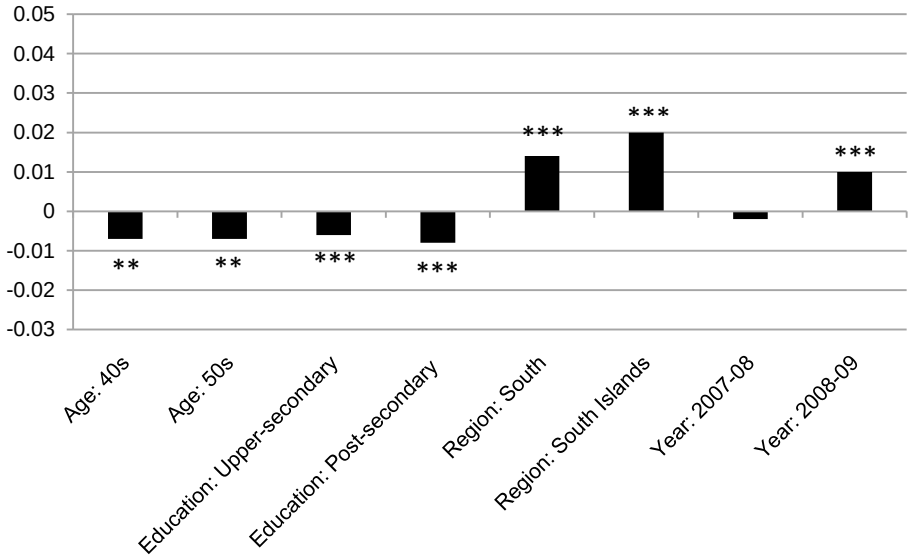
17. The probability of becoming unemployed has been higher in the South and Islands ("*mezzogiorno*"), and even more so after the crisis (Figure 9). The result is not entirely explained by the difference in economic activity at the regional level (Annex 1). These region-specific effects are likely related to labour market institutions, notably the wage bargaining system in Italy: industry-level agreements whose outcomes are influenced mainly by the economic conditions prevailing in the leading sectors and regions are applied uniformly across the country, resulting in difficulties in wage adjustments in lagging regions (OECD, 2006).[4]

18. The probability of becoming unemployed has risen, gradually over time rather than immediately, after the crisis (higher probability of becoming unemployed for the year 2010 and 2011 compared with the year 2009, Figure 9). In the wake of the crisis, the so-called "short-time working (STW) schemes" (reducing average hours worked rather than the number of employed) initially played a stronger role in Italy than in other countries. The reduced sensitivity of employment to output changes was observed only for permanent workers, not for temporary ones (OECD, 2010a). The STW schemes however could not stop the probability of becoming unemployed among permanent workers from rising in the end.

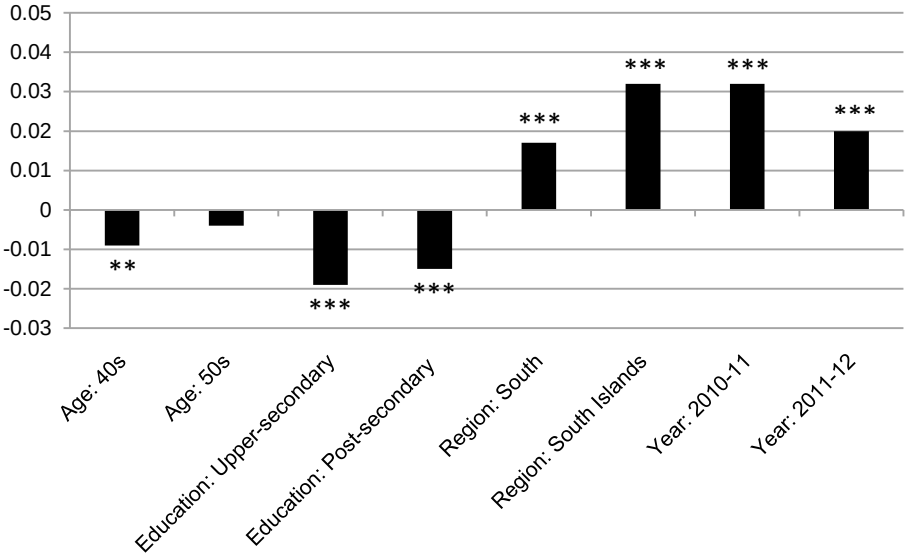
[4] In Italy, *Contratto collettivo nazionale di lavoro* (CCNL), plays a determinant role in wage formation. CCNL is an industry agreement reached between business associations and labour unions in each industry. This agreement is applied uniformly within the same sector across the country, through the functional equivalent to administrative extension. In such an intermediary wage-bargaining systems, outcomes tend to be influenced by the economic conditions prevailing in the leading sectors and regions, thus wages could deviate from productivity. This results in an increase in unemployment, particularly in lagging regions.

Figure 9. **Education, age and region affect the probability of becoming unemployed**

A. Marginal effects estimated by Probit model on the likelihood of becoming unemployed, over the period 2006-07 to 2008-09



B. Marginal effects estimated by Probit model on the likelihood of becoming unemployed, over the period 2009/10 to 2011/12



Note: For the detail of regression analysis, refer to Annex 1. The results presented in Column [4] in the annex table are reflected in the charts. Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The chart reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is limited to those who were 22 years old and above and below 59 years old in the initial year (i.e. when in employment). The following variables are considered in the analysis:
Age/ 4 age intervals: 20s; 30s; 40s; 50s.
Education/ 3 education levels: lower secondary education and less; upper secondary education; post-secondary education (post-secondary non-tertiary education plus tertiary education).
Region/ 5 regions: North West; North East; Centre; South; South Islands.
Work Experience/ 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time.
Year dummy: the year in which workers were displaced.
Source: OECD estimates based on micro-data from the EU-SILC.

19. Overall, people in their 40s and 50s face less risk of unemployment than younger workers (Figure 9). This result is likely related to rigid employment protection legislation which restrains dismissal, as it is more costly to dismiss workers with long job tenure.[5] In Italy, high uncertainty exists related to court decisions on whether a dismissal was fair or not, and provisions following unfair dismissal (such as reinstatement of employees and/or monetary compensation) have been more burdensome than in other countries (Jin and Lenain, 2015). The result is also likely related to subsidised short-time working schemes (*Cassa Integrazione Guadagni*), allowing older workers on a permanent contract to maintain their employment status for a certain time when the firm is in difficulty.

Possibility of re-employment

20. Previous research shows that relatively stricter employment protection legislation tends to reduce dismissal as well as new hirings (see Boeri and Jimeno, 2005; Schivaldi and Torrini, 2008; Kugler and Pica, 2008 for Italy). The relationship between relatively stricter EPL and weaker flow into employment is also shown in cross-country studies (for e.g. OECD, 2009). Such a low probability of re-employment (and the increasing use of temporary contracts as discussed below) is a corollary to strict employment protection legislation for permanent workers (Boeri, 2011).

21. The following analysis considers the possibility of re-employment for:

- Those who had initially been permanent workers (at time *t-1*) and became unemployed in the following year (at time *t*), i.e. those who are considered in the previous section on job separation. After certain unemployment spells, some of them became employed again (either with another permanent contract or with a temporary contract) as of *t+1* or as of *t+2*;[6]

- Those who had initially been temporary workers (at time *t-1*) but became unemployed in the following year (at time *t*), mostly through end of contract. After certain unemployment spells, some of them became employed (either with another temporary contract or with a permanent contract) as of *t+1* or as of *t+2*.

22. The prospects for re-employment are quite different between those who were permanent and those who were temporary workers. Those who were temporary workers tend to find another job more frequently, but this is explained by high probability of being re-employed again with a temporary contract (Figure 10). Among those who were permanent workers, the probability of being re-employed with a permanent contract is not high, as only ¼ of such workers can find another permanent contract at the two-year horizon. Among them, the probability of being re-employed with temporary contracts is almost the same at the two-year horizon (Figure 10).

23. The overall prospects for re-employment do not differ between men and women, but some difference exists in details: the overall share of temporary workers, more likely to find another job (though again a temporary contract), is higher among women than men; the probability of being employed with a permanent contract after having been temporary worker, is higher for men; the probability of being out of work after having been a temporary worker is higher for women (Figure 10).

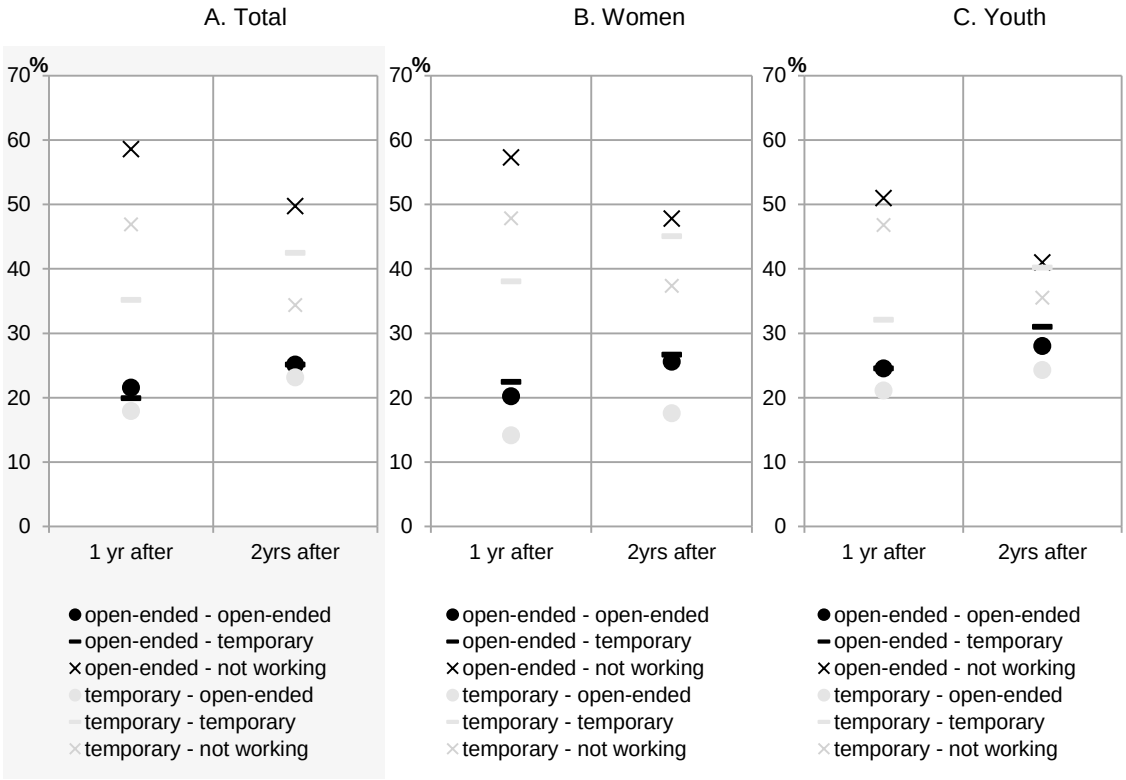
[5] Information on job tenure itself – the number of years spent in the current job – is not available in the EU-SILC dataset, while the number of years spent in paid employment (thus including professional experience through preceding jobs) is identified. Both age and the number of years spent in paid employment were included to measure "job tenure" as a proxy.

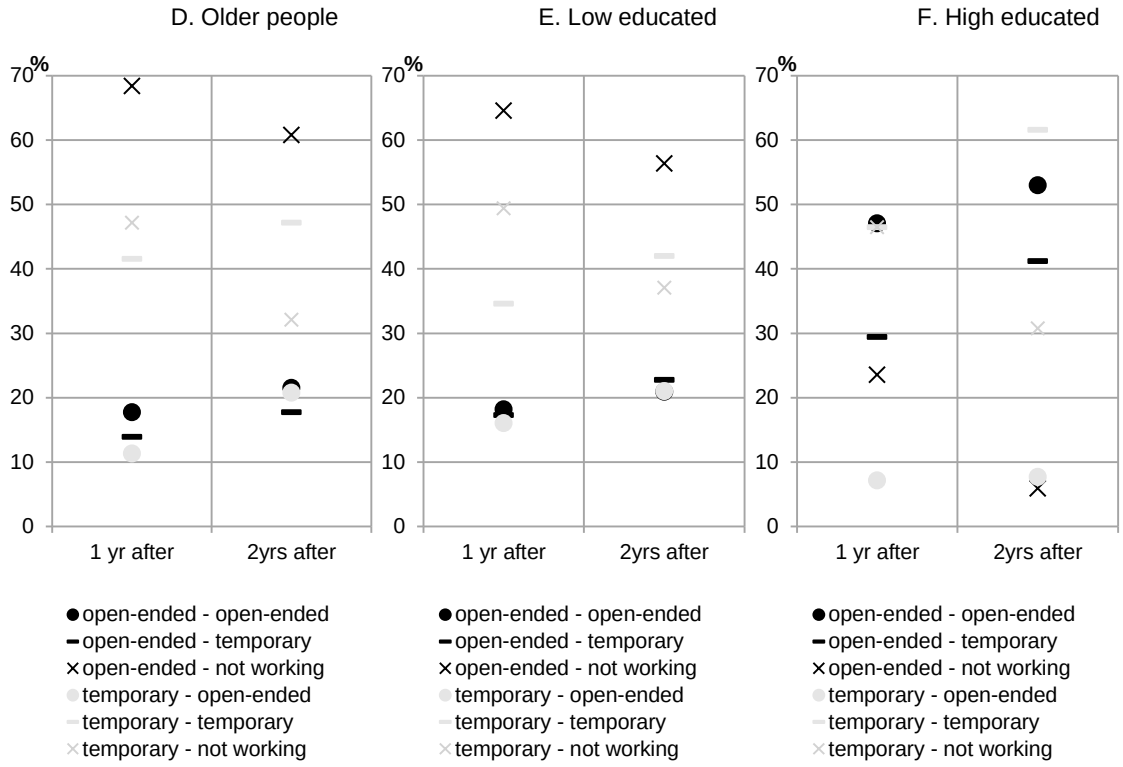
[6] This definition may understate re-employment because the respondent may have been employed for a number of months during the same year but not at the time when the survey took place. It may also overstate re-employment because the respondent may have been employed only for a short period around the time when the survey took place.

24. Across age groups, the younger age group (aged 20-39) has much higher probability of being re-employed than the older age group (aged 40-59). The acceptance of temporary contracts is more frequent in the younger age group. The probability of being re-employed with a permanent contract is also higher in the younger age group (whether previously on a permanent or temporary contract) and the risk of being out of work among those who had permanent contracts is higher among the older age group (Figure 10).

25. Overall, the probability of re-employment increases with the educational attainment level. Also, the more highly educated are more likely to be re-employed after somewhat long unemployment spells (at the two year horizon) whereas such possibilities seem to be limited among the lower educated. Also, among those who had been permanent workers, the probability of being re-employed with another permanent contract is markedly higher among the more highly educated (Figure 10).

Figure 10. **Transition after job separation differs across workers of different categories**





Note: The line shows the percentage of people who previously had been employed as permanent or temporary workers and separated from the job and transited to each employment status, i.e. open-ended contract, temporary contract and not in work, at one-year and two-year horizons.

Source: OECD calculations based on micro-data from the EU-SILC

26. In the following econometric analysis, the probability of re-employment among the unemployed of different characteristics is estimated. The contract type of the job prior to job separation is quite likely to affect re-employment prospects. Therefore, this paper analyses the cases of those who were previously permanent workers and those who were temporary workers separately.

27. The number of years spent in paid work has no significant effects on re-employment rates (Annex 2). In general, the length of professional experience is considered to be important in terms of employment prospects. But professional experience required at different stages of a career may vary and it is not necessarily portable across different firms as at least some elements are firm-specific (OECD, 2013, see below).

28. Older workers, once separated from a permanent job, face a significantly higher risk of not being re-employed than their younger counterparts (Figure 11). At the two year horizon, the probability of re-employment is significantly lower, by around 30% compared with those in the prime age. This result may suggest that seniority acquired through long job tenure may have adverse effects when it comes to finding another job opportunity. Such adverse effects from old age are not identified among those who were separated from a temporary contract, possibly implying that seniority is not gained over the course of temporary jobs (Figure 12).

29. Educational attainment has significant effects on re-employment prospects among those who were separated from a permanent contract. Those who attained post-secondary level education enjoy a higher probability of being re-employed compared with those without an upper-secondary diploma: a difference in probability of around 45-50% at one-year and two-year horizons (Figure 11). In contrast, the significant effects of educational attainment are not identified for those who previously had a temporary contract (Figure 12).

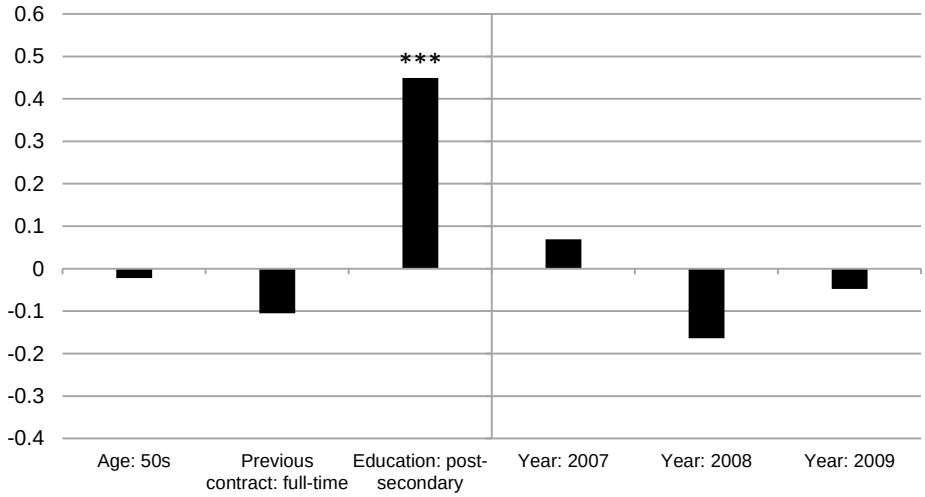
30. Overall, it is difficult to find any determinant to improve re-employment prospects for those who were previously temporary workers. Whether they were more highly educated or not does not significantly affect the re-employment rates. Only having worked full-time in their previous job is identified as affecting the probability of being re-employed (Figure 12), probably because it is indicative of stronger attachment to the labour market or it interpreted that way by prospective employers.[7]

31. It matters when job separation occurs in terms of the probability of re-employment. The results show that it matters only for those who were previously temporary workers (Figure 11 and 12). Those who became unemployed during the period 2008-09 had approximately 30% lower probability of re-employment at one- and two-year horizons. The effects disappear when controlled by economic activity at regional level, suggesting that these are cyclical phenomenon. But such cyclical weakness could turn into a structural one: a loss in re-employment opportunities would have induced longer unemployment spells for more people, reducing their employability as they lose necessary skills, thus ultimately leading to higher structural unemployment ("hysteresis" effects, see Rusticelli (2015) for recent estimates).

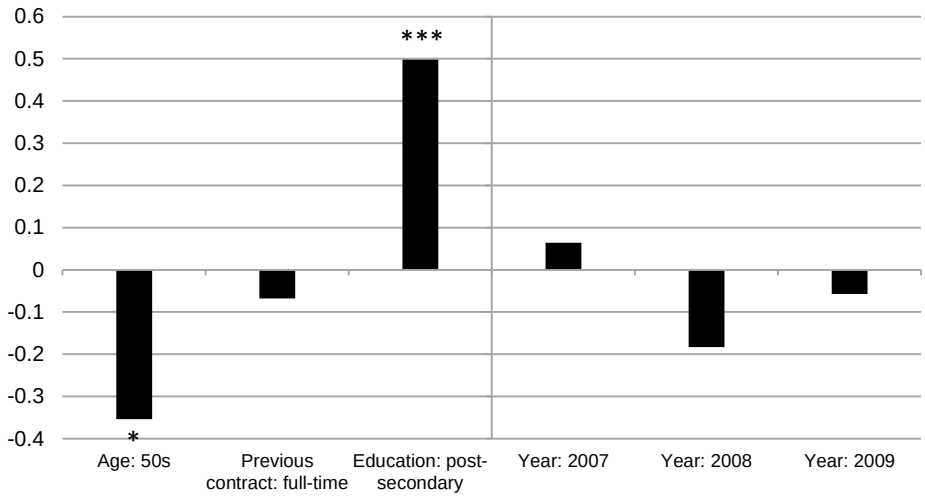
[7] This result may be simply due to the selection bias, i.e. those who are more able had more chance to be employed as full-time workers.

Figure 11. **Education is a major determinant of re-employment among previous permanent workers**

A. Marginal effects estimated by Probit model on the likelihood of re-employment: re-employed as of *t+1* after unemployment at time *t*



B. Marginal effects estimated by Probit model on the likelihood of re-employment: re-employed as of *t+2* after unemployment at time *t*



Note: For the detail of regression analysis, refer to Annex 2. The results presented in Column [3] in the annex table are reflected in the charts.

Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The chart reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.

The analysis is also limited to those who were 22 years old and above and 57 years old and below in the initial year (i.e. when in employment).

Age: 4 age intervals: 20s; 30s; 40s; 50s.

Education: 3 education levels: primary education + lower secondary education; upper secondary education; post-secondary non-tertiary education + tertiary education.

Region: 3 regions: North West + North East; Centre; South + Islands.

Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.

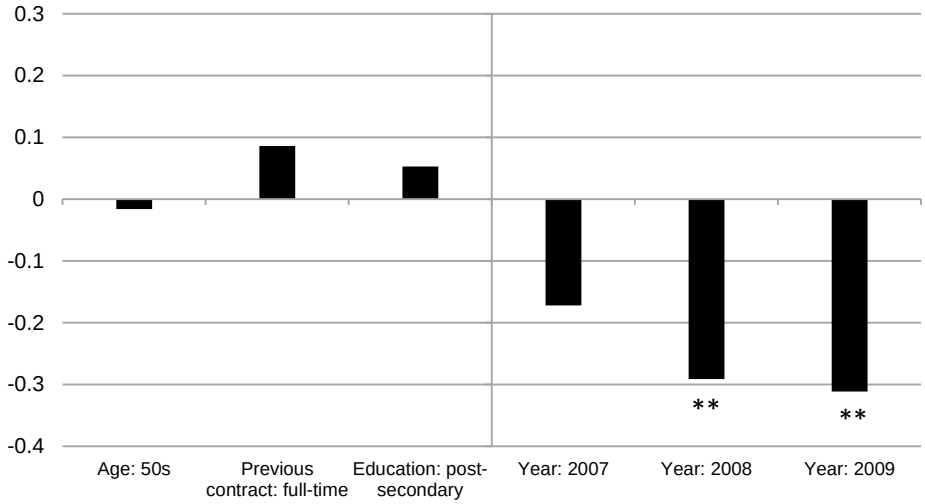
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).

Contract type: 2 types: full-time; part-time.

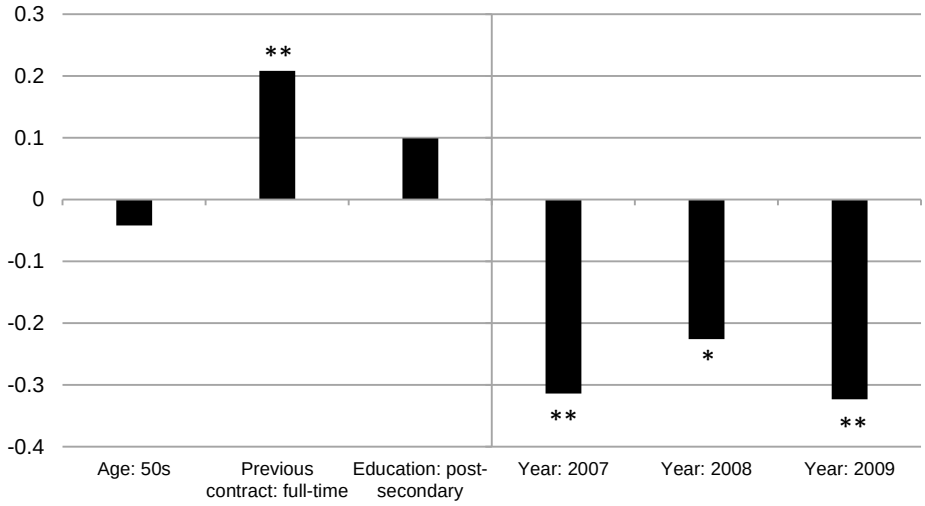
Source: OECD estimates based on micro-data from the EU-SILC.

Figure 12. **Re-employment of temporary workers is not significantly affected by age or educational level**

A. Marginal effects estimated by Probit model on the likelihood of re-employment: re-employed as of *t+1* after unemployment at time *t*



B. Marginal effects estimated by Probit model on the likelihood of re-employment: re-employed as of *t+2* after unemployment at time *t*



Note: For the detail of regression analysis, refer to Annex 2. The results presented in Column [3] in the annex table are reflected in the charts.

Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The chart reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.

The analysis is also limited to those who were 22 years old and above and 57 years old and below in the initial year (i.e. when in employment).

Age: 4 age intervals: 20s; 30s; 40s; 50s.

Education: 3 education levels: primary education + lower secondary education; upper secondary education; post-secondary non-tertiary education + tertiary education.

Region: 3 regions: North West + North East; Centre; South + Islands.

Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.

Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).

Contract type: 2 types: full-time; part-time.

Source: OECD estimates based on micro-data from the EU-SILC.

Earnings losses and working conditions after re-employment

32. Employment conditions before job separation and after re-employment change in terms of earnings, occupations and seniority. Such anticipated changes in working conditions affect re-employment prospects: workers may well wait for a longer time to be re-employed so that subsequent earnings or working conditions in general would not worsen much compared with their previous jobs; this may however reduce the probability of re-employment, as job skills are lost with the prolongation of their unemployment spells. [8]

33. In the econometric analysis below, earnings of those who were re-employed after job separation (the re-employed) are followed up to 2 years following re-employment, and their earnings losses after re-employment are estimated with respect to those who continued to be employed over the same periods (job stayers). As in the analysis on the probability of re-employment, those who previously had permanent contracts and those with temporary contracts are analysed separately.

34. The regression model is estimated using the following fixed-effects specification:

$$y_{it} = \alpha_i + \gamma_t + X_{it}\beta + \sum_{k=-1}^{2} D_{it}^{k}\delta_k + \sum_{k=-1}^{2} C_{it}^{k}\theta_k + \varepsilon_{it}$$

where y_{it} is the monthly earnings in real terms of worker *i* at time *t*; D_{it}^{k} is a set of dummy variables capturing the event of unemployment: $D_{it}^{k} = 1$ if, in period *t*, worker *i* had been unemployed *k* years earlier, where *k* ranges from -1 to 2; δ_k is the effect of unemployment on a worker's wages *k* years following its occurrence; C_{it}^{k} is a set of dummy variables for each year in the cohort: $C_{it}^{k} = 1$ in period *t* for all workers, where *k* ranges from -1 to 2 ; θ_k captures the wage patterns of job stayers in the lead up to and aftermath of the unemployment event; X_{it} consists of the observed time-varying characteristics of the worker; γ_t are the coefficients of a set of dummy variables for each calendar year in the sample period that capture the general time pattern of wages in the economy; α_i are individual fixed effects.

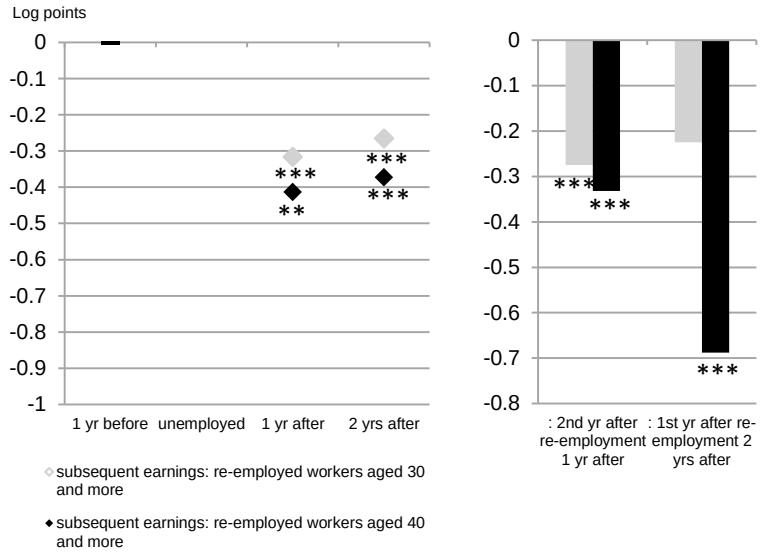
35. Among the re-employed, their earnings subsequent to re-employment are effectively found to be lower compared with job stayers. In general, the earnings gap between the re-employed and job stayers exists in the year immediately after unemployment, but it is reduced somewhat in the following year (Figure 13). This result is in line with similar findings in other countries (OECD, 2013).

36. Subsequent earnings losses following re-employment are often much larger if jobseekers spend longer spells in unemployment. When workers are re-employed after having spent an unemployment spell of at least one year, earnings losses are large but comparatively limited and reduced somewhat in the second year following re-employment. In contrast, when workers are re-employed after having spent an unemployment spell of at least two years, subsequent earnings losses after re-employment could be significantly large (Figure 13 and Annex 3), in line with similar findings in other countries (OECD, 2013).

[8] Changes in working conditions are also contingent on the macroeconomic situation: the sensitivity of wages with respect to output changes is found to be higher for job movers than for job stayers (Pissarides, 2009).

Figure 13. **Earnings losses following job separation are large for permanent and full-time workers**

Real hourly wage differentials for re-employed workers 1 or 2 years after unemployment



Note: For the details on regression analysis, refer to Annex 3. The charts draw on the results presented in columns [2] and [3] of the annex table.

The chart shows the difference in earnings losses in logarithm due to job separation with respect to those who, otherwise identical in terms of characteristics, continued to work as a full-time permanent employee, over the period 1 and 2 years after unemployment. In the analysis, the earnings losses due to job separation at two-year horizon are also separately reported according to the case: the second year earnings following re-employment for those who were re-employed one year after unemployment; the first year earnings following re-employment for those who were re-employed two years after unemployment. Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients.

Hourly wages in real terms are estimated by the fixed effect model. The analysis is limited to those who were 20 years old and above and 57 years old and below 57 in the initial year (i.e. when in employment). The analysis is also limited to those who were permanent and full-time workers: for job movers, they were permanent and full-time workers before job separation and after re-employment.

The number of the sample for those who were re-employed after an unemployment spell of 2 years is small, thus the result should be carefully read.

Source: OECD estimates based on micro-data from the EU-SILC.

37. Age, as a proxy of job tenure, makes a difference in earnings following re-employment. Earnings losses for the re-employed compared with job stayers tend to be larger as age increases (Figure 13).[9] Earnings losses following re-employment are often related to job tenure which is associated with firm-specific skills/human capital (OECD, 2013). Those who have gained long job tenure within the same firm accumulate firm-specific skills/human capital which underpins the seniority wage premium. Once separated from the job, however, such firm-specific skills/human capital is not portable across different firms.

38. Educational attainment affects the differential in earnings after re-employment compared with job stayers. If the analysis is limited to those with post-secondary education, earnings losses are found to be comparatively limited overall in the first year of re-employment and may not even be significant in the second year (Annex 3).

[9] Some results showing insignificant earnings losses when including younger age groups may be attributed to the wage penalty for them being high, i.e. no significant earnings losses compared with already low wages before job separation (see Annex 4 on wage analysis).

39. Earnings losses for temporary workers following job separation and re-employment seem to be limited. No significant earnings loss was found for those who were re-employed as temporary workers after a certain period of unemployment, compared with those who worked in a continuous way as temporary workers.[10] This result seems to arise from the high wage penalty of being a temporary worker, all else equal (Annex 4).

40. Changes in the occupational level could also affect subsequent earnings following re-employment. At the one-year horizon, most job seekers find another job which requires identical or close levels of qualifications (Table 1, note that due to the limited number of observations the result may not be robust). In such cases, the comparative wage differential with respect to job stayers could be explained by losses in job tenure and firm-specific human capital/skills. Earnings losses arising from these factors could be larger, if coupled with job downgrades.

Table 1. **Transition to different occupational levels is relatively limited**

Occupational category (ISCO 1 – 9) before job separation and after re-employment

Percentage of those who were re-employed, at one-year horizon

		After								
		1	2	3	4	5	7	8	9	Total (n)
Before	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	2	11.1	55.6	11.1	0.0	11.1	11.1	0.0	0.0	9
	3	4.0	12.0	56.0	8.0	4.0	16.0	0.0	0.0	25
	4	5.9	0.0	11.8	52.9	11.8	5.9	0.0	11.8	17
	5	0.0	4.5	4.5	9.1	72.7	4.5	0.0	4.5	22
	7	0.0	0.0	0.0	11.1	0.0	70.4	11.1	7.4	27
	8	0.0	0.0	8.0	12.0	8.0	16.0	48.0	8.0	25
	9	0.0	0.0	0.0	0.0	8.7	13.0	4.3	73.9	23

Note: 1: ISCO88 11-19; 2: ISCO88 21-29; 3: ISCO88 31-39; 4: ISCO88 41-49; 5: ISCO88 51-59; 7: ISCO88 71-79; 8: ISCO88 81-89; 9: ISCO88 91-99. The numbers 1-9 are broadly in the descending order in terms of skill-requirement: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).

How to read this table: the row "3" shows those who were technicians and associated professional workers (3: ISCO 31-39) before job displacement and the category to which they moved (1-9) following re-employment.

[10] The results showing insignificant earnings losses for job movers between different temporary contracts may be attributed to the wage penalty for them being high, i.e. no significant earnings losses compared with already low wages before job displacement (see Annex 4 on wage analysis).

41. Since the datasets follows the same individuals for 4 years at most, it is not possible to follow the employment situation after re-employment going beyond the two-year horizon (t+3, …). According to studies for other countries where longer-time series data are available, the size of earnings losses tends to subside over time, but generally persist for a number of years following displacement (OECD, 2013). In contrast, the probability of re-employment is significantly decreased beyond the two-year horizon (OECD, 2013).

Institutional frameworks

Employment protection legislation (EPL)

42. Strict EPL hampers efficient allocation of labour resources and lower productivity. It inhibits efficient job separation and, indirectly, reduces efficient job creation (e.g. Mortensen and Pissarides, 1999, see Boeri and Jimeno, 2005; Schivardi and Torrini, 2008; Kugler and Pica, 2008, for empirical evidence for Italy). When dualism exists, efficient job destruction becomes even more limited at the expense of more frequent labour turnover for temporary workers who are not well secured (Boeri, 2011).

Unemployment benefits

43. The replacement income offered by unemployment benefits improves the outside option of workers and raises the reservation wage above which workers generally accept to work. This generates upward pressure on the average wage and raises the unemployment rate (Pissarides, 2000). If unemployment benefits are generous only for those with permanent contracts, and not for new entrants with temporary contracts, then they generate wage premium for the former while raising overall unemployment (Boeri, 2011, see also Leonardi and Pica, 2013, for empirical evidence for Italy on the effects of dualism on wage differentials).

Active labour market programmes (ALMPs)

44. ALMPs aim to strengthen matching efficiency in the labour market by reducing frictions in the vacancy filling process for jobseekers and employers. ALMPs reduce recruitment costs (through job counselling, placement services, etc.) or raise after-tax wages (making work pay). ALMPs increase incentives for firms to open new vacancies and for unemployed workers to accept a job. Thus both jobseekers and employers benefit from job matching, the extent of that benefit depending on their respective bargaining power (Boeri, 2011).

What insights can be drawn from the findings?

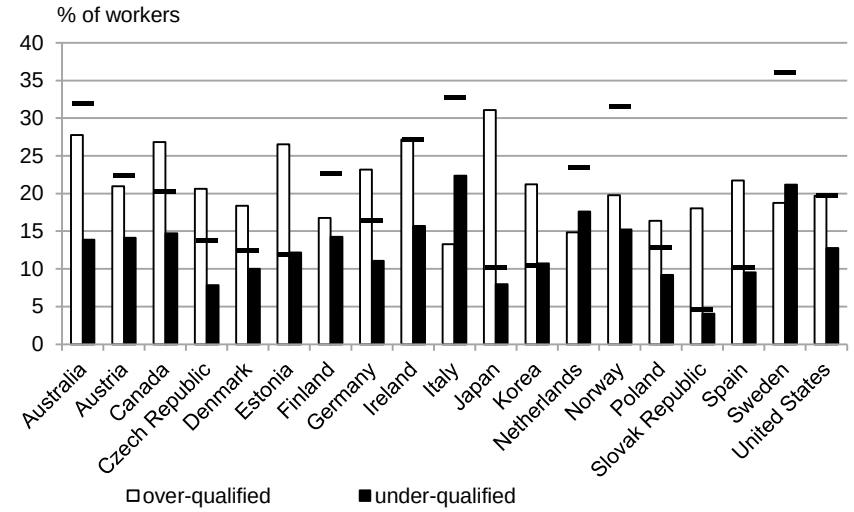
45. A set of institutional deficiencies such as rigid employment protection and generous benefits primarily reserved for permanent workers possibly induced inefficient labour outcomes, such as high unemployment and misallocation of resources (which has been tackled by the recent labour market reform, see Jin and Lenain, 2015).[11] Frequent labour turnover arising from the use of temporary contracts among

[11] In Italy, a new open-ended contract has been in place since March 2015, as part of the Jobs Act, a package of labour market reforms introduced by the Renzi administration. This new contract increases employment protection with the job tenure, aiming at simplifying and streamlining dismissal rules while reducing labour market dualism. This new open-ended contract limits the possibility of reinstatement of workers following unfair dismissal, excluding this possibility for redundancy dismissal. However, there still remains some stringency in employment protection legislation (EPL), according to the OECD EPL indicators. It mainly relates to the definition of fair/unfair dismissal and compensation following unfair dismissal. In the case of redundancy, dismissal is judged as unfair if a transfer and/or a retraining to adapt the worker to different work is not attempted prior to dismissal ("*repechage*"); compensation following unfair dismissal is equivalent to 24 months of salary for a worker at 20 years of tenure against the OECD average of 6

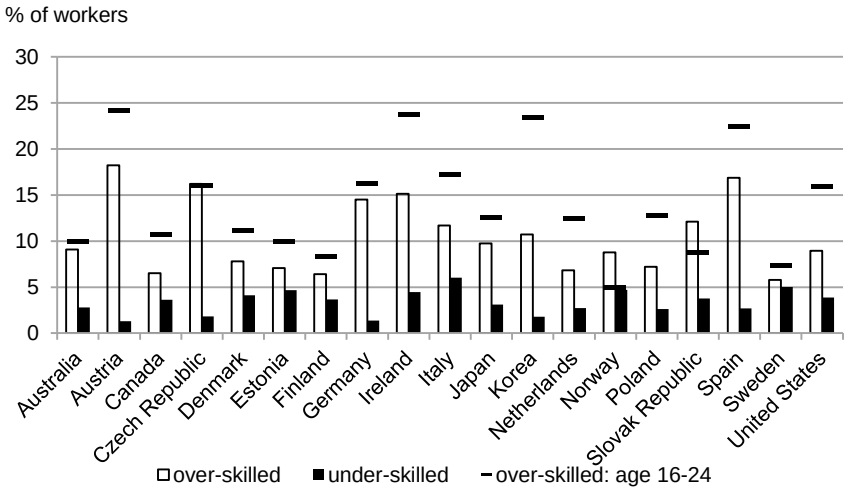
youth and the existence of low re-employment probabilities among older people co-exist with job-skill mismatch, characterised by over-skilled youth and under-qualified older people (Figure 14). Older people tend to have higher earnings across income quantiles in spite of constituting a significant share of under-qualified workers. Temporary workers, in contrast, earn significantly low earnings, especially at the low end of the income distribution (Figures in Annex 4).

Figure 14. **Job mismatch and under-qualification are significant in Italy**

A. Qualifications mismatch



B. Skills mismatch



Note: A worker is classified as over-qualified when the difference between his or her qualification level and the qualification level required in his or her job is positive. A worker is classified as under-qualified when the difference between his or her qualification level and the qualification level required in his or her job is negative. Required qualification is defined based on respondents' answers to the question "If applying today, what would be the usual qualifications, if any, that someone would need to get this type of job?" Over-skilled workers are those whose proficiency score is higher than that corresponding to the 95th percentile of self-reported well-matched workers – i.e. workers who neither feel they have the skills to perform a more demanding job nor feel the need of further training in order to be able to perform their current jobs satisfactorily – in their country and occupation. Under-skilled workers are those whose proficiency score is lower than that corresponding to the 5th percentile of self-reported well-matched workers in their country and occupation.
Source: OECD Skills Outlook 2013, on the Survey of Adult Skills (PIAAC) 2012

months. For details and comparison across countries, see Country Notes for OECD Employment Protection Legislation indicators.

46. The decline in earnings potential that follows job separation together with generous unemployment benefits are likely to lead many jobseekers to set an unrealistically high reservation wage. This is particularly likely to be the case for older displaced workers, for whom social benefits may often exceed expected labour earnings after re-employment.[12] Re-employment prospects are hampered by a reservation wage that is out of line job seekers' productivity. This probably helps to explain why older displaced workers are more likely to become inactive after some spells of unemployment than are younger displaced workers.

47. In contrast, the employment prospects of young people are more contingent on the macroeconomic situation. A majority of young people enter the labour market as temporary workers, especially if the macroeconomic situation is weak, earning significantly lower wages with respect to their skills and productivity than do older workers. The macroeconomic situation also affects their re-employment rates and re-entry wages, while individual attributes such as educational attainment have very limited significance.

What policies to be used?

Conditionality approach

48. Job-search monitoring and verification can have a considerable positive impact on re-employment rates. Italy has been among the very few countries that do not verify job search (which is being reformed now, see below). The threat or imposition of sanctions on unemployment insurance recipients are found to shorten benefit claim durations and increase employment take-up by the sanctioned individuals (e.g. Abbring et al., 2005; Lalive et al., 2005; Van den Berg et al., 2004).

Different active labour market programmes

49. An appropriate mix of ALMPs for different kinds of jobseekers is as important as total ALMP spending. One of the central roles of the public employment service (PES) is that of job-broker: matching jobseekers and employers. In Italy, PES involvement in job broking has been quite low (accounting for 2.5% of those who employed staring their job in the preceding year, Figure 15). Meanwhile, spending on the PES placement service has been negligible (Figure 16).

[12] As part of the Jobs Act, a new standard unemployment benefit, *Nuova Assicurazione Sociale per l'Impiego* "NASpI", is in the process of being phased in, replacing and integrating the previous ordinary unemployment benefit and *Indennità di Mobilità* (IM), one of the special benefits (see below). The process will be completed by 2017. There has been a strand of social benefits provided in a sequential way to workers in specific sectors under certain circumstances (see Box 2 in Jin and Lenain, 2015)**.** The Jobs Act also reforms these benefits so as to limit the duration and circumstances under which such benefits are provided.

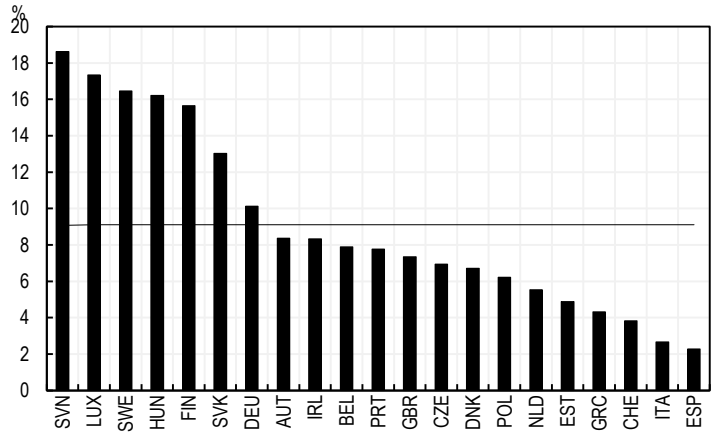
- *Cassa Integrazione Ordinaria*, CIG-O (EUR 1 132 million, estimated 90 000 beneficiaries in 2013), wage supplementation for short-time working scheme (thus not exactly an unemployment benefit), is usually paid for up to 12 months at most, with a replacement ratio of 80%.

- *Cassa Integrazione Straordinaria*, CIG-S (EUR 1 952 million, estimated 140 000 beneficiaries in 2013) is usually paid for 12 to 24 months, possibly extended up to 36 months at maximum, with a replacement ratio of 80%.

- *Indennità di Mobilità*, IM (EUR 1 951 million, 310 000 beneficiaries in 2013), with the duration of the benefit depending on the age of the recipient and on the location of the job. For instance, workers under 40 years old are entitled to this benefit for 12 or 24 months respectively, according to whether they had worked in the Centre-North or the South. The benefit duration is extended up to 36 or 48 months respectively for workers over 50 years old. The benefit amount is 100% of CIG-S for the first 12 months and then reduced to 80%.

Figure 15. **PES involvement in job broking is low in Italy**

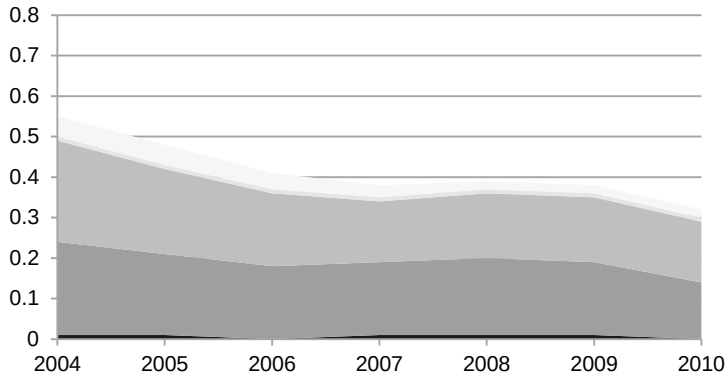
Involvement of the PES at any moment in finding the present job



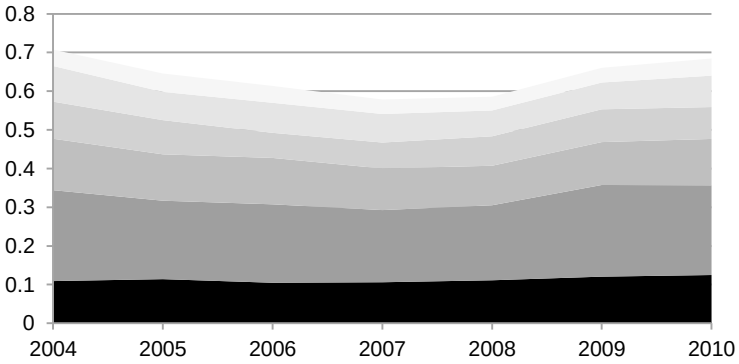
Note: The chart reports the percentage of those employed who have started their job in the last 12 months (25-64) in 2012. See further explanations in OECD Employment Outlook 2015, Chapter 3.
Source: OECD Employment Outlook 2015, Chapter 3.

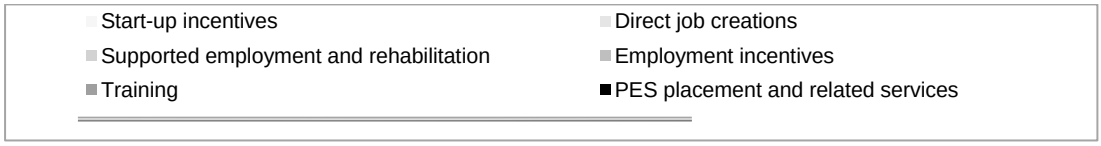
Figure 16. **ALMP spending is relatively low and concentrated on some categories**

A. ALMP spending as a % of GDP, Italy



B. ALMP spending as a % of GDP, EU Average





Source: OECD/Eurostat Labour Market Programme Database

50. In most cases job search assistance seems to work well at early stages of unemployment spells. While jobseekers are still relatively employable, supporting their independent search for work while requiring them to report the outcomes of such efforts (with sanctions for non-compliance) is found to be effective (e.g. Kluve, 2010). Indeed, so-called "work-first" strategies where caseworkers concentrate on rapid job placement rather than placement into training measures have been shown to work in other European countries (e.g. Boockmann et al., 2014a, Lagerstrom, 2011).

51. Additional measures are necessary for jobseekers who remain unemployed after some period of independent job search. For example, referral of jobseekers to vacancies often proves effective in shortening the duration of unemployment spells and filling firms' vacancies rapidly (for e.g. Raisanen and Jarvela (2014) on youth). In fact, the referred jobseekers should be those who would best meet employer needs. This option could be primarily reserved for those who are in precarious employment situations in spite of higher educational attainment or skill and at risk of falling out of the labour market. The scope for better matching seems to be large for this category of jobseekers.

52. The PES needs to concentrate expensive and time-consuming training programmes on jobseekers who are most at risk of becoming long-term unemployed and repeating unemployment. The evaluation of training programmes is mixed but some positive effects on participants' employment and earnings can be observed in the medium term (e.g. Card et al., 2010; Lechner et al., 2011).[13] Such measures should be targeted primarily to youth without solid employment records, who are in the most vulnerable situation. While their remaining active life is long, they are at high risk of low life-time earnings without upward mobility (OECD, 2015).

53. In some cases, more direct measures such as job creation in the public sector could also be envisaged. Such measures could be reserved for hardest-to-place jobseekers, possibly older people with long unemployment spells. The effects of such measures for them to return to work are immediate, and even if subsequent career progressions of the beneficiaries seem to be limited in general (Card et al., 2015), their remaining active life is (very) limited. In addition, the so-called "threat effect" (where jobseekers return to work prior to the programme actually taking place) may be also expected (Cebi et al., 2013).

54. The PES in itself may not be able to handle certain kinds of labour market difficulties, such as targeting those who are not in employment, education or training (NEET). The Italian youth NEET rate is among the highest in Europe and most of them do not have recognisable educational attainment. The NEET tend to compound difficulties in their labour market insertion and standard ALMPs are inefficient for this category of people (OECD, 2010b). Some targeted measures with a more generous education and training programmes are possible, and these could involve the PES and other public institutions, including the education system.

Conclusion

55. This paper looked at dynamics in the Italian labour market in detail – labour turnover, job separation and re-employment, highlighting high costs for workers who either lose a permanent job or are stuck in temporary jobs. It identified educational attainment as a major determinant of labour outcomes:

[13] Due to the data availability, little has been known on effectiveness of ALMPs at the individual level in Italy. However, one recent study (Severati et al, 2015) sheds light on the effectiveness of job training, with a recently developed dataset. They collected data on one specific training programme for youth (in which beneficiaries seem to be more homogenous than in other training programmes) from four regional authorities. Using the propensity score matching method, in order to set up the control group, they find that the beneficiaries of this training programme have a higher chance to find employment at a one- and two-year horizon (though they had a low chance immediately after a couple of months, due to the lock-in effect).

low risk of becoming unemployed among permanent workers and generally better re-employment prospects. It also identified some key institutional deficiencies leading to high unemployment and low labour force participation: temporary contracts causing precarious employment situations for youth (employment protection legislation and dualism), and a high risk of experiencing longer unemployment spells and deteriorations in working conditions for older workers separated from a permanent job (high reservation wages in association with employment protection legislation and unemployment benefits).

56. Since 2014, the government has been implementing "the Jobs Act", a package of labour market reforms. It reforms the segmentation in the labour market so as to reduce the incentive creating a high level of labour market dualism, while rationalising the benefits system to provide adequate income support covering as many workers as possible; it also strengthens activation policies while enforcing a stricter conditionality approach thereby helping people attached to the labour market. The Jobs Act creates the National Employment Agency (*Agenzia Nazionale per l'Impiego*) which will be responsible for assuring an efficient conditionality approach for provision of unemployment benefits and for coordinating ALMPs across regions.

57. In parallel to the Jobs Act, the EU Youth Guarantee scheme has been in force since mid-2014. This activation scheme offers a range of programmes to those who are 15-29 years old within four months after leaving school or being laid off, such as career guidance, education and training courses in addition to providing financial incentives for employers to hire them, thereby facilitating school-to-work transition. An integrated information system has been established to monitor beneficiaries of these programmes. The information system will help identify the most suitable measures for different job seekers. The scheme will eventually extend to other categories of people.

58. The National Employment Agency should identify the appropriate measures for different job seekers in different regions (Jin and Lenain, 2015). In general, the need exists for stricter implementation of benefit eligibility rules to motivate jobseekers to return to work. In terms of PES services, profiling is required to determine who is job-ready and who should be involved in more comprehensive programmes. Those who are job-ready need to quickly return to work before skills are lost, which should be facilitated by job search assistance and a PES job-broking service, possibly accompanied by referrals. More intensive measures, such as job training and direct job creation are costly and should be targeted to some disadvantaged groups or hardest-to-place jobseekers.

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ANNEX 1: REGRESSION RESULTS ON PROBABILITY OF DISMISSAL

A. 2009 dataset (over the period 2005-06 to 2008-09)
Dependent variable: probability of dismissal (1= dismissal, 0= otherwise)

	(1)	(2)	(3)	(4)	(5)
Age: 20s	0.004	0.003	0.003	0.003	0.003
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
Age: 40s	-0.008**	-0.006**	-0.006**	-0.007**	-0.007**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age: 50s	-0.007*	-0.006*	-0.006	-0.007**	-0.007**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Full-time work	-0.032***	-0.027***	-0.026***	-0.029***	-0.029***
	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)
Education: Upper-secondary		-0.008***	-0.007***	-0.006***	-0.006***
		(0.002)	(0.002)	(0.002)	(0.002)
Education: Post-secondary		-0.010***	-0.009***	-0.008***	-0.008***
		(0.002)	(0.002)	(0.002)	(0.002)
Occupation: Associate professionals			0.002	0.001	0.001
			(0.005)	(0.004)	(0.004)
Occupation: Lower categories			-0.003	-0.003	-0.003
			(0.003)	(0.002)	(0.002)
Paid Work: 5-10 yrs	0.005	0.004	0.004	0.005	0.005
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
Paid work: 10-20 yrs	-0.005	-0.006	-0.006	-0.004	-0.004
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Paid work: 20-30 yrs	-0.003	-0.006	-0.005	-0.002	-0.002
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Paid work: more than 30 yrs	-0.002	-0.005	-0.005	-0.001	-0.001
	(0.007)	(0.004)	(0.004)	(0.006)	(0.006)
Women	0.001	0.002	0.003	0.004	0.004
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
Region: North East				-0.002	-0.003
				(0.003)	(0.003)
Region: Centre				0.005	0.004
				(0.004)	(0.004)
Region: South				0.014***	0.012**
				(0.006)	(0.007)
Region: South Islands				0.020***	0.018**
				(0.011)	(0.012)
Year: 2007-08	-0.003	-0.003	-0.002	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Year: 2008-09	0.011***	0.010***	0.010***	0.010***	0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.008)
Control / GDP	No	No	No	No	Yes
Observations	5,474	5,474	5,474	5,474	5,474

Note: Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The table reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is limited to those who were 22 years old and above and below 59 years old in the initial year (i.e. when in employment). The following variables are considered in the analysis:
Age/ 4 age intervals: 20s; 30s; 40s; 50s.
Education/ 3 education levels: lower secondary education and less; upper secondary education; post-secondary education (post-secondary non-tertiary education plus tertiary education).
Region/ 5 regions: North West; North East; Centre; South; South Islands.
Work Experience/ 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time.
Source: OECD estimates based on micro-data from the EU-SILC.

B. 2012 dataset (over the period 2008-09 to 2011-12)

Dependent variable: probability of dismissal (1=dismissal, 0=otherwise)

	(1)	(2)	(3)	(4)	(5)
Age: 20s	-0.007	-0.007	-0.007	-0.005	-0.005
	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)
Age: 40s	-0.011*	-0.010*	-0.008	-0.009**	-0.009**
	(0.006)	(0.005)	(0.005)	(0.004)	(0.004)
Age: 50s	-0.007	-0.002	0.000	-0.004	-0.004
	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)
Full-time work	-0.017**	-0.010	-0.008	-0.008	-0.008
	(0.009)	(0.008)	(0.007)	(0.007)	(0.007)
Education: Upper-secondary		-0.026***	-0.023***	-0.019***	-0.019***
		(0.004)	(0.004)	(0.004)	(0.004)
Education: Post-secondary		-0.024***	-0.017***	-0.015***	-0.015***
		(0.004)	(0.004)	(0.004)	(0.004)
Occupation: Associate professionals			-0.018***	-0.017***	-0.016***
			(0.004)	(0.003)	(0.003)
Occupation: Lower categories			-0.004	-0.003	-0.003
			(0.005)	(0.004)	(0.004)
Paid Work: 5-10 yrs	0.001	-0.001	-0.001	0.003	0.003
	(0.013)	(0.011)	(0.010)	(0.010)	(0.010)
Paid work: 10-20 yrs	-0.013	-0.017	-0.016	-0.011	-0.011
	(0.012)	(0.010)	(0.009)	(0.009)	(0.008)
Paid work: 20-30 yrs	-0.019*	-0.023**	-0.022**	-0.014*	-0.014*
	(0.011)	(0.009)	(0.008)	(0.008)	(0.008)
Paid work: more than 30 yrs	-0.006	-0.015	-0.015	-0.007	-0.006
	(0.013)	(0.008)	(0.007)	(0.009)	(0.008)
Women	-0.008*	-0.004	-0.003	-0.001	-0.001
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Region: North East				-0.006	-0.005
				(0.005)	(0.005)
Region: Centre				0.006	0.009
				(0.006)	(0.007)
Region: South				0.017***	0.025***
				(0.008)	(0.012)
Region: South Islands				0.032***	0.044***
				(0.015)	(0.021)
Year: 2010-11	0.040***	0.035***	0.033***	0.032***	0.013
	(0.008)	(0.008)	(0.007)	(0.007)	(0.013)
Year: 2011-12	0.024***	0.022***	0.021***	0.020***	0.006
	(0.008)	(0.007)	(0.007)	(0.007)	(0.011)
Control / GDP	No	No	No	No	Yes
Observations	4,535	4,535	4,535	4,535	4,535

Note: Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The table reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is limited to those who were 22 years old and above and below 59 years old in the initial year (i.e. when in employment).
The following variables are considered in the analysis:
Age/ 4 age intervals: 20s; 30s; 40s; 50s.
Education/ 3 education levels: lower secondary education and less; upper secondary education; post-secondary education (post-secondary non-tertiary education plus tertiary education).
Region/ 5 regions: North West; North East; Centre; South; South Islands.
Work Experience/ 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time.
Year dummy: the year in which workers were displaced.
Source: OECD estimates based on micro-data from the EU-SILC.

ANNEX 2: REGRESSION RESULTS ON PROBABILITY OF RE-EMPLOYMENT

A. Re-employment at one-year horizon: previously permanent workers

Dependent variable: probability of re-employment (1=re-employed, 0=otherwise)

	(1)	(2)	(3)	(4)
Age: 20s	0.090	0.180	0.187	0.199
	(0.118)	(0.120)	(0.122)	(0.124)
Age: 40s	-0.079	-0.073	-0.085	-0.079
	(0.117)	(0.120)	(0.122)	(0.123)
Age: 50s	-0.099	-0.066	-0.022	0.003
	(0.166)	(0.177)	(0.191)	(0.197)
Previous contract: full-time	-0.103	-0.099	-0.105	-0.123
	(0.105)	(0.108)	(0.109)	(0.111)
Women	-0.031	-0.030	-0.030	-0.044
	(0.086)	(0.087)	(0.090)	(0.091)
Education: upper-secondary		0.061	0.060	0.057
		(0.088)	(0.092)	(0.092)
Education: post-secondary		0.441***	0.449***	0.459***
		(0.107)	(0.106)	(0.106)
Paid work: 5-10 yrs	-0.045	0.039	0.038	0.034
	(0.134)	(0.139)	(0.136)	(0.137)
Paid work: 10-20 yrs	-0.007	0.157	0.168	0.174
	(0.150)	(0.157)	(0.157)	(0.158)
Paid work: 20-30 yrs	-0.073	0.100	0.121	0.114
	(0.185)	(0.203)	(0.209)	(0.210)
Paid work: more than 30 yrs	-0.107	0.055	0.027	0.013
	(0.220)	(0.253)	(0.257)	(0.256)
Region: North East			-0.059	-0.065
			(0.130)	(0.129)
Region: Centre			-0.016	-0.009
			(0.118)	(0.117)
Region: South			0.038	0.078
			(0.115)	(0.123)
Region: South/Islands			-0.091	-0.061
			(0.153)	(0.161)
Year: 2005-06	-0.024	0.004	0.040	0.073
	(0.125)	(0.126)	(0.133)	(0.142)
Year: 2006-07	-0.061	-0.037	-0.039	0.070
	(0.135)	(0.139)	(0.139)	(0.205)
Year: 2007-08	0.003	0.049	0.069	0.324
	(0.123)	(0.125)	(0.129)	(0.321)
Year: 2008-09	-0.176	-0.175	-0.164	-0.127
	(0.105)	(0.107)	(0.110)	(0.125)
Year: 2009-10	-0.045	-0.067	-0.048	0.021
	(0.149)	(0.154)	(0.162)	(0.190)
Control: regional GDP	No	No	No	Yes
Observations	180	180	180	180

Note: Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The table reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is also limited to those who were 22 years old and above and 57 years old and below in the initial year (i.e. when in employment).
Age: 4 age intervals: 20s; 30s; 40s; 50s.
Education: 3 education levels: primary education + lower secondary education; upper secondary education; post-secondary non-tertiary education + tertiary education.
Region: 3 regions: North West + North East; Centre; South + Islands.
Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time.

Source: OECD estimates based on micro-data from the EU-SILC.

B. Re-employment at two-year horizon: previously permanent workers

Dependent variable: probability of re-employment (1=re-employed, 0=otherwise)

	(1)	(2)	(3)	(4)
Age: 20s	-0.064	0.023	0.031	0.046
	(0.119)	(0.127)	(0.127)	(0.130)
Age: 40s	-0.143	-0.144	-0.158	-0.155
	(0.120)	(0.124)	(0.125)	(0.126)
Age: 50s	-0.347**	-0.328*	-0.354*	-0.327*
	(0.144)	(0.160)	(0.158)	(0.165)
Previous contract: full-time	-0.077	-0.071	-0.068	-0.096
	(0.104)	(0.107)	(0.108)	(0.109)
Women	-0.032	-0.021	0.003	-0.021
	(0.087)	(0.090)	(0.092)	(0.093)
Education: upper-secondary		0.067	0.096	0.095
		(0.088)	(0.091)	(0.092)
Education: post-secondary		0.497***	0.498***	0.507***
		(0.066)	(0.064)	(0.060)
Paid work: 5-10 yrs	-0.066	0.022	0.041	0.034
	(0.137)	(0.145)	(0.147)	(0.148)
Paid work: 10-20 yrs	-0.098	0.075	0.098	0.110
	(0.152)	(0.164)	(0.166)	(0.168)
Paid work: 20-30 yrs	-0.050	0.131	0.189	0.185
	(0.191)	(0.197)	(0.195)	(0.198)
Paid work: more than 30 yrs	-0.016	0.163	0.225	0.204
	(0.251)	(0.241)	(0.232)	(0.238)
Region: North East			0.015	0.003
			(0.134)	(0.134)
Region: Centre			-0.035	-0.025
			(0.123)	(0.122)
Region: South			0.102	0.162
			(0.118)	(0.123)
Region: South/Islands			0.127	0.184
			(0.158)	(0.153)
Year: 2005-06	-0.039	-0.005	0.008	0.056
	(0.130)	(0.133)	(0.138)	(0.144)
Year: 2006-07	-0.009	0.024	0.017	0.181
	(0.143)	(0.146)	(0.147)	(0.188)
Year: 2007-08	-0.001	0.047	0.064	0.403*
	(0.130)	(0.131)	(0.133)	(0.235)
Year: 2008-09	-0.182	-0.191	-0.183	-0.120
	(0.114)	(0.119)	(0.122)	(0.137)
Year: 2009-10	-0.042	-0.055	-0.057	0.048
	(0.156)	(0.161)	(0.165)	(0.188)
Control: regional GDP	No	No	No	Yes
Observations	178	178	178	178

Note: Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The table reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is also limited to those who were 22 years old and above and 57 years old and below in the initial year (i.e. when in employment).
Age: 4 age intervals: 20s; 30s; 40s; 50s.
Education: 3 education levels: primary education + lower secondary education; upper secondary education; post-secondary non-tertiary education + tertiary education.
Region: 3 regions: North West + North East; Centre; South + Islands.
Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time.

Source: OECD estimates based on micro-data from the EU-SILC.

C. Re-employment at one-year horizon: previously temporary workers

Dependent variable: probability of re-employment (1=re-employed, 0=otherwise)

	(1)	(2)	(3)	(4)
Age: 20s	-0.044	-0.055	-0.042	-0.060
	(0.105)	(0.104)	(0.107)	(0.108)
Age: 40s	0.052	0.043	0.065	0.039
	(0.133)	(0.135)	(0.138)	(0.144)
Age: 50s	-0.050	-0.040	-0.016	-0.011
	(0.177)	(0.176)	(0.185)	(0.187)
Previous contract: full-time	0.057	0.068	0.086	0.090
	(0.095)	(0.096)	(0.096)	(0.096)
Women	-0.006	-0.012	0.024	0.020
	(0.088)	(0.089)	(0.099)	(0.099)
Education: upper-secondary		0.104	0.136	0.145
		(0.095)	(0.097)	(0.098)
Education: post-secondary		0.049	0.053	0.057
		(0.121)	(0.123)	(0.123)
Paid work: 5-10 yrs	-0.026	-0.015	0.019	0.008
	(0.124)	(0.125)	(0.128)	(0.131)
Paid work: 10-20 yrs	-0.116	-0.096	-0.077	-0.082
	(0.147)	(0.152)	(0.158)	(0.158)
Paid work: 20-30 yrs	-0.097	-0.047	-0.013	-0.027
	(0.213)	(0.222)	(0.223)	(0.225)
Paid work: more than 30 yrs	0.095	0.125	0.194	0.171
	(0.252)	(0.248)	(0.240)	(0.249)
Region: North East			-0.159	-0.149
			(0.163)	(0.162)
Region: Centre			-0.099	-0.076
			(0.160)	(0.163)
Region: South			-0.120	-0.059
			(0.146)	(0.164)
Region: South/Islands			0.010	0.065
			(0.163)	(0.173)
Year: 2005-06	-0.236	-0.246*	-0.250*	-0.222
	(0.139)	(0.139)	(0.141)	(0.150)
Year: 2006-07	-0.105	-0.107	-0.091	0.045
	(0.145)	(0.145)	(0.150)	(0.220)
Year: 2007-08	-0.159	-0.170	-0.172	0.105
	(0.135)	(0.137)	(0.138)	(0.350)
Year: 2008-09	-0.276**	-0.293**	-0.291**	-0.254*
	(0.122)	(0.121)	(0.126)	(0.139)
Year: 2009-10	-0.321**	-0.327**	-0.311**	-0.251
	(0.119)	(0.118)	(0.124)	(0.151)
Control: regional GDP	No	No	No	Yes
Observations	162	162	162	162

Note: Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The table reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is also limited to those who were 22 years old and above and 57 years old and below in the initial year (i.e. when in employment).
Age: 4 age intervals: 20s; 30s; 40s; 50s.
Education: 3 education levels: primary education + lower secondary education; upper secondary education; post-secondary non-tertiary education + tertiary education.
Region: 3 regions: North West + North East; Centre; South + Islands.
Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time
Source: OECD estimates based on micro-data from the EU-SILC.

D. Re-employment at two-year horizon: previously temporary workers

Dependent variable: probability of re-employment (1=re-employed, 0=otherwise)

	(1)	(2)	(3)	(4)
Age: 20s	-0.036	-0.054	-0.049	-0.066
	(0.101)	(0.101)	(0.104)	(0.105)
Age: 40s	0.058	0.037	0.046	0.021
	(0.123)	(0.126)	(0.128)	(0.133)
Age: 50s	-0.027	-0.018	-0.042	-0.037
	(0.175)	(0.170)	(0.182)	(0.183)
Previous contract: full-time	0.186**	0.193**	0.208**	0.211**
	(0.092)	(0.094)	(0.095)	(0.095)
Women	-0.038	-0.052	-0.011	-0.013
	(0.081)	(0.082)	(0.088)	(0.089)
Education: upper-secondary		0.122	0.143	0.150
		(0.085)	(0.086)	(0.086)
Education: post-secondary		0.105	0.099	0.100
		(0.108)	(0.111)	(0.110)
Paid work: 5-10 yrs	0.100	0.118	0.141	0.130
	(0.114)	(0.116)	(0.118)	(0.120)
Paid work: 10-20 yrs	-0.006	0.028	0.055	0.050
	(0.138)	(0.140)	(0.145)	(0.147)
Paid work: 20-30 yrs	0.083	0.143	0.170	0.161
	(0.184)	(0.169)	(0.160)	(0.166)
Paid work: more than 30 yrs	0.135	0.171	0.241	0.227
	(0.210)	(0.191)	(0.153)	(0.164)
Region: North East			-0.034	-0.023
			(0.155)	(0.154)
Region: Centre			0.022	0.041
			(0.146)	(0.146)
Region: South			-0.091	-0.038
			(0.139)	(0.154)
Region: South/Islands			0.109	0.148
			(0.139)	(0.140)
Year: 2005-06	-0.201	-0.208	-0.215	-0.185
	(0.158)	(0.160)	(0.162)	(0.167)
Year: 2006-07	-0.162	-0.164	-0.125	-0.005
	(0.149)	(0.153)	(0.155)	(0.210)
Year: 2007-08	-0.283**	-0.303**	-0.314**	-0.063
	(0.138)	(0.142)	(0.143)	(0.359)
Year: 2008-09	-0.223*	-0.249*	-0.226*	-0.190
	(0.133)	(0.135)	(0.139)	(0.149)
Year: 2009-10	-0.313**	-0.320**	-0.323**	-0.265
	(0.136)	(0.135)	(0.141)	(0.164)
Control: regional GDP	No	No	No	Yes
Observations	160	160	160	160

Note: Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. The table reports the marginal effects calculated from a probit model estimated from a sample of employees using EU-SILC data.
The analysis is also limited to those who were 22 years old and above and 57 years old and below in the initial year (i.e. when in employment).
Age: 4 age intervals: 20s; 30s; 40s; 50s.
Education: 3 education levels: primary education + lower secondary education; upper secondary education; post-secondary non-tertiary education + tertiary education.
Region: 3 regions: North West + North East; Centre; South + Islands.
Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.
Occupations: 3 categories: Senior officials, managers, and professionals (ISCO 11-19 + 21-29); Technicians and associate professionals (ISCO 31-39); low categories (ISCO 41-49, 51-59, 71-79, ISCO 81-89, ISCO 91-99), excluding the agriculture, forestry and fishery sectors (ISCO 61-69).
Contract type: 2 types: full-time; part-time.
Source: OECD estimates based on micro-data from the EU-SILC.

ANNEX 3: REGRESSION RESULTS ON EARNINGS DIFFERENTIAL AFTER RE-EMPLOYMENT

Earnings differential: re-employed workers 1 or 2 years after separation, permanent and full-time workers

Dependent variable: Real hourly wages in logarithm

	(1) Age 20-59	(2) Age 30-59	(3) Age 40-59	(1A) Age 20-59; HE	(2A) Age 30-59; HE
D: Earnings differential: re-employed workers 1 year after separation	-0.115	-0.316***	-0.413**	-0.213**	-0.214***
	(0.161)	(0.119)	(0.173)	(0.083)	(0.083)
D: Earnings differential: re-employed workers 2 years after separation	-0.206**	-0.265***	-0.373***	-0.176	-0.176
	(0.088)	(0.090)	(0.095)	(0.123)	(0.123)
Age: 20s	-0.008			0.029	
	(0.012)			(0.030)	
Age: 40s	-0.007	-0.004		0.019	0.020
	(0.007)	(0.007)		(0.015)	(0.015)
Age: 50s	-0.016*	-0.010	0.001	0.020	0.022
	(0.010)	(0.010)	(0.006)	(0.023)	(0.023)
Paid work: 5-10 yrs	0.010	0.007	0.021	0.007	0.009
	(0.009)	(0.014)	(0.037)	(0.018)	(0.020)
Paid work: 10-20 yrs	0.008	0.007	0.008	-0.000	0.002
	(0.010)	(0.014)	(0.036)	(0.020)	(0.022)
Paid work: 20-30 yrs	0.003	0.004	0.008	-0.014	-0.012
	(0.011)	(0.015)	(0.036)	(0.023)	(0.025)
Paid work: more than 30 yrs	-0.003	-0.001	0.007	-0.011	-0.008
	(0.013)	(0.016)	(0.037)	(0.028)	(0.029)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Control: regional GDP	Yes	Yes	Yes	Yes	Yes
Constant	2.338***	2.370***	2.423***	2.528***	2.553***
	(0.011)	(0.015)	(0.037)	(0.022)	(0.024)
Observations	36,539	33,456	23,888	8,147	7,617

Re-employed workers 1 year after displacement: 2nd year following re-employment

	(1) Age 20-59	(2) Age 30-59	(3) Age 40-59	(1A) Age 20-59; HE	(2A) Age 30-59; HE
D: Earnings differential: re-employed workers 2 years after separation	-0.224**	-0.275***	-0.332***	-0.161	-0.161
	(0.098)	(0.097)	(0.096)	(0.179)	(0.179)

Re-employed workers 2 years after displacement: 1st year following re-employment

	(1) Age 20-59	(2) Age 30-59	(3) Age 40-59	(1A) Age 20-59; HE	(2A) Age 30-59; HE
D: Earnings differential: re-employed workers 2 years after separation	-0.126	-0.225	-0.688***	-0.209***	-0.207***
	(0.197)	(0.234)	(0.007)	(0.015)	(0.015)

Note: Equations "HE" (High education) limit the sample to those who attained post-secondary level of education.

Asterisks (***, **, *) indicate the significance level (1%, 5%, 10%) of the coefficients. Hourly wages in real terms are estimated by the fixed effect model.

The analysis is also limited to those who were 22 years old and above and 59 years old and below in the initial year (i.e. when in employment).

Age: 4 age intervals: 20s; 30s; 40s; 50s.

Work Experience: 5 job tenure intervals: 1-4 years; 5-9 years; 10-19 years; 20-29 years; 30 years or more.

Source: OECD estimates based on micro-data from the EU-SILC.

ANNEX 4: QUANTILE REGRESSIONS ON DETERMINANT OF WAGES

This annex examines how different individual characteristics affect wages in some details. It takes into account such individual observable characteristics as gender, age, education, and region as well as the type of contract.

Table 2. **Individual characteristics affect wages differently**

	Coef.	[95% Conf. Interval]	
Male	0.20***	0.19	0.21
	(0.01)		
Age: 25-45	- 0.02**	- 0.04	0.00
	(0.01)		
Age: 35-45	0.09***	0.07	0.10
	(0.01)		
Age: 45-55	0.19***	0.17	0.21
	(0.01)		
Age: 55-65	0.22***	0.19	0.25
	(0.01)		
Region: South	- 0.14***	- 0.15	- 0.12
	(0.01)		
Region: Islands	- 0.11***	- 0.13	- 0.09
	(0.01)		
Region: North East	- 0.03***	- 0.05	- 0.02
	(0.01)		
Region: Centre	- 0.05***	- 0.07	- 0.03
	(0.01)		
Education: Primary	- 0.33***	- 0.36	- 0.30
	(0.01)		
Education: Lower secondary	- 0.19***	- 0.21	- 0.18
	(0.01)		
Education: Tertiary education	0.25***	0.23	0.26
	(0.01)		
Temporary Contracts	- 0.38***	- 0.40	- 0.36
	(0.01)		
Control: Year dummies	Yes	0.00	0.03
Control: Family structure	Yes	0.13	0.16
		0.05	0.11
Constant	7.98***	7.91	8.05
	(0.04)		
Number of obs	22,648		
F(19, 22628)	552.58		
Prob > F	0.00		
R-squared	0.32		
Adj R-squared	0.32		
Root MSE	0.43		

Source: European Union Statistics on Income and Living Conditions (EU SILC).

The dependent variable is real hourly wages. For those who did not work all year long, earnings were adjusted taking account of the number of months in work. The sample was restricted to the individuals who were in the labour force for at least two consecutive years in the period 2008-2011. Year dummies are introduced to take in account of the economic cycle.

It seems that at least some variables affect wages differently throughout the wage distribution. To formalise the analysis, the wage equation was also estimated by quantile regressions.

The quantile regression focuses on the αth quantile of the conditional distribution of Y given $\boldsymbol{X}$, that is $Q_\alpha[Y|\boldsymbol{X}]$. The least-absolute-deviations (LAD) estimator for the quantile regression instead minimises the following quantity

$$\sum_{i:y_i \geq \hat{y}_i} q_\alpha(y_i - \hat{y}_i) + \sum_{i:y_i < \hat{y}_i} (1 - q_\alpha)(\hat{y}_i - y_i)$$

The quantile regression does not need any assumption on the distribution of the error and is more robust in case of outliers or non-normal distributed error. Moreover the analysis of the coefficient for different quantiles can give an idea of how the relationships may be different in different part of the distribution.

The results show that:

- Tertiary education, for example, is associated with higher income throughout the wage distribution, but much more so toward the high end of the distribution;

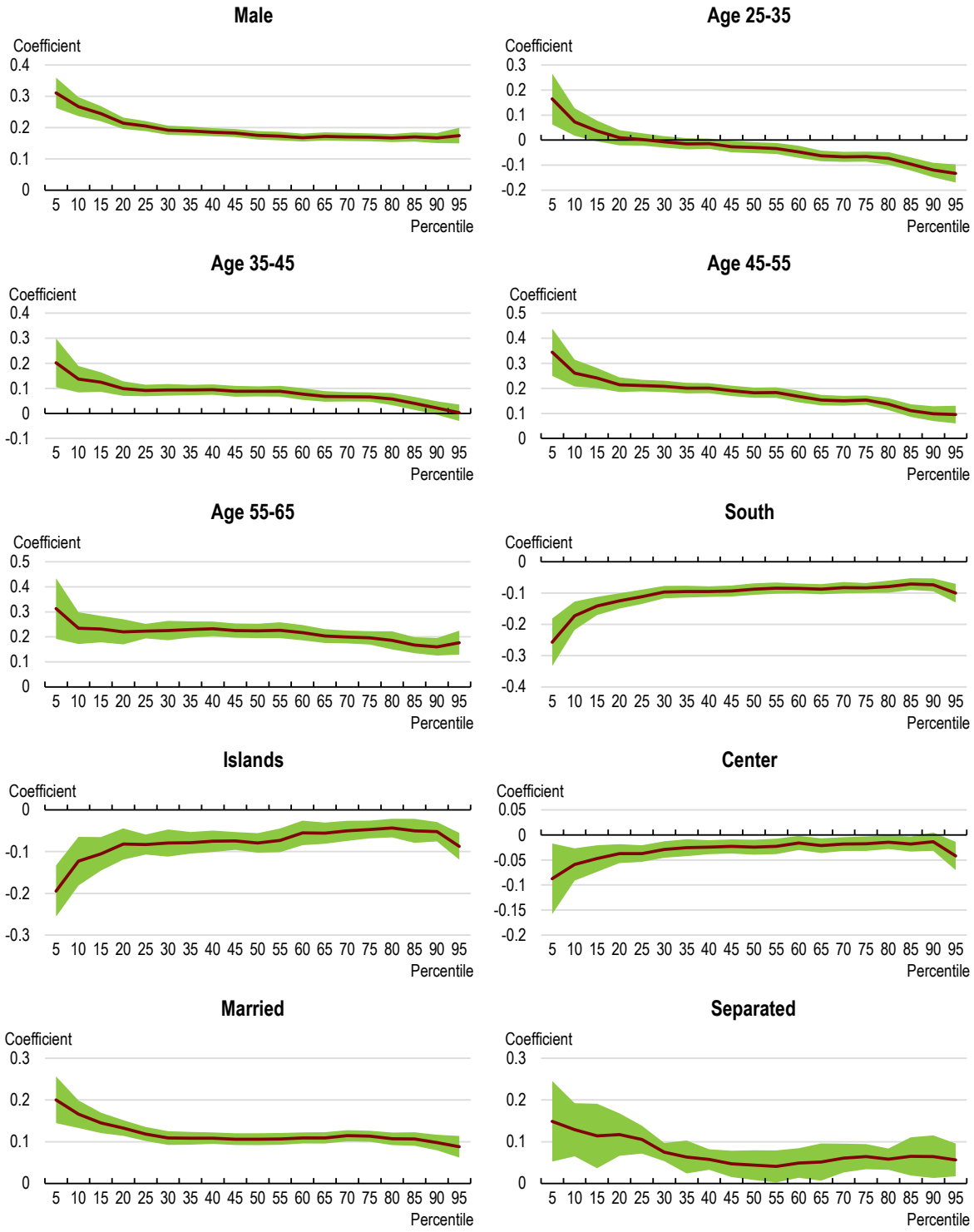
- Old age (Age 45-54 and Age 55-65) is also associated with higher income throughout the distribution, which is even more so toward the low end of the distribution;

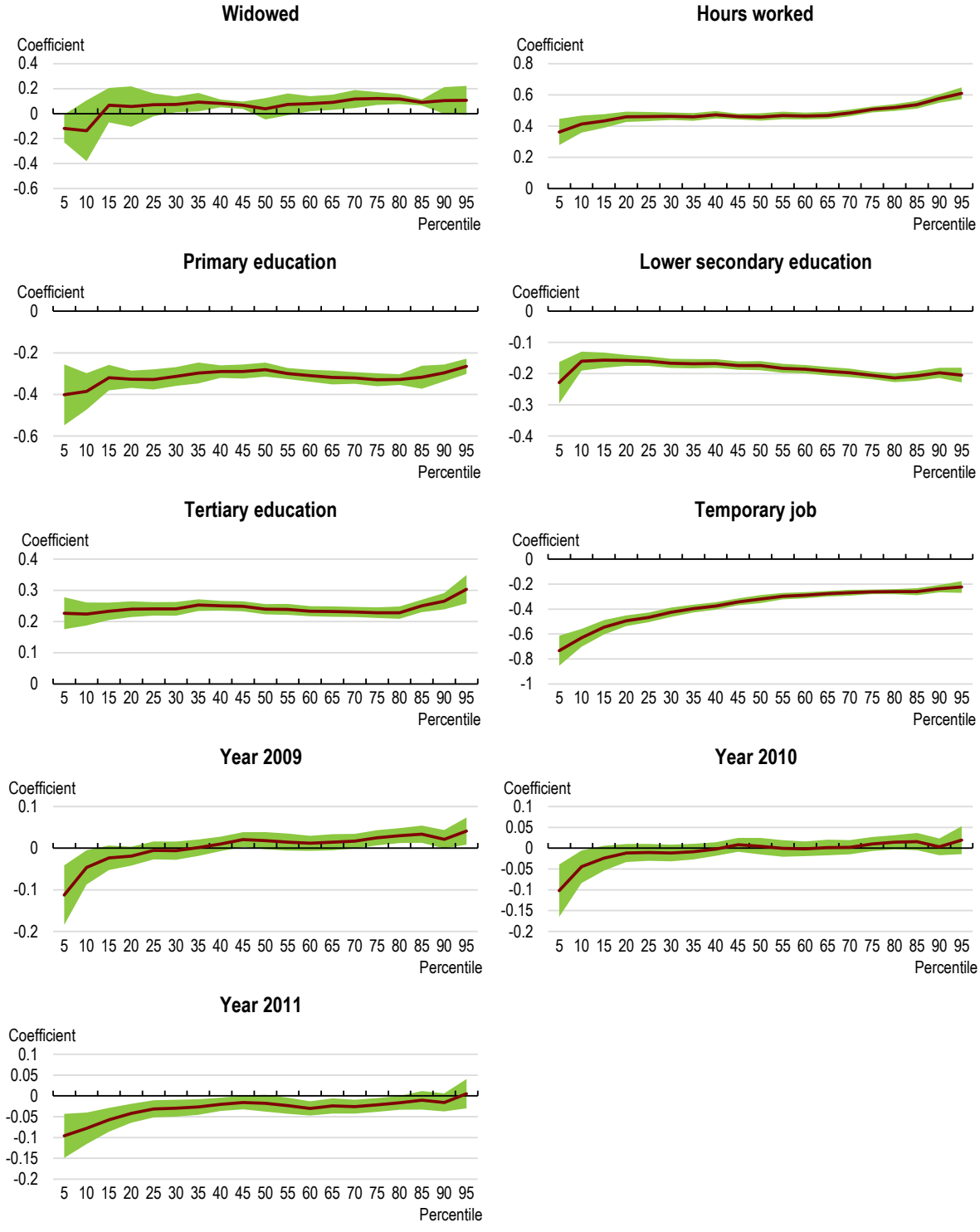
- In contrast, region dummies such as South and Islands is associated with lower income throughout the distribution, but it is more relevant toward the low end of the distribution;

- The gender gap in wages is likely to be more heightened toward the low end of the distribution; and

- The importance of earnings gap between permanent workers and temporary workers is more relevant at the low end of distribution (i.e. wages are more negatively affected by the fact that workers are with temporary contracts).

Figure 17. **Individual characteristics have different effects on wages throughout the distribution**




Widowed
Coefficient
0.4
0.2
0
-0.2
-0.4
-0.6
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Hours worked
Coefficient
0.8
0.6
0.4
0.2
0
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Primary education
Coefficient
0
-0.2
-0.4
-0.6
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Lower secondary education
Coefficient
0
-0.1
-0.2
-0.3
-0.4
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Tertiary education
Coefficient
0.4
0.3
0.2
0.1
0
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Temporary job
Coefficient
0
-0.2
-0.4
-0.6
-0.8
-1
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Year 2009
Coefficient
0.1
0
-0.1
-0.2
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Year 2010
Coefficient
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile
Year 2011
Coefficient
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Percentile