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Enhancing employability and skills to meet labour market needs in Italy

Paula Garda

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ENHANCING EMPLOYABILITY AND SKILLS TO MEET LABOUR MARKET NEEDS IN ITALY
ECONOMIC DEPARTMENT WORKING PAPERS No. 1401

By Paula Garda

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Abstract/Résumé

Enhancing employability and skills to meet labour market needs in Italy

The various deficiencies of the labour market and the educational system have resulted in high unemployment, low labour force participation, low skills levels and high skill mismatch. Job creation is key to tackling the high unemployment rates, especially for the young and long-term unemployed. Promoting jobs without paying attention to their quality and to the skills required by employers may have adverse impact on welfare and productivity. The Jobs Act and Good School (“Buona Scuola”), two major reforms of the labour market and the educational system, are good steps in the right direction. The Jobs Act and the temporary social security contribution exemptions have contributed to raise employment. By strengthening job search and training policies, the Jobs Act can enhance jobseekers’ employability. Increasing the effectiveness of public employment services, given the low spending level, remains a challenge. The Good School reform has the potential to improve school outcomes and provide more aligned skills to the job market. Increasing employability by upgrading skills that match employer needs remains a priority. Business involvement in education and training institutions at all educational levels will be paramount to ensure the provision of relevant skills, the availability of traineeship and apprenticeship places and provide on-the-job training. The adaptability of skills could be encouraged by lowering barriers to labour mobility and boosting work-based learning.

This Working Paper relates to the 2017 *OECD Economic Survey of Italy* (www.oecd.org/eco/surveys/economic-survey-italy.htm).

JEL codes: I20, I28, J21, J24, J48

Keywords: labour market, unemployment, skills, education

Améliorer l’employabilité et les compétences pour répondre aux besoins du marché du travail en Italie

Chômage élevé, faiblesse du taux d’activité et des niveaux de compétences et importance de l’inadéquation entre l’offre et la demande de compétences sont le résultat de diverses défaillances affectant le marché du travail et le système éducatif. Il est indispensable de créer des emplois pour essayer de s’attaquer au niveau élevé du chômage, en particulier chez les jeunes et les chômeurs de longue durée. Favoriser la création d’emplois sans tenir compte de leur qualité et des compétences requises par les employeurs risque d’avoir des conséquences négatives sur le bien-être et la productivité. Le Jobs Act et la réforme scolaire (« *Buona Scuola* »), deux grandes réformes axées respectivement sur le marché du travail et le système éducatif, vont dans la bonne direction. Les mesures prévues par le Jobs Act et les exonérations temporaires de cotisations sociales ont contribué à une hausse de l’emploi. En renforçant les mesures relatives à la recherche d’emploi et à la formation, le Jobs Act peut améliorer l’employabilité des demandeurs d’emploi. Rendre plus efficaces les services publics de l’emploi, dans un contexte de faiblesse des dépenses, reste un défi. La réforme scolaire est, en puissance, porteuse d’améliorations des résultats en matière d’éducation et d’une meilleure adéquation entre les compétences et le marché du travail. Développer l’employabilité en portant les compétences à des niveaux correspondant aux besoins des employeurs reste une priorité. Associer les entreprises aux établissements d’enseignement et de formation à tous les niveaux scolaires sera fondamental pour assurer la mise à disposition des compétences requises, l’offre de postes destinés à des stagiaires ou des apprentis et la disponibilité de formations en cours d’emploi. L’adaptabilité des compétences pourrait être accrue par le développement de qualifications transférables, grâce à une réduction des obstacles à la mobilité de la main-d’œuvre et à des mesures visant à favoriser la formation en milieu professionnel.

Ce Document de travail se rapporte à l’*Étude économique de l’OCDE de l’Italie* (www.oecd.org/fr/eco/etudes/etude-economique-italie.htm).

JEL codes: I20, I28, J21, J24, J48

Keywords: marché de travail, emploi, éducation

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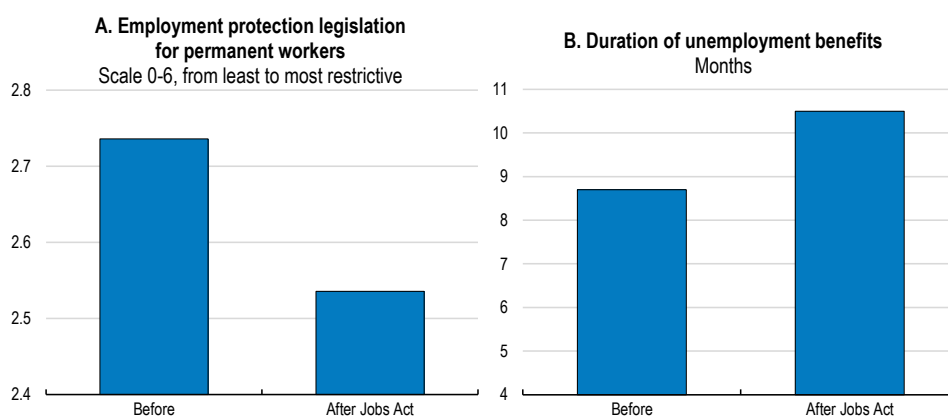
ENHANCING EMPLOYABILITY AND SKILLS TO MEET LABOUR MARKET NEEDS IN ITALY

By Paula Garda¹

The Italian labour market faces several challenges: increasing employment levels, especially for women and youth, enhancing skills to meet labour market needs and reducing regional disparities. Unemployment has started decreasing but is still high compared to other OECD countries, especially among youth. Long-term unemployed represents a high share of those without a job. Despite recent progress, labour force participation is still low, notably among women and in southern regions. The duality of the labour market, with some workers benefiting from stringent protection legislation and others having precarious or less protected jobs, has led to increased inefficiency and inequality. The mismatch between the supply and demand of skills is significant and under-skilling is particularly worrisome, highlighting not only a disconnection between the available and needed skills in the job market, but also a low level of available skills.

The government introduced and is implementing two major reforms in the labour market and the educational system – the Jobs Act and the Good School. The Jobs Act aims at tackling labour-market duality, increasing flexibility while strengthening job search and training policies. The Jobs Act has brought Italy closer to a “flexicurity” approach (Figure 1), by enhancing, at the same time, flexibility and security in the labour market. The Jobs Act together with social security contribution exemptions have contributed to raise employment. The Good School reform seeks to improve education outcomes and skills of the Italian work force by increasing autonomy of school governance, giving incentives to teachers for career development, fostering digitalisation, and strengthening the link between school and work.

Figure 1. The Jobs Act has made the labour market more flexible and improved the unemployment benefit system



Notes: After Jobs Act refers to year 2015. Panel A shows employment protection legislation for permanent workers against individual dismissals, preliminary estimations made by the OECD for the purpose of this survey. Duration of unemployment benefits is calculated by INPS (2016).

Source: OECD calculations and INPS 2016.

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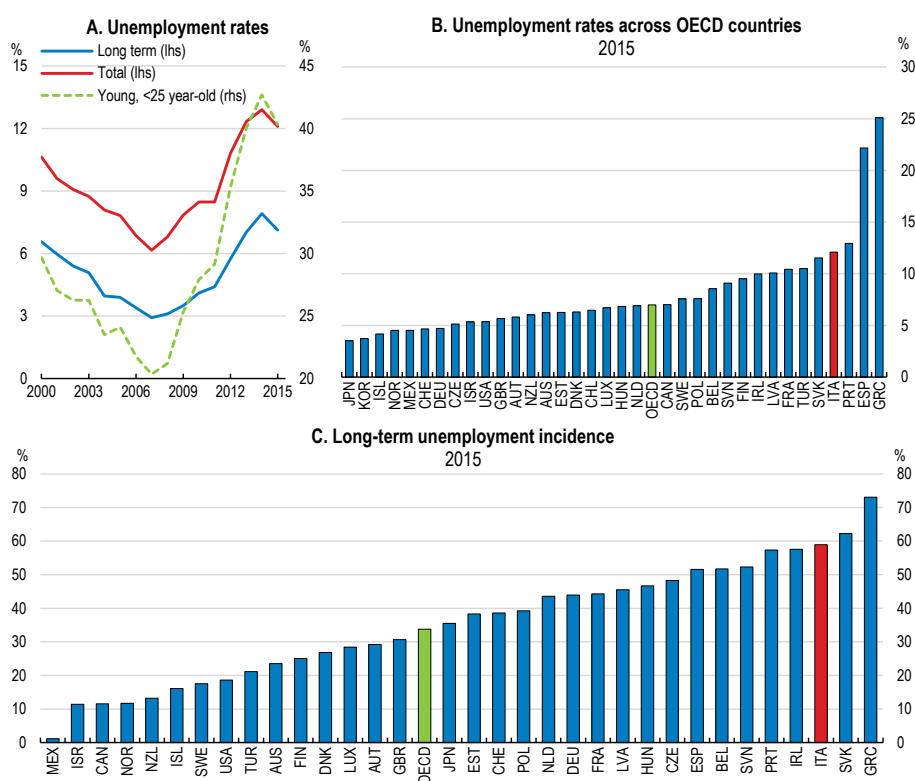
A fully implemented Jobs Act and Good School could increase employability of the Italian workforce by increasing the efficient allocation of skills and upgrading the skills of Italians, matching them to the employer's needs. The reforms can promote more and better quality jobs, and improve the distribution of the benefits of growth. The measures will help to boost long-term labour productivity associated with better labour outcomes and efficient allocation. This paper assesses how well the government's reforms of the labour market and educational system tackle labour market challenges and what further measures are necessary.

The Italian labour market faces several challenges

Unemployment rates are still high and participation rates are low, especially for women and the South

The unemployment rate started falling in 2015, but is the fourth highest in the OECD (Figure 2). The young suffer the most, with nearly 40% of the economically active young population being unemployed.

Figure 2. Unemployment rates are decreasing, but are still high, especially for youth and the long-term unemployed



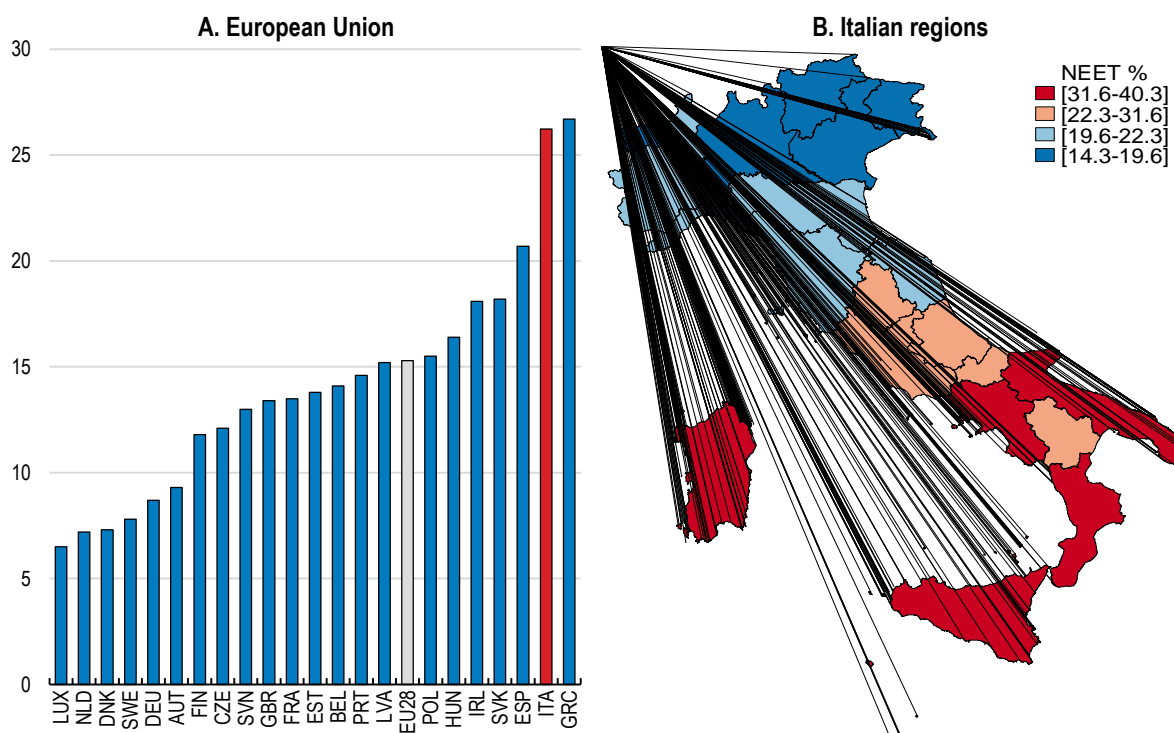
Note: Total refers to age 15-64. Long-term unemployment is defined as unemployment lasting 12 months or more.
Source: OECD Labour Force Statistics database, June, 2016

Unemployment spells of more than one year represented 60% of total unemployment (Figure 2, Panel C). The crisis has widened disparities for the most disadvantaged demographic groups. Individuals living in the south of the country, young and less educated saw their situation disproportionately worsen compared to other groups (Adda and Triggari, 2016).

Young entering the labour market in Italy may have to wait a long time before getting an employment. Italy has the second highest proportion of young people not in education, employment or

training in the OECD (Figure 3). More than 30% of young people between 15 and 29 years old spend more than a year not in education and unemployed or inactive, one of the highest waiting times among OECD countries (OECD, 2016f). There is also a wide gap between the north and south of the country (Figure 3).

Figure 3. **Too many young in Italy do not work or participate in training or study**
Share of population aged 15-29 who were neither in employment nor in education or training (NEET) in 2014

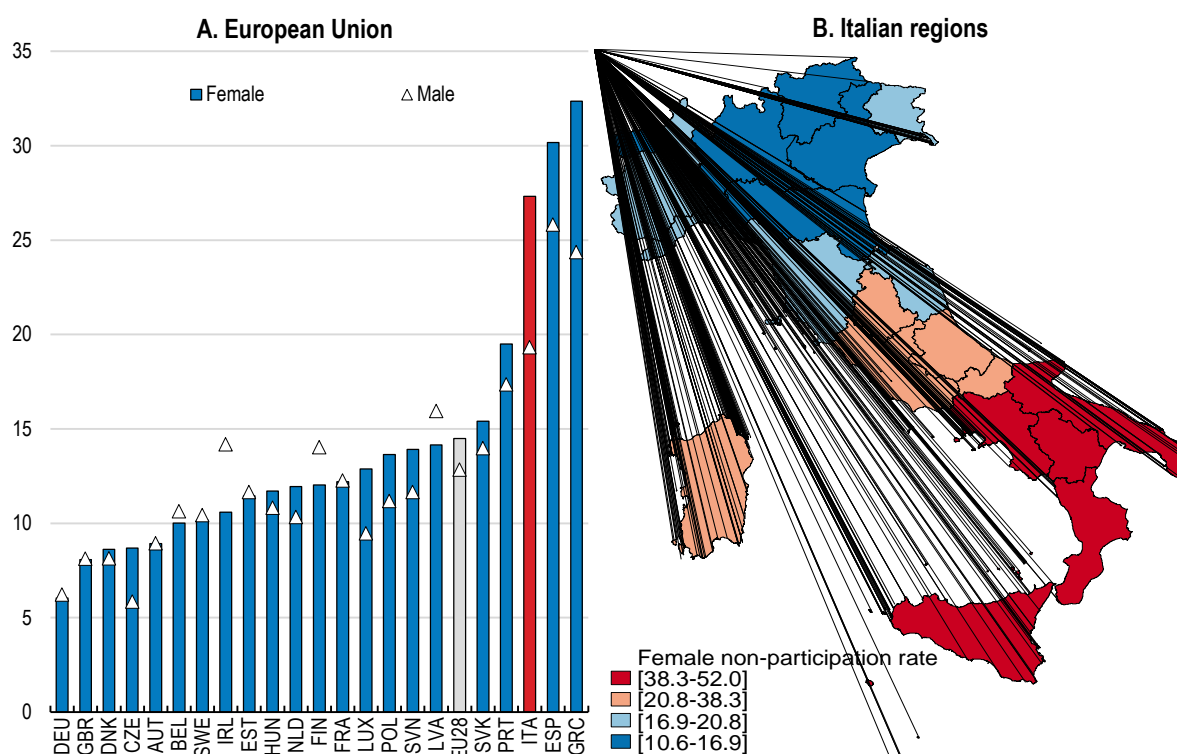


Notes: Colours in the map represent quartiles of the share of the NEET distribution, red being the highest quartile and dark blue the lowest quartile.
Source: ISTAT, NOI-ITALIA Database, 2016

Non-participation rates for Italian women are the third highest in European countries, being especially high in southern regions where non-participation rates are larger than 50% (Figure 4). This is strongly influenced by social norms, including responsibility for caring for children or older family members. Only 24% of Italian children up to three years old are enrolled in formal childcare, against the OECD average of 33%. The government recently took measures to support female employment by increasing child care facilities, work-life balance and introducing a tax credit for low-income working mothers. However, measures to increase services for the elderly and making the tax system more second-earner supportive are necessary to boost female employment rates.

A large share of the working age population encounters labour-market difficulties (40% of the 18-64 years-olds which are not in full-time education). Employability barriers are related to insufficient work-related capabilities, lack of financial incentives to look for a job (such as, low potential pay or relatively generous out-of-work benefits) or scarce job opportunities (Browne et. al, 2016). The most common problems include low education and low professional skills, each faced by at least half of the out of work or with weak labour market attachment, highlighting the need for skills-upgrading.

Figure 4. **Non-participation rates are especially high for women and in southern regions**
Population aged 15-74 unemployed and inactive not searching for work but able to work as percentage of total population



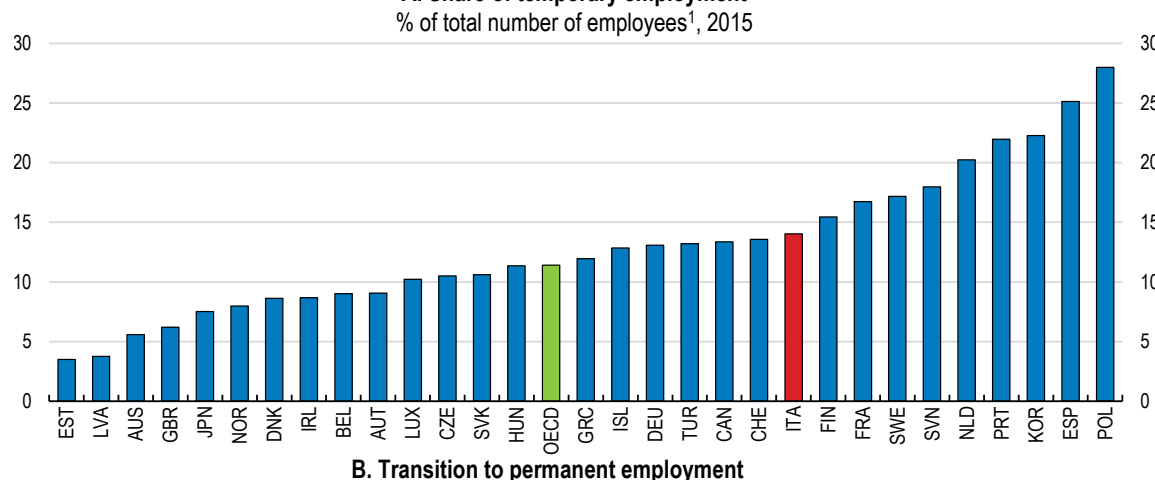
Notes: Colours in the map represent the quartiles of the female non-participation rates distribution, red being the highest quartile and dark blue the lowest quartile.

Source: ISTAT NOI-Italia Database 2016

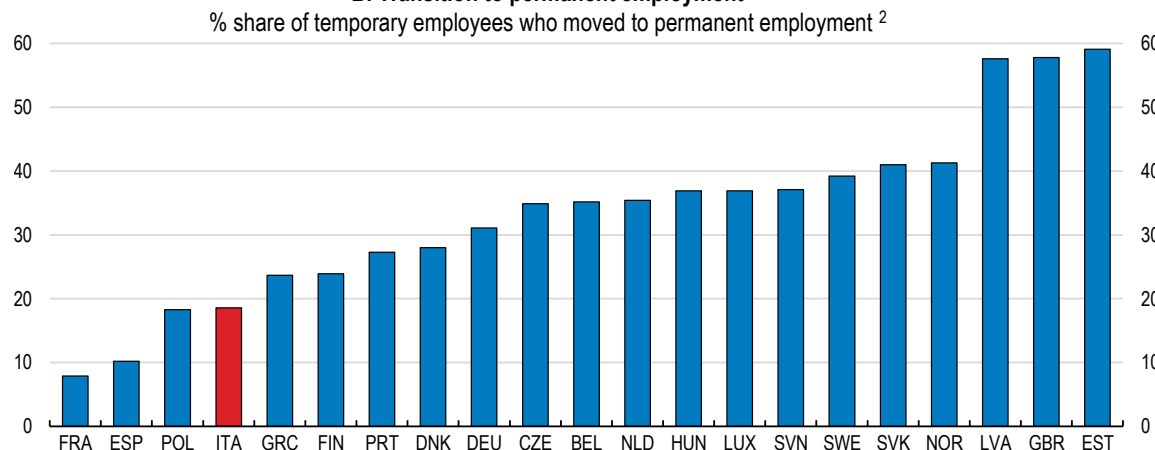
High labour market duality

Stringent employment protection for permanent jobs accompanied by low protection for temporary ones has resulted in a dual labour market. The percentage of temporary workers in Italy is high, compared to the OECD average (Figure 5). The majority of young people, including the highly-educated, hold temporary contracts – 60% of these contracts are held by workers aged 15-24. Temporary workers typically face a wage penalty, weaker earnings growth, lower job stability, and they suffer from high job strain (OECD, 2015c and Hijzen and Menyhert, 2016). 70% of job creation took the form of temporary contracts in 2014 according to INPS data, the National Institute of Social Security, and transitions from temporary to permanent status are limited (Figure 5, panel B). This implies that temporary contracts are not used as part of entry to permanent contracts, but as an alternative form of employment used by employers to increase flexibility (Berton et al., 2011).

Figure 5. **The share of temporary contracts is high and the transition rate to permanent contracts low**
A. Share of temporary employment



B. Transition to permanent employment



1. Data refer to those aged 15 years and over.

2. 2014 for Belgium, the Czech Republic, Estonia, France, Germany, Greece, Italy, Luxembourg, Norway, Poland, Slovenia, Sweden, the United Kingdom and the EU28 aggregate. 2013 for Denmark and Iceland. 2012 for the Slovak Republic.

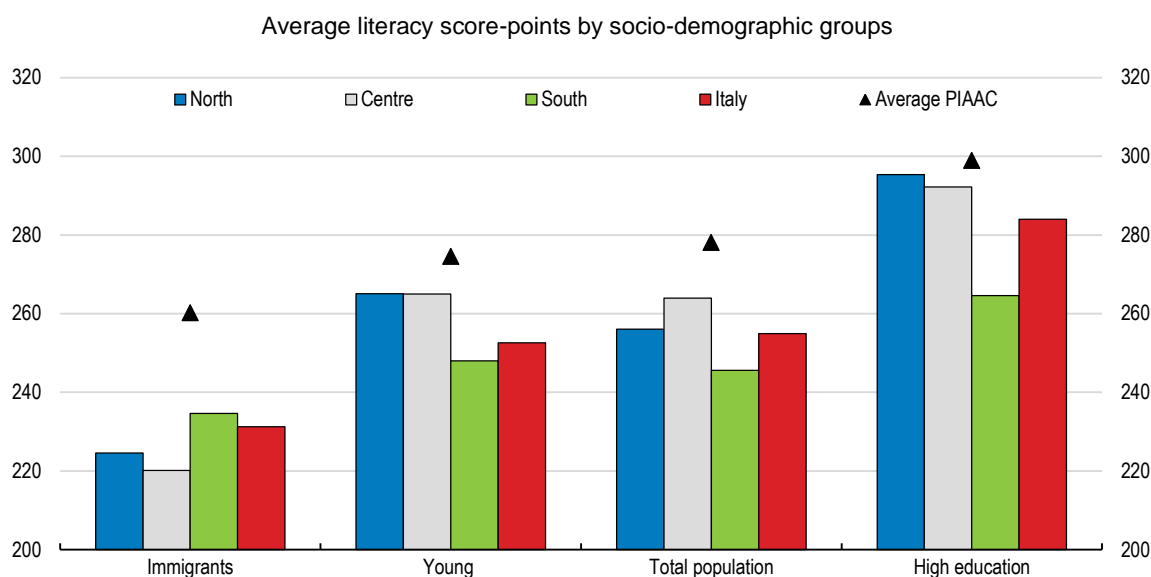
Source: OECD Labour Force Statistics Database June 2016; Eurostat 2016 and EU-SILC.

Skills of Italian workers lag behind

The skill level of Italians is lagging behind other OECD countries and the regional variation in literacy proficiency is very large. The mean level of Italian literacy skills is well-below the average (Figure 6). Similar results are found using numeracy proficiency. Centre and northern Italian regions tend to outperform southern regions in Italy, but fall below the average. The exception is tertiary educated Italians in the northern and central regions, which perform similarly to the average in other OECD countries.

Low levels of skills are an obstacle to higher productivity and material living standards, which are low relative to OECD or other European countries. Education, training, and lifelong learning foster a virtuous circle of higher productivity and more employment, which improves the quality of life, boosts income growth and reduces income inequality as higher education and skills are a prerequisite of better employment opportunities. Raising skills should be a priority, but the available skills must match employer needs, because high and persistent skill mismatches are costly for employers, workers and the society.

Figure 6. Skills of Italians lag behind those of people in other OECD countries



Notes: The data shows the average literacy proficiency score for each socio-demographic group. Young: 16-34 year-olds; Immigration refers to first-generation immigrants (foreign-born and foreign language) and second-generation immigrants (native-born and foreign language); High education is tertiary education. North: Piedmont, Lombardi and Liguria, Provincia Autonoma Di Bolzano-Bozen, Provincia Autonoma Di Trento, Veneto, Friuli-Venezia Giulia and Emilia-Romagna. Centre: Toscana, Umbria, Marche and Lazio. South: Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia and Sardegna. Regions with less than 30 observations are excluded. 22 OECD countries participated in the OECD Programme for the International Assessment of Adult Competencies (PIAAC). See Box 1 for a definition of skills.

Source: OECD calculations using Survey of Adults Skills (PIAAC) 2012.

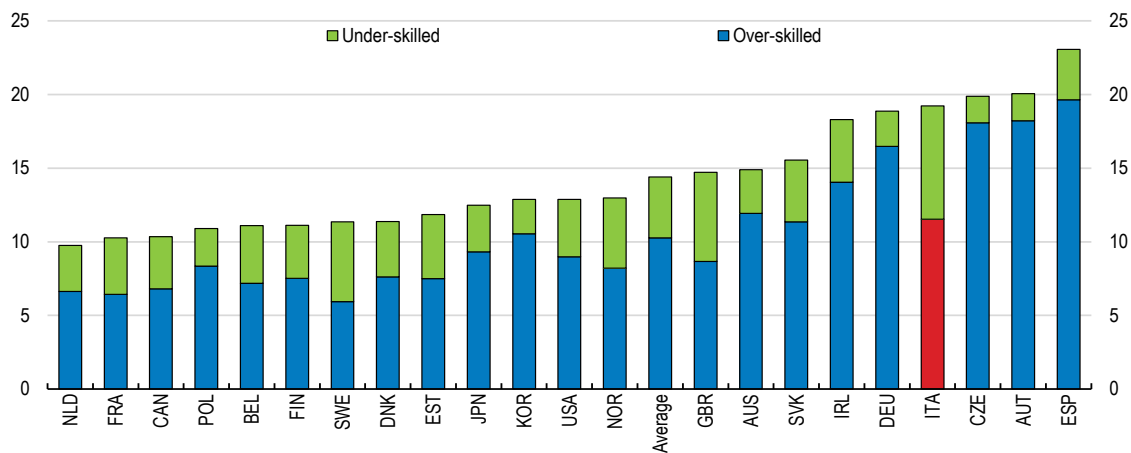
Skill mismatch is widespread

Skill mismatch is pervasive in Italy. Skill mismatch emerges when workers are over-skilled for their current jobs as they are not able to fully utilise their skills and abilities in the job; or when they are under-skilled for their current jobs – they lack the skills normally needed for their job. The OECD Survey of Adults Skills (PIAAC) shows that around 12% of Italian workers are over-skilled and 8% are, under-skilled (Figure 7). Both measures are above OECD averages which are 10% and 4%, respectively.

Under-skilling is worrisome in Italy, being one of the highest across the countries participating in PIAAC. This highlights not only a disconnection between the available and needed skills in the job market, but also the low level of available skills. High shares of under-skilled workers are associated with low levels of proficiency (Figure 8).

Qualification mismatch is also high in Italy (Figure 9). PIAAC data shows that 13% of Italian workers report having higher qualifications than those required for their jobs – i.e. over-qualified – while 22% of workers have jobs where the required qualifications are lower – i.e. under-qualified. While the share of over-qualified workers is the lowest among OECD countries, the share of under-qualified workers is the highest.

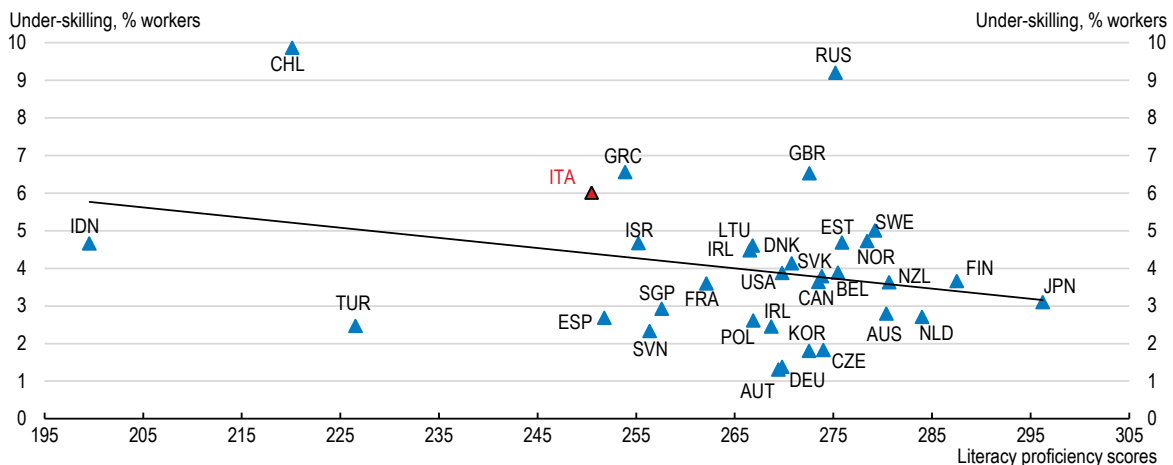
Figure 7. The level of skill mismatch is high
 % of over- and under-skilled workers in literacy, 2012



Notes: Data for the United Kingdom corresponds to England and Northern Ireland. Data for Belgium corresponds to the Flemish Community. Skills mismatch evaluated over literacy skills. Over-skilled workers are those whose proficiency score is higher than that corresponding to the defined maximum threshold 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 occupation. Under-skilled workers are those whose proficiency score is lower than that corresponding to the defined minimum threshold of self-reported well-matched workers in their occupation. Ten different thresholds are used to define the maximum and minimum thresholds. The maximum thresholds are defined from the 90th to the 99th percentiles and, the minimum thresholds are defined from the 1st to the 10th percentiles. The share of mismatched workers is the average of the share of mismatch workers using the 10 different thresholds. Countries are ranked in ascending order of the percentage of workers mismatched. See Box 1 for the definition of mismatches.

Source: OECD calculations using Survey of Adults Skills (PIAAC) 2012

Figure 8. High share of under-skilling is associated with low skill levels



Note: Data for the United Kingdom corresponds to England and Northern Ireland. Data for Belgium corresponds to the Flemish Community. Data for Indonesia corresponds to Jakarta. Correlation between under-skilling and proficiency scores is -0.3 significant at the 10% level.

Source: OECD (2016), Skills Matter: Further Results from the Survey of Adult Skills.

Figure 9. **The share of under-qualified workers is the highest among OECD countries**
Percentage of workers over- and under-qualified



Notes: Data for the United Kingdom corresponds to England and Northern Ireland. Data for Belgium corresponds to the Flemish Community. Over- (under-) qualified workers are defined as those whose highest qualification is higher (lower) than the qualification they deem necessary to get their job today. See Box 1 for the definition of mismatches.
Source: OECD calculations using Survey of Adults Skills (PIAAC) 2012

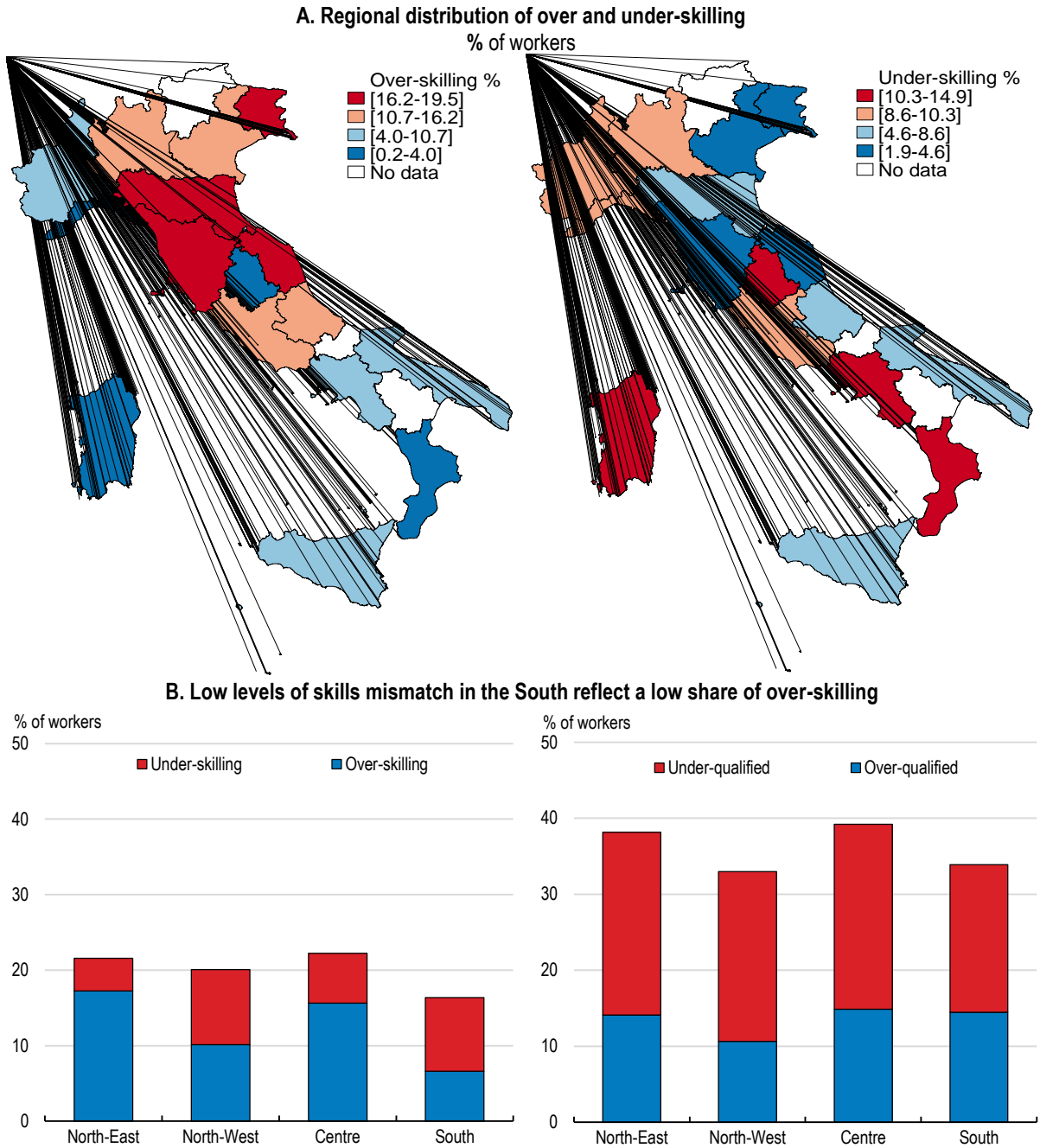
Skill mismatch is heterogeneous across Italian regions. Southern regions in Italy tend to have a higher incidence of under-skilled workers, while in the North there is a higher share of workers that are over-skilled (Figure 10, panel A). This happens even if the share of skill-mismatched workers in the South is lower than in the rest of the country, mainly because of a smaller share of over-skilling in that region (Figure 10, panel B). Qualification mismatch is widespread across the country, with workers in the different regions having similar probabilities of being over-qualified. Workers in the South have higher probability of being under-qualified.

The regional disparity has very different implications. While under-skilling is a reflection of low levels of skills in the work-force; over-skilling highlights a productive structure with weak demand of highly qualified workers compared with the skills supplied by the educational system.

Skill mismatches, under or over-skilling, require policies to enhance the efficiency of skill allocation by fostering labour mobility and to make the education and training system more responsive to labour market needs. Other reforms to tackle over or under-skilling are different in nature. In order to tackle under-skilling educational reforms aiming at raising skills levels that match employer's demands are needed.

Tackling over-skilling calls for demand-side policies to encourage businesses move into higher value added products, such as innovation incentives and knowledge-based economic development strategies (Pisu, 2017), to increase the demand for high-skilled jobs. Enhancing the working environment and making wages more flexible would also allow a better match of supply and demand of skills by better rewarding highly skilled workers. All these policies could help reduce the high share of highly educated young Italians who choose to emigrate.

Figure 10. In the South under-skilling prevails in the North over-skilling



Notes: Panel A shows percentage of workers that are over-skilled (left) or under-skilled (right). Colours show the quartiles of the over- and under-skilling distribution, red being the highest quartile and dark blue the lowest quartile. For the mismatch definitions see Box 1. Source: OECD calculations based on the survey of Adults Skills (PIAAC) 2012.

Box 1. Defining and measuring skills, mismatch and shortages

How are skills defined? The International Assessment of Adult Competencies (PIAAC), a Survey of Adult Skills, measures adults' proficiency in key information-processing skills - literacy, numeracy and problem solving - and gathers information and data on how adults use their skills at home and at work (OECD, 2013b).

Although there is no strict definition, mismatch and shortage describe situations in which workers' skills or qualifications exceed or fall short of those required for the job. Shortages occur when the skills sought by employers are not available in the pool of potential recruits. Mismatches, in turn, mean that workers are not well-matched with their current jobs. Shortages can induce mismatch as employers, unable to find what they needed, recruit mismatched workers. (OECD, 2014a)

There are different types of mismatch:

- qualification mismatch refers to workers having higher (or lower) qualifications than required to get the job
- information-processing skills mismatch is observed when workers have better (or worse) numeracy or literacy skills than those possessed by workers who feel well-matched in the same job.

There are several approaches to measuring qualification mismatch. One is to compare the education level of a worker and the required qualification level corresponding to his/her occupation code. A second approach is to use the modal qualification – i.e. the most common qualification – of workers in each occupation as the qualification requirement. A final approach is based on workers' opinions on the match between their jobs and education, which is the definition used in this paper. PIAAC asks workers what would be the usual qualifications, if any, "that someone would need to get (their) type of job if applying today". The answer to this question is used as each worker's qualification requirement and compared to their actual qualification to identify mismatch. While biased by individual perceptions, self-reported qualification requirements have the advantage of being job-specific rather than assuming that all jobs with the same occupational code require the same level of qualification as the first two measures.

This paper defines skills mismatches using the information-processing skills. There are also several ways to measure skill mismatch. One is to ask workers to assess themselves their skill level and that required for their job. Another approach is to directly measure the skills of individual workers, literacy and numeracy, and to compare them with the skill use at work (CEDEFOP, 2010). The main drawbacks are assuming that skill use can be a proxy for job requirements, and that skill proficiency and skill use are similar concepts while they are not.

The most robust available measure for skills mismatch is to combine information on self-reported skill mismatch and skill proficiency as developed in Pellizzari and Fichen (2013). Specifically, for each available skill domain and each job (defined as occupations at 1 digit), the bottom and top thresholds (e.g. the 95th and 5th percentiles) requirements are defined as the minimum and the maximum proficiency of self-reported well-matched workers, i.e. workers who report that they do not feel they "have the skills to cope with more demanding duties than those they are required to perform in their current job" and they do not feel they "need further training in order to cope well with their present duties". Workers are over-skilled if their score is higher than the top percentile score of the self-reported well-matched while they are under-skilled if their score is lower than the bottom percentile score of the self-reported well-matched. The main limitation of this measure is that it uses 1-digit occupation codes because of sample size, assuming that all jobs with the same occupation code have the same skill requirements.

Qualification mismatch and skill mismatch do not need to match. Although qualification mismatch is easier to measure since education is included in more databases, it does not take into account: i) skills gained or lost beyond the formal qualifications; ii) differences in the quality and orientation of various education and training systems; and iii) on-the-job learning or adult learning/training.

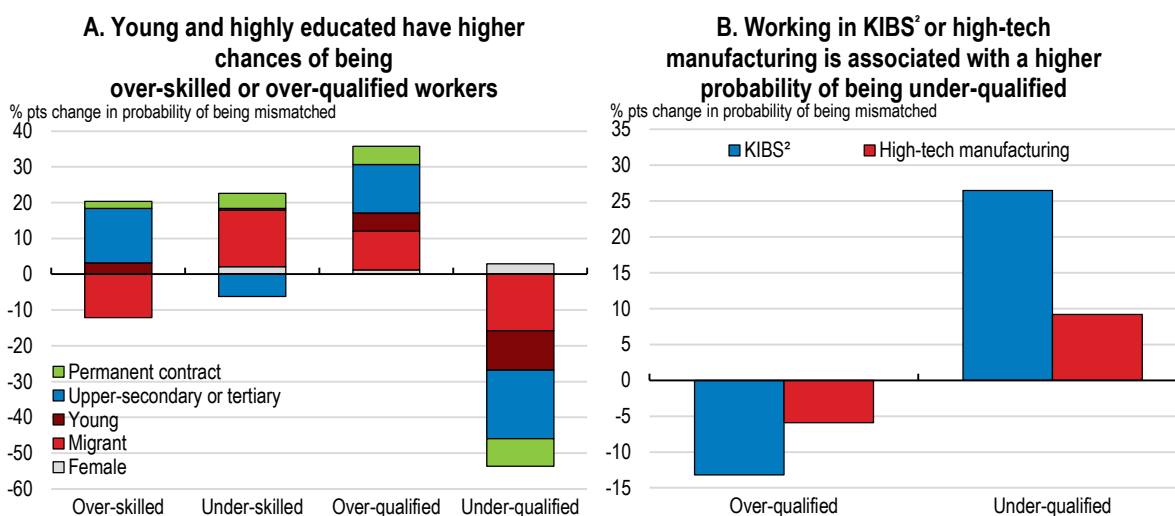
The faces of skill mismatch

Young and more educated people have a higher probability of being over-skilled or over-qualified (Figure 11). Having achieved upper-secondary or tertiary education implies being 15% more likely over-skilled or over-qualified compared to lower educated peers (See Box 2 for detailed results). This highlights an educational system that does not provide the skills actually required by the enterprises, together with a production structure characterized by low demand for highly skilled workers.

Workers holding permanent contracts have a lower probability of being under-qualified and higher probability of being over-qualified (Figure 11). This could reflect that workers in order to obtain permanent contracts sacrifice jobs that better match their own qualifications. Being a migrant worker increases the probability of being under-skilled and over-qualified. This is probably related to underperforming in a foreign language which also implies working in jobs that require a lower qualification.

Industries such as knowledge intensive business services (KIBS) and high-technological manufacturing tend to have less over-qualified and more under-qualified workers than traditional services and low-technological manufacturing (Figure 11). This finding is probably related to the presence of skills shortages in these industries.

Figure 11. Gaps in the likelihood of being mismatched explained by worker and job characteristics as compared to a well-matched worker¹



1. For the mismatch definitions see Box 1. See Box 2 for the complete set of estimations. Marginal effects coming from logit regressions having as dependant variable a categorical dummy indicating mismatch and as explanatory variables: education, gender, type of contract, nationality, age, firm size, public sector, and full-time. The baseline category is an Italian man, over 30's, with low education (no education, primary education and lower secondary education), working in a small firm (less than 10 employees), residing in the North and working in traditional services under a fixed term contract.

2. Knowledge intensive business services

Source: OECD calculations based on the survey of Adults Skills (PIAAC) 2012.

Box 2. The probability of being mismatched

In order to understand the determinants of mismatch an empirical study was carried out using microdata from PIAAC data. Skills and qualification mismatch were measured as explained in Box 1. A logit regression model was used to examine how individual and job characteristics impact the probability of being mismatched (over-skilled, under-skilled, over-qualified or under-qualified). One regression for each concept was run.

$$\text{Mismatched} = \Phi(\alpha + \beta X + \varepsilon) \quad (1)$$

Mismatch is the dependent variable representing the status of the worker (mismatched= 1). Φ is logistic distribution. X is the matrix of explanatory variables including gender, age, type of contract, nationality, education, firm size, public sector, full-time, industry, and region. ε represents the error term. The following table provides a summary of the econometric results.

Table 1. Marginal effects from logit regressions

	Over-skilled	Under-skilled	Over-qualified	Under-qualified
Female	-0.000 (0.019)	0.021 (0.022)	0.012 (0.016)	0.029 (0.030)
Migrant	-0.121*** (0.034)	0.158*** (0.031)	0.108*** (0.020)	-0.158*** (0.041)
Young (Less than 30)	0.032 (0.029)	0.005 (0.034)	0.051** (0.022)	-0.110** (0.054)
Upper and post-secondary education	0.152*** (0.026)	-0.062** (0.026)	0.136*** (0.016)	-0.192*** (0.027)
Tertiary Education	0.177*** (0.031)	-0.039 (0.031)		
Medium size firm (11-50 employees)	0.071*** (0.022)	-0.049* (0.027)	-0.001 (0.020)	0.047 (0.032)
Large firm (>50 employees)	0.067*** (0.021)	-0.029 (0.024)	0.010 (0.021)	0.011 (0.032)
Permanent contract	0.020 (0.027)	0.042 (0.028)	0.051*** (0.017)	-0.077* (0.041)
Full-time worker	0.139*** (0.037)	-0.064*** (0.022)	0.009 (0.019)	0.037 (0.045)
Public sector	-0.061*** (0.023)	0.032 (0.027)	-0.063*** (0.023)	0.263*** (0.024)
Services	0.031 (0.019)	-0.007 (0.018)	0.042** (0.018)	-0.051 (0.031)
Knowledge intensive business services	0.029 (0.032)	0.024 (0.037)	-0.132*** (0.037)	0.265*** (0.046)
High tech manufacturing	0.035 (0.039)	-0.091** (0.046)	-0.059 (0.041)	0.092* (0.050)
Centre	-0.030 (0.022)	0.069* (0.041)	0.011 (0.025)	-0.009 (0.033)
North-West	-0.110*** (0.025)	0.111*** (0.040)	-0.027 (0.024)	-0.049 (0.034)
South	-0.149*** (0.034)	0.137*** (0.037)	0.004 (0.022)	-0.083** (0.034)
N observations	1,953	1,953	2,002	2,002
Pseudo-R ²	0.21	0.17	0.37	0.23

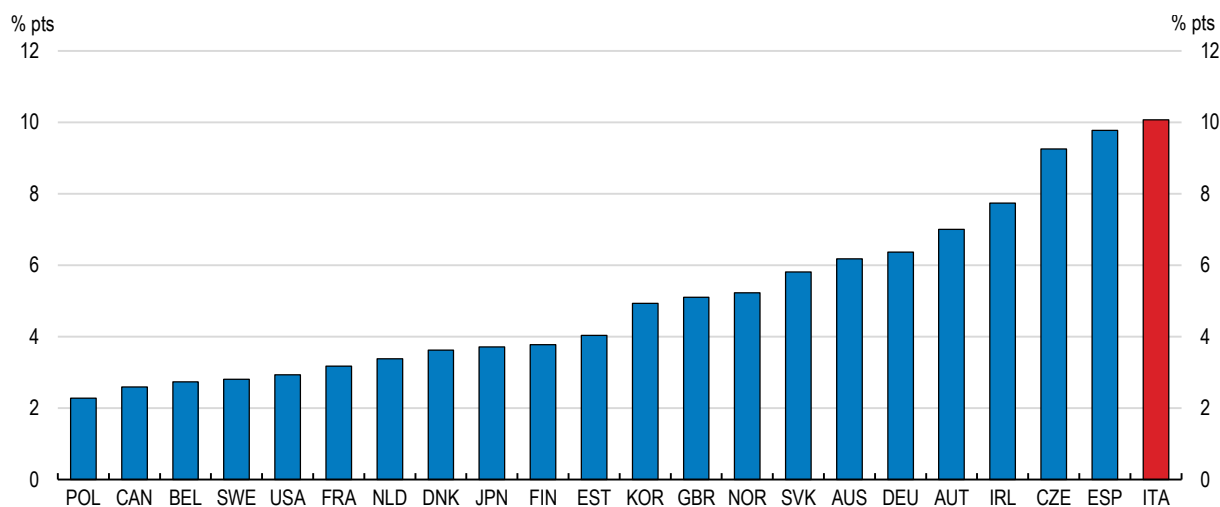
Notes: All explanatory variables are categorical variables. *** is significant at 1%, ** at 5% and * at 10%.

Source: OECD calculations using the survey of Adults Skills (PIAAC) 2012

Skills mismatch harms productivity and well-being

The available skills must match those required by the employers. Otherwise, skill mismatches can have adverse effects on economic growth and individual's well-being. Illustrative evidence shows that Italy could boost its level of labour productivity by 10% if it were to reduce its level of mismatch within each industry to that corresponding to the OECD best practice (Figure 12) (Adalet McGowan and Andrews, 2015a). Higher skill mismatch is associated with lower labour productivity through a less efficient allocation of resources. A higher share of under-qualified workers is linked with both lower allocative efficiency and lower within-firm productivity.

Figure 12. There is a large scope to boost productivity by reducing skill mismatch
Gains to labour productivity from reducing skill mismatch to the OECD best practice

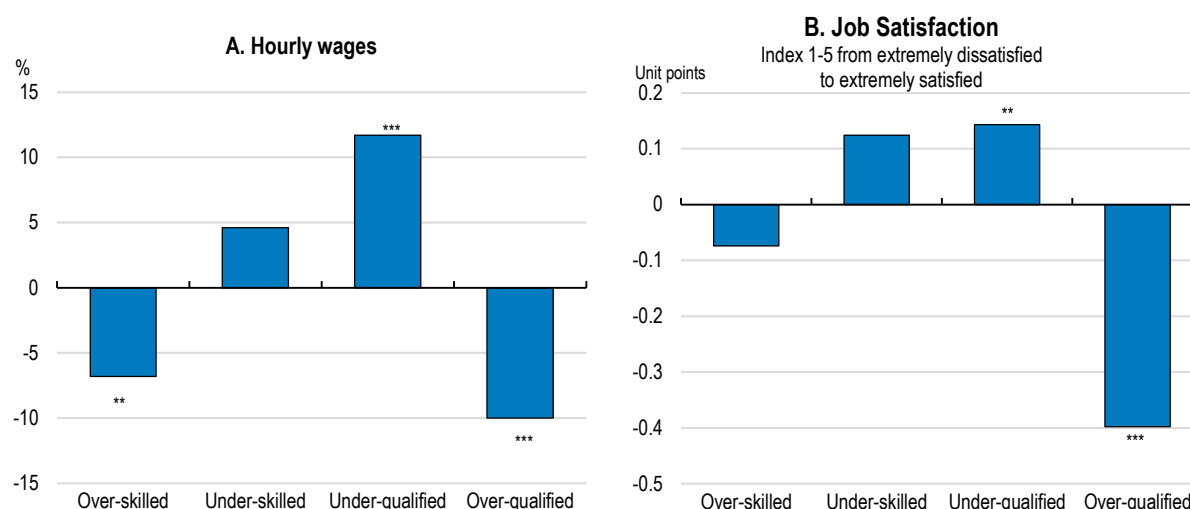


Notes: The chart shows the difference between the actual productivity and a counterfactual productivity level based on lowering the skill mismatch in each industry and country to the best practice level of mismatch. Both the actual and counterfactual numbers are calculated by aggregating 1-digit industry level mismatch indicators using a common set of weights based on the industry employment shares for the United States. For example, lowering the skill mismatch to best practice leads to a simulated gain of around 10% in Italy and 3% in the United States.

Source: Adalet McGowan, M. and D. Andrews (2015), "Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data", *OECD Economics Department Working Paper*, No. 1209.

At the individual level, qualification and skill mismatches entail significant economic and social costs for individuals. Over-qualification and over-skilling carries scars on earnings and employment prospects (Quintini, 2011; Montt, 2015). In Italy, over-qualified and over-skilled workers suffer a significant wage penalty compared to well-matched workers (Figure 13, panel A). Over-skilling and over-qualification lower job satisfaction (Figure 13, panel B) as they imply unrealised expectations and lower returns on investment in education. Under-qualified workers receive higher wages and enjoy higher job satisfaction than well-matched workers. This could be explained by hiring processes, management of human resources and wage setting mechanisms that prevent employers from adapting tasks and wage levels to the workers' qualifications.

Figure 13. Over-skilled or over-qualified workers earn less and have lower job satisfaction



Notes: Panel A shows the impact of mismatch with respect to well-matched peers as a percentage of hourly wages. Panel B shows the impact of mismatch with respect to well-matched peers in unit points of job satisfaction. For instance, the hourly wage for an over-skilled worker is about 7% lower than that of a well-matched worker with the same worker and job characteristics. For the mismatch definitions see Box 1. Marginal effects coming from regression of the logarithm of hourly wage and job satisfaction controlling for education, gender, type of contract, nationality, age, firm size, public sector, full-time, region, industry of work, and literacy score. Regressions contain dummies for every type of mismatch at the same time. Job satisfaction is an index ranging from 1 (extremely dissatisfied) to 5 (extremely satisfied). *** is significant at 1%, ** at 5% and * at 10%.

Source: OECD calculations based on the Survey of Adults Skills (PIAAC) 2012.

Labour market reforms to boost employability

Employment protection legislation needs to support flexible labour markets, while job search and training measures need to support jobseekers by improving their employability and helping them find an appropriate job. Flexible labour market regulation together with tackling rules and regulations providing disincentives to change jobs and location could potentially improve the match of jobseekers' skills with those skills required by jobs. This could boost productivity and well-being while promoting a more inclusive labour market.

Rationalising employment protection

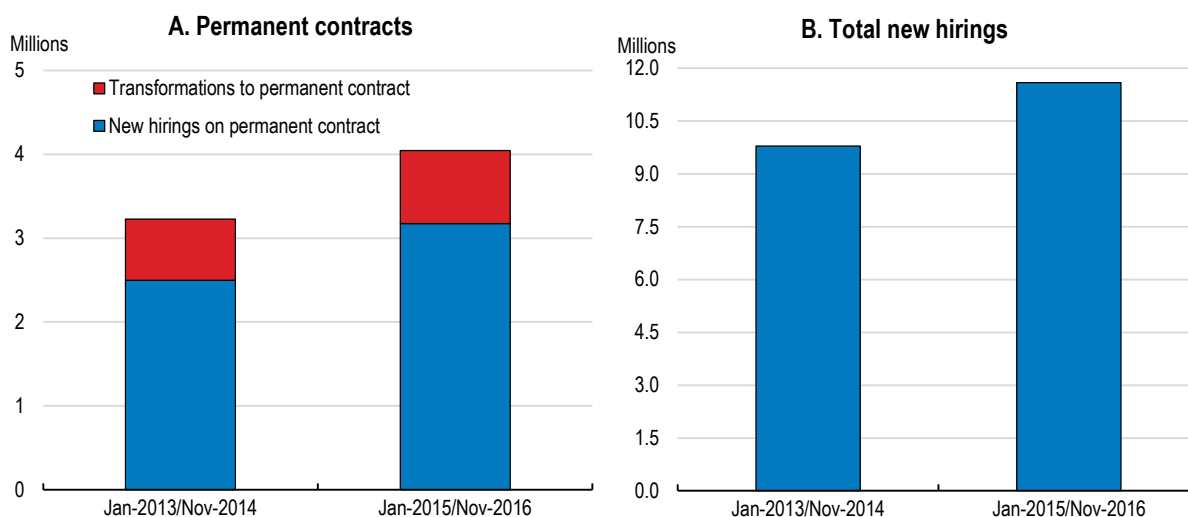
In 2015, Italy enacted a comprehensive labour market reform - the Jobs Act – and introduced temporary cuts to employers' social security contributions. Coverage and duration of unemployment benefits were increased, bringing Italy closer to a “flexicurity” approach by enhancing flexibility and security in the labour at the same time. The Jobs Act has implemented a new single open-ended contract with increasing levels of protection with job tenure, aiming principally at tackling labour market duality. New permanent contracts during 2015 were exempted from social security contributions (capped at EUR 8 060 annually for the first 3 years); exemptions were reduced in 2016 (to 3,250 euros for 2 years).

Firing costs were made less uncertain for firms by restricting the grounds for reinstatement in cases of dismissal without just cause. Reinstatement only remains for discriminatory dismissals and for non-existing breach of conduct. Workers judged to be unfairly dismissed for objective reasons (i.e. economic or technological changes as reasons for the redundancy) are not eligible for reinstatement, with firms providing monetary compensation instead. The monetary compensation is 2 gross monthly salaries per year of tenure (a minimum of 4 and a maximum of 24 monthly wages). A fast-track settlement was introduced by-passing courts upon agreement between the workers and employers. The compensation is 1

monthly salary per year of work (minimum 2 and maximum 18). The amount of the fast-tracked settlement compensation is closer to the OECD average of 14 months at 20 years of tenure (see OECD, 2013a).

Theoretical and empirical evidence suggests that lower dismissal costs help firms create more jobs by making the labour market more flexible (Mortensen and Pissarides, 1994; Cingano et al., 2010; Haltiwanger et al., 2013 and OECD, 2010; 2013a). OECD (2016b) finds evidence that reforms decreasing employment protection, when implemented in highly segmented labour markets, do not result in short-term employment losses. The Spanish 2012 reform is an example of this. Illustrative evidence indicates that the Italian Jobs Act and the temporary social security exemptions have boosted new permanent contracts (Figure 14). The Jobs Act also encouraged the transformation of temporary, atypical and apprenticeship contracts into permanent ones, starting to tackle labour market duality. More time is needed for a proper impact evaluation of the Italian reform.

Figure 14. **The Jobs Act together with the exemption of social security contributions have boosted hirings and permanent contracts**



Source: Istituto nazionale della previdenza sociale (INPS), Osservatorio sul Precariato.

Firing restrictions make it more difficult for firms to adapt the workforce's skills to their changing needs and lower incentives of hiring (Cingano et al., 2010; Haltiwanger et al., 2013 and OECD, 2010; 2013a) hampering the skill allocation efficiency. Stringent employment protection measures tend also to discourage workers from moving from one job to another (Bassanini and Garnero, 2013) that would offer them a better skills match (Brunello et al., 2007). Adalet McGowan and Andrews (2015b) show that reducing the stringency of regulations for permanent contracts in Italy to best practice is associated with roughly a 7 percentage point reduction in skills mismatch. Evidence for Italy shows that after a reform, enacted in 2012, to decrease the costs of firings on permanent contracts (the "Fornero" law), the probability of being well-matched increased by 5 percentage points (see Box 3).

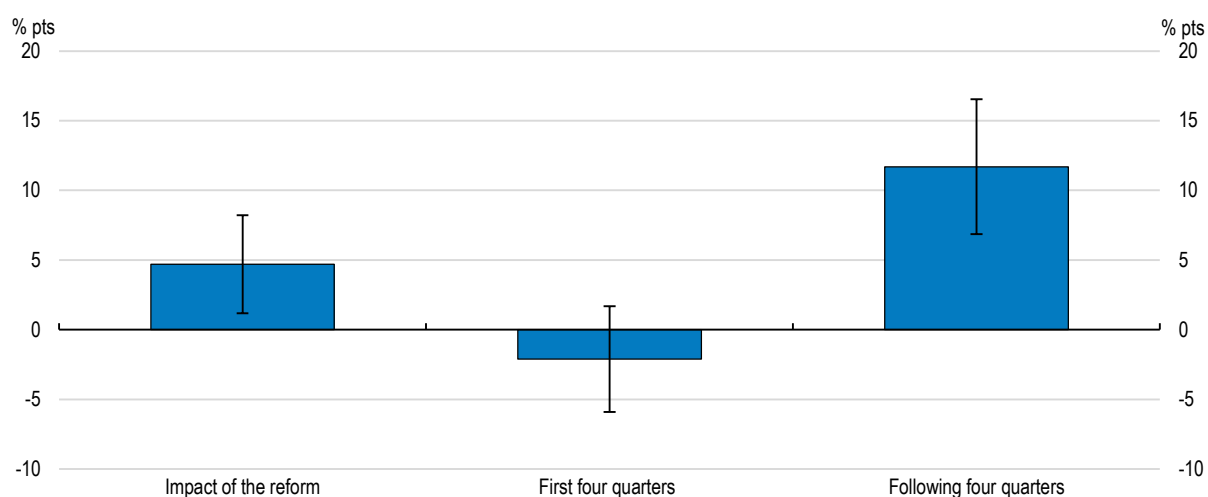
By reducing duality, the reform could also help to reduce skill mismatch and increase inclusiveness. Providing more people with permanent contracts has the potential advantage of increasing on-the-job training among workers (Cabrales et al., 2014; Booth et al., 2002; OECD, 2002). Increasing the incentives to transform temporary and apprenticeship contracts into permanent ones, has the benefits of making the temporary and apprenticeship contracts stepping-stone toward permanent contracts, allowing preserving the good matches.

Box 3. Employment protection legislation and qualification mismatch: evidence from the Fornero reform

A reform of the Italian labour market enacted in 2012 – also known as “Fornero Law” – created unprecedented quasi-experimental conditions to identify empirically the effect of employment protection regulation on mismatch. Until 2012, Italy had a two-tier EPL regime. Small firms (until 15 employees) had to pay a monetary compensation to unlawfully dismissed workers; on the contrary, larger units could be compelled to reinstate the worker to her former job and to pay her all foregone wages and social security contributions since dismissal. The “Fornero Law” largely increased the room for monetary compensations putting an upper limit to the monetary firing costs for the firms above the fifteen-employee threshold, leaving EPL in smaller firms unchanged.

Evidence, using a difference-in-differences approach, shows that the probability of being well-matched, in terms of qualification, increased by 4.7 percentage points after the reform (Figure 15). Consistent with the idea that it takes a minimum of time for workers’ turnover to give rise to better matches, the estimates also show that the effect is non-significant during the first year after the reform, while emerging neatly afterwards. Further analyses show that this effect mainly occurred through a reduction of under-qualification among prime and old age workers.

Figure 15. Estimated impact of the “Fornero reform” on the probability of being well-matched



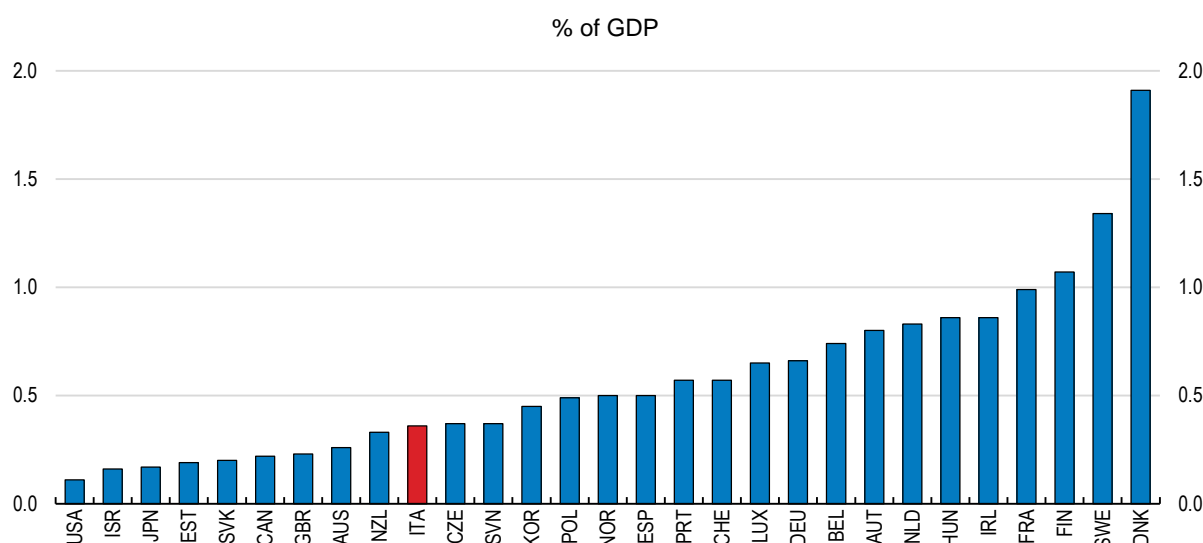
Notes: Estimates using a sample of workers with permanent contracts observed in the Italian Labour Force Survey (LFS) during the period 2011:Q1 – 2014:Q3. A difference-in-differences model of the probability of being well-matched is estimated: $Y_{ijkt} = \beta_0 + \beta_1 TREAT_{ijkt} + \beta_2 POST_t + \beta_3 TREAT \times POST + \beta_4 X_{ijkt} + \gamma_t + \delta_t + \varepsilon_{ijkt}$. Y_{ijkt} is categorical variable reflecting a well-matched worker ($Y_{ijkt}=1$) if her educational attainment at quarter t is equal to the median educational level observed on all employees within the same economic activity j and occupation k at the same point in time t . $TREAT_{ijkt}$ takes the value of one for firms employing more than fifteen workers, $POST_t$ signals the post-treatment period (from 2012:Q4 onwards), X_{ijkt} is a vector of controls that include demographic (sex, age, education, citizenship, region of residence, marital status and household type) and job (sector of economic activity, occupation type, share of temporary workers and full-time workers within the same sector and occupation) characteristics as major determinants of (mis)match. The model includes year- (γ_t) and quarter (δ_t) fixed effects. β_3 is the parameter of interest, which is expected to be positive. The blue bar represents the impact of the reform, β_3 , in percentage points. The thin lines represent the 90% confidence bands.

Source: Berton, F., F. Devincenzi, and S. Grubanov (2016), “Employment protection legislation and qualification mismatch: evidence from a reform”, *Laboratorio Riccardo Revelli, Working Papers*, No. 151.

Job search and training policies should adopt a “matching skills” approach

Job search and training policies should help ensure that those out of work return to employment in the most appropriate job. Italy is one of the countries with lowest spending on active labour market policies (ALMPs) across OECD countries (Figure 16). The spending per unemployed reached an annual amount of EUR 1,800 per unemployed in 2014, while in France it amounts to EUR 7,460. This reflects, in part, limited fiscal space; hence improving the spending efficiency and targeting will be needed in order to improve outcomes.

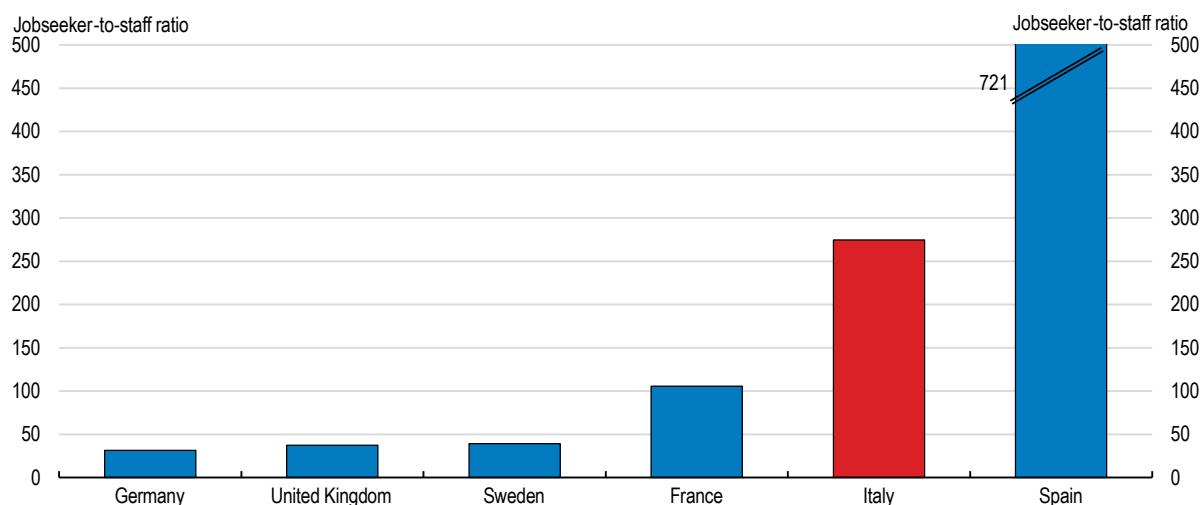
Figure 16. Spending on active labour market policies is low



Notes: Active labour market policies cover services and activities of the public employment services and labour market policy measures that provide temporary support for groups that are disadvantaged in the labour market. The data shown should not be treated as strictly comparable across countries or through time, since data at the level of individual countries in some cases deviate from standard definitions and methods; see notes to Annex Table Q of the OECD Employment Outlook 2016 available at www.oecd.org/els/emp/employment-outlook-statistical-annex.htm. 2014 or last year available; United Kingdom 2011, Spain, Poland and Ireland 2013.

Source: OECD Employment and Labour Market Statistics.

The jobseeker-to-staff ratio in public employment services (PES) is high compared to other European countries (Figure 17). Decreasing it in order to manage effectively the large numbers of jobseekers together with well-trained caseworkers will be key for increasing effectiveness of PES. Evidence shows that by lowering caseloads per staff, PES offices could intensify counselling, monitoring and sanction efforts as well as contacts with local firms, resulting in shorter benefit durations. The costs of hiring additional caseworkers could be offset by decreased benefit expenditure after a period of ten months (OECD, 2015a). Since there is little fiscal room, a reduction of the jobseeker-to-staff ratio can be achieved by reallocating staff within the public administration, after assuring they have received training and are qualified as counsellors. Using private agencies can also help scaling up PES.

Figure 17. Reducing the jobseeker-to-staff ratio¹ would increase the effectiveness of PES

1. Year 2012.

Source: Mandrone (2014), "Youth Guarantee and the Italian PES: insights from ISFOL PLUS Survey data", *CIMR Research Working Paper Series, Working Paper, No.21*

The newly created National Agency for Active Labour Market Policies (ANPAL) could be key to raising effectiveness of job search and training policies. ANPAL main tasks include coordinating and supervising regional centres implementing job search and training policies, setting minimum national level standards of services for active policies, creating a new and unique information system of employment services and keep a register of private employment agencies. Provinces are in charge of active measures, leading to highly differentiated quality of services and fragmentation of measures and regulations. ANPAL aims at reducing existing regional differences (Mandrone, 2014) and making sure that the training received in one region is valid across the country. Multi-level governance, i.e. ANPAL coordinating all local employment centres at the municipality, provincial and regional level, is going to be key for the success of the institution.

The Jobs Act introduced unemployment benefits conditional on participating in activation measures designed by ANPAL. Individuals receiving unemployment benefit (NASpI) for a duration exceeding four months will be entitled to a voucher (assegno di ricollocazione). The amount varies depending on the employability profile, and can be spent in training or education at public or private employment services. Conditionality has been reinforced by making employment centres and private agencies being able to cash the voucher only once the unemployed has found a job. At the end of 2016 a pilot plan was launched for 20,000 users. This is a positive measure, since financial incentives, such as training vouchers, have proved to promote training and can improve equity in access to learning, particularly for the low skilled (OECD, 2005a).

No particular policy can serve as a universal tool for improving the labour market perspectives of the unemployed (Martin, 2014 and OECD, 2015a). Policies need to be tailor-made to the individual (including detecting short-term versus potentially long-term unemployed), which calls for effective profiling techniques. Profiling methods are being used for the first time within the Youth Guarantee (YG) scheme that has been set up by the Government in 2014. The YG ensures that those between 18 and 30 years old receive a good offer of apprenticeship, training, continued education or employment that is suited to their abilities and experience within four months of becoming unemployed or leaving education. Once a youth is registered in the scheme a system calculates the difficulty of employability and allows the counsellor to develop an employability path most suited to the characteristics of the young. Good results were obtained;

1 in 3 youths registered in the scheme found a job within one month, 40% was employed within three months (ISFOL, 2016a). These methods should be extended to all unemployed or registered within PES. ANPAL, learning from this experience, is working to set up a profiling system for all unemployed. However, implementation is still lagging behind.

The profiling techniques should reinforce the importance of skills in the matching activities. PES need to work closely with employers to ensure that individuals' skill profiles are matched to labour market needs. They can develop public-private partnerships to ensure the timeliness and relevance of appropriate activation measures as well as education and training offers (WEF, 2014).

Italy lacks a practice of systematic assessment of the labour market impact of activation programmes. Assessment was difficult because of the existence of multiple programs at the regional level, without centralized coordination and the inexistence of appropriate data with which to undertake a proper impact assessment. Only recently, designed for the YG, evaluation techniques started to be developed. The emphasis should be on ensuring that resources are channelled towards programmes that proved to be effective in helping people gain employment in jobs that match their skills.

Supporting labour mobility

Fostering mobility within occupations, sectors and/or regions on the basis of sound labour market information can contribute to a dynamic labour market enabling new productive matches to take place between individuals' skills and jobs. Regional mobility in Italy is one of the lowest in OECD countries (OECD, 2016d). This is, at least in part, due to the fragmentation of measures and regulations across regions, making the transfer of qualifications and skills across regions difficult. There is no information on job opportunities across the country, raising the need of a unified labour market information system.

Ensuring that qualifications are transferable, coherent and easy to interpret is essential to promote labour mobility. A national directory of qualifications needs to be implemented in order to provide national recognised and transferable skills across sectors, occupations or regions. A 2015 state-regions agreement provided for a register of regional vocational qualifications, as part of a national register of education, training and professional qualifications. This is a positive step, but implementation has encountered barriers and remains difficult. The recognition of qualifications needs to be strengthened by ensuring a valid national register.

Residential and geographical mobility can help decrease skill mismatches and increase productivity. Policy interventions in housing markets, such as transaction costs on buying property and rent control and tenant-landlord regulations, have been shown to be important for residential mobility (Andrews et al., 2011), and are relevant to reduce mismatch (Adalet McGowan and Andrews, 2015b). Lowering transaction costs from buying a home in Italy to the best practice in OECD would imply a reduction in skill mismatches of 4 percentage points. Making rules governing tenant-landlord relations more landlord-friendly or increasing the responsiveness of housing supply to prices to the best practice would decrease skills mismatch by 4 and 8 percentage points, respectively (Adalet McGowan and Andrews, 2015b).

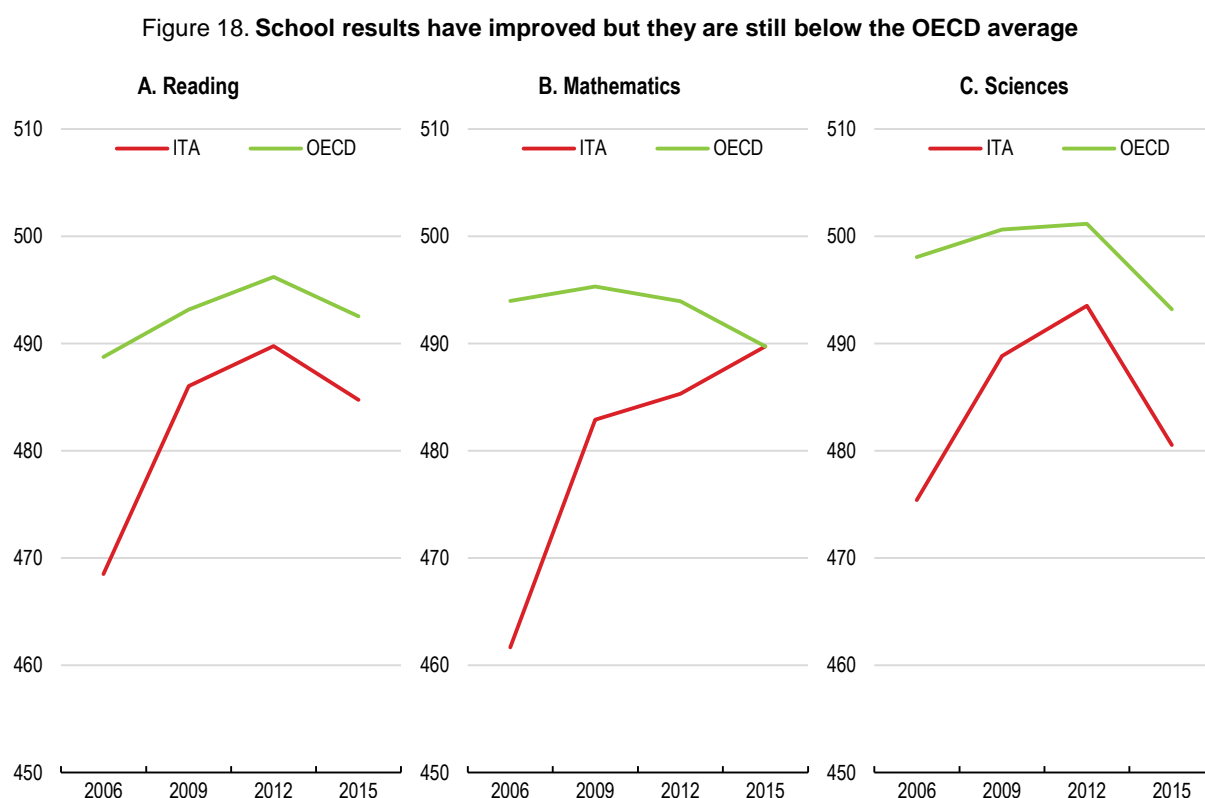
Raising skills that match labour market needs

Employability depends on the education and training system providing sound general skills and skills aligned to the job market. The system should be flexible enough to adapt to changing skills needs. The adaptability of the skills should be encouraged through work-based learning. Business involvement in education and training institutions at all educational levels will be paramount to ensure the provision of relevant skills, the availability of internships and apprenticeships and provide on-the-job training.

Italy undertook a national skills strategy project with the OECD between 2015 and 2017. Using the OECD Skills Strategy framework, the project's diagnostic phase identified a set of key skills challenges including developing skills at all levels and strengthening multilevel governance and partnerships to improve skills outcomes.

Improving skills at school

There have been consistent signs of improvement in the quality of education in the latest years. Scores in reading, math and sciences among 15-year olds have increased more than the OECD average (Figure 18). However, average levels of proficiency in reading and sciences are still low compared to other countries.



Source: OECD PISA 2006, 2009, 2012 and 2015 databases.

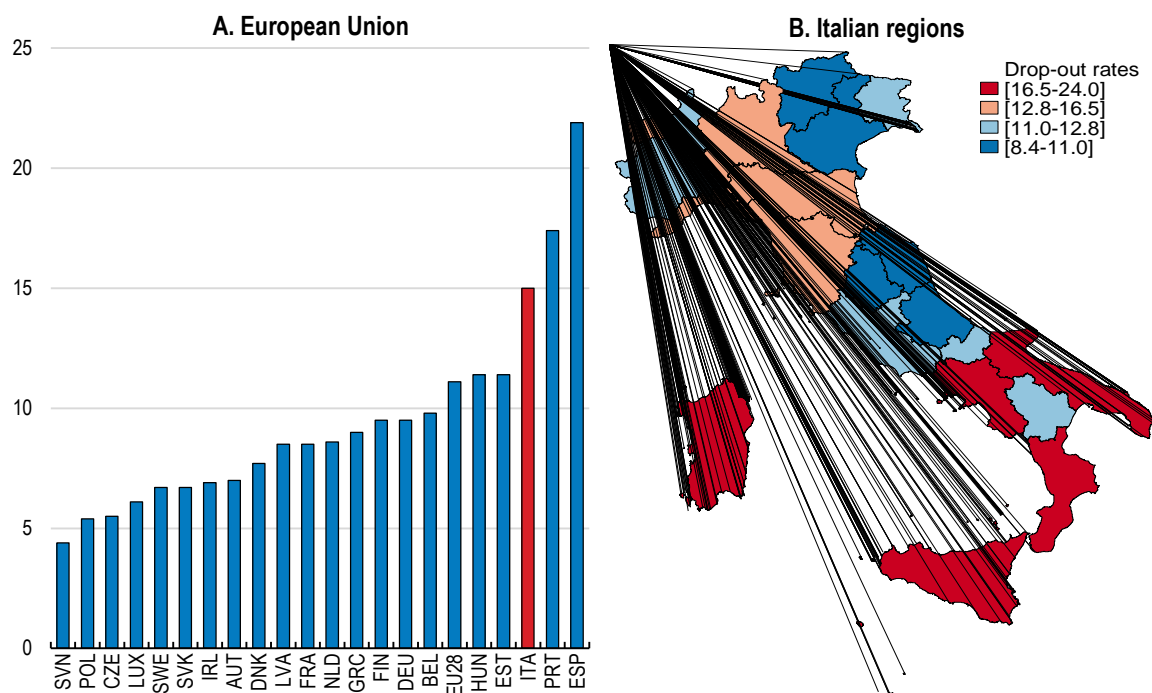
Successive governments have made efforts to improve the education system with positive results. The early school leaving rate is falling but remains still high and varies wildly across the country (Figure 19). There is also a big gender gap, as the different between drop-out rates for boy and girls is 5.5 percentage points.

With the aim of improving school outcomes, a comprehensive reform of school – Good School - was passed in 2015. The *Good School* reform gives more autonomy to schools and requires all schools in Italy to complete a self-evaluation report in which they address, among other factors, the quality of school management, instruction and students' learning outcomes (see Box 4). These measures are potentially far-reaching. International evidence shows that autonomy only works if coupled with accountability (Hanushek and Woessmann, 2011), and higher school management quality is strongly associated with better educational outcomes (Bloom et al., 2015). The success of the self-evaluation measure will depend

on the proper implementation of the planned evaluation system of school heads in order to increase their accountability.

Teachers have limited career prospects and low salaries compared to other high skilled professions. Attracting the best-qualified graduates into the teaching profession is very difficult for the Italian education system. The teaching career system offers only a single career pathway with fixed salary increases based solely on seniority. *Good School* reform introduces merit-based bonuses into teacher’s salaries, makes teacher’s recruitments under open-ended contracts via open competition, and foresees provisions for on-the-job training for teachers. The reform could potentially provide incentives to improve teaching methods with positive effects on educational outcomes. However, the career system has not been changed, which could lead to partial results (OECD, 2005b). In order to have a significant impact on teaching methods, a career system based on the recognition of the commitment and merits supported by a well-functioning teacher assessment is needed. The reform also provides mobility of teachers across the country in order to reduce the large variability in school quality across the country.

Figure 19. **Drop-out rates are high with big geographical dispersion**
 Percentage of population aged 18-24 who has left education and training with at most a lower secondary education diploma



Note: Colours in the map represent quartiles of the distribution of the drop-out rates, being red the highest quartile and dark blue the lowest quartile.

Source: ISTAT NOI-ITALIA 2016 Database.

Box 4. The Good School Reform

The Italian government approved a comprehensive education reform -“*La buona scuola*” - on July 2015. Projections in the 2015 National Reform Programme suggest that, of all structural reforms in Italy, the school reform is likely to have the largest positive impact on GDP in the long-term (MEF, 2015, pp.110-111) – reaching an increase of 2.6% of GDP. The main points of the reform concern:

- **School autonomy:** school principals will have greater autonomy in managing human, technological and financial resources and will be subject to external evaluation every three years.
- **Teacher recruitment:** From 2016 onwards only access to the profession via open competitions will be allowed. In two years, the government has added almost 120,000 teachers to the official school register, either through the extraordinary hiring plan or registrations related to the current academic year. The recruitment plan is intended to fix the long-standing problem of ‘waiting lists’ of qualified teachers.
- **Introduction of performance-based components for teacher salaries:** each year, the best performing teachers in each school will receive a one-off bonus. The school principal will identify the best-performing teachers using criteria established by the school’s teacher evaluation committee (comprised by the school principal, teachers, an external evaluator and two parent representatives). Compulsory on-the-job training for teachers is also included.
- **Work-based learning:** traineeships are to become compulsory for students in the last three years of upper secondary education (at least 400 hours for students in vocational education and 200 hours for students in general education). They can take place either in the private sector or in the public administration
- **Digital and language skills:** the reform includes a national three-year plan (“*Piano Nazionale Scuola Digitale*”) to strengthen digital competences among teachers and students, improving internet connections and innovative learning environments. It also foresees opportunities for introducing the ‘content and language integrated learning’ (CLIL) methodology from primary level onwards.

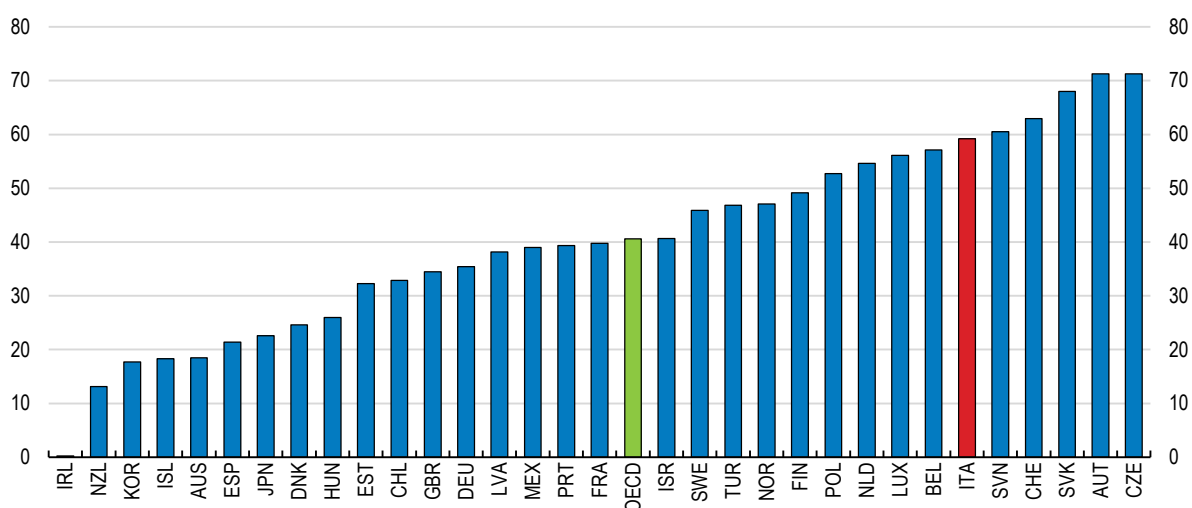
VET in upper-secondary education is well developed in Italy, with 60% of students enrolled in upper-secondary education following vocational programmes, above the OECD average (Figure 20, Panel A). Vocational schools are based on school learning with limited involvement of the business sector. As a consequence, the share of young people (15-29) studying and working at the same time is less than 4% in contrast with the EU average of 12.9%.

A more integrated system of work-based learning, as foreseen by the *Good School*, will help increase the skill level and align VET output with to labour market’ needs. The reform includes mandatory hours in a work place for vocational and general pathways. International evidence suggests that dual training, in school and at the work place, enhances the employment prospects of participants substantially (OECD, 2015b). The system provides a challenge to the Italian schools, which do not have experience on student placement and search for traineeships.

Dual systems require tight collaboration between businesses and schools to ensure the creation of quality work-based experiences. The government is forging alliances with several large companies and different stakeholders to this end. However, in some of the economically less dynamic regions, finding businesses that can provide quality work-based training is likely to be challenging and alternative solutions may have to be explored. The 2017 Budget Law foresees extended social security contributions exemptions for newly permanent or apprenticeships contracts for young people who have done a stage or internship within the firm, giving incentives to firms to become involved in the system.

An assessment system aimed at verifying the training effectiveness needs to be implemented. The capacity to monitor the quality of training and the labour market outcomes of VET needs to be strengthened. The assessment system should feed policy evaluation with a view of streamlining the VET curriculum, training quality and to align student enrolment with the labour market needs through reinforced career guidance, starting at the end of lower secondary education.

Figure 20. **VET in upper-secondary education is well developed in Italy**
Percentage of 15-19 year-olds enrolled in upper-secondary education that follow vocational programs



Source: OECD (2016), *Education at a Glance 2016*. OECD Publishing, Paris.

Improving skills beyond school

Boost work-based learning

Increasing employability requires improving the transition from school to work to foster the benefits of youth skills. Apprenticeships can help both young people to maintain the link with the labour market and to gain useful work-relevant skills (Cedefop, 2015a; OECD, 2015b). Apprenticeships have been subject of several reforms (introduced between June 2012 and May 2014; together with the recent Jobs Act). These reforms, in addition to the measures included in the school reform, aim to overhaul the apprenticeship system. In particular, it enables students to use apprenticeships to gain upper-secondary qualifications and simplifies training requirements for apprenticeship contracts.

Apprenticeships still remain underutilized. With a downward trend since 2009, less than 15% of the young aged between 15 and 29 years old are employed with apprenticeships contracts (ISFOL, 2015). Within the Youth Guarantee programme apprenticeships are the least used solutions for young, in contrary to best practices and the European Commission' guidelines. The most used instrument is internships (ISFOL, 2016a). Internships could provide valuable opportunities to gain work experience. However, quality apprenticeship systems which imply the participation in a training program agreed to by firms, education institutions, PESs and local authorities, are better suited to increase the employability in high quality jobs, and reduce school drop-outs.

The main challenge for apprenticeships in Italy remains the link between education and training and its quality. The Italian system consists of three main types of apprenticeship: professional apprenticeship; apprenticeship aimed at acquiring a diploma or a vocational qualification; apprenticeship for higher education and research. The last two lead to an education qualification, at upper-secondary, post-secondary

or tertiary level. In this sense, they integrate a dual-system, connecting training and work. However, only the first type of contract is used in more than 90% of the hirings (ISFOL, 2015). During the year 2013 slightly less than one apprentice out of three was able to enjoy a formal education under the professional apprenticeship contract. For the rest, access to training - as required by law - resides in the initiative of individual firms. Since there is no information system or adequate monitoring, no formal education is provided.

A unique data collection source on the participation of apprentices and students in training activities and firms' needs would be beneficial for the system to work properly. There is no structured and organised national system of control and monitoring of the training provided by firms, which is the crucial element of the apprenticeship contract. Specific quality criteria need to be set for firms offering apprenticeships as done in other countries (Box 5).

The uptake of apprenticeships amongst small and medium-sized firms is particularly low. SMEs can be sensitive to the risks of engaging in this form of training, especially if they are unsure of what will be expected of them in the course of training an apprentice, or whether they will be able to retain the apprentice post-training. Given the importance of SMEs in Italy, targeted measures are needed. SMEs need not only financial incentives, but a supportive business environment offering practical assistance. To create such an environment, a coordinated strategy involving all stakeholders in a sector or a community is paramount. Chambers of commerce, employers' organisations and trade unions, sectoral federations, VET providers and public employment services need to cooperate to promote an apprenticeship culture (Cedefop, 2015b).

Box 5. Learning from well-performing dual- VET Systems in OECD countries

Some OECD countries such as Austria, Germany and Switzerland benefit from a very well developed vocational education and training (VET) system. In those countries, VET is a common pathway to stable and well paid jobs. It is a way to have high-skilled workers and avoiding young people failing out of the education system or the labour market. The study of their systems brings up four major points. In a first place, there is a strong stakeholder involvement; all parties are participating in the establishment of programmes. Secondly, all countries help students finding apprenticeship places. Thirdly, they also give incentives to firms for hiring trainees. Finally, they monitor apprenticeship places by providing licences and staff training.

Austria, Germany and Switzerland have set up **specific organisations to manage the dual-VET system** and to make it responsive to labour market needs. Those organisations regroup social partners and VET teachers in order to build a system working for all parties involved. In Austria and Switzerland, social partners are responsible for introducing and updating 'ordinances' – which usually define the profile of the post, competencies that need to be acquired and set out final examinations requirement. In Switzerland, employers are the only one entitled to initiate reforms procedures for VET ordinance. Germany has implemented an "Innovation Circle on VET" where employers, trade unions, academia and regions work together to think about upgrading the VET system.

In order to **help apprentices to find a place** to train, countries have developed different strategies. In Germany, the Federal government has an 'Apprenticeship pact' with the Chamber of Commerce and Industry to increase the number of apprenticeship places. They also started a new program called JOBSTARTER which is supposed, among others things, to help students to find apprenticeship places. In Switzerland, twice a year, the Link Institute for Market and Social Research conducts a survey, in order to estimate demand and supply for apprenticeships. When there is a mismatch, measures are taken; it finances the set-up of a host company network and takes initiative to help weakest students to find apprenticeship places. In some sectors, when firms are too small or too specialized to train an apprentice, alliances are created. Firms work together in the training program. Moreover, funds are developed to share costs of apprenticeship between all companies of a certain sector. In Switzerland, 13 funds have been made mandatory.

In Austria and Germany, governments provide **subsidies or tax reliefs for enterprises** participating in apprenticeship schemes to incite companies to take apprentices. In Austria, there is a tax exemption for training relationship and financial incentive for the creation of additional apprenticeship places per companies. In Germany, for students who have not found an apprenticeship place, who are socially disadvantaged or have a learning disability, an internship program has been implemented. It covers the intern's wages and social contributions for the company which take the apprentice on probation for 6 to 12 months.

Quality is assured by a strict **monitoring system** on companies employing apprentices. In Austria and in Switzerland, training firms have to obtain a licence to train apprentices. In Austria, the license is delivered by the apprenticeship office. It proceeds, with the help of the Federal Economic Chamber, at an examination of enterprises. In order to obtain the certificate of apprenticeship, enterprises have to fulfil some prerequisites: "carry out the activity in which the apprentice is to be trained, need to be equipped and managed in a way that it is a position to impart to the apprentice all the knowledge and skills included in the occupation profile and have a sufficient number of professionally an pedagogically qualified trainers must be available in the company". In Germany, Austria and Switzerland, trainers in companies have to complete a formation to be allowed to train apprentices.

Source: OECD (2010), *Learning for Jobs*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264087460-en>.

Higher education needs to meet labour market needs

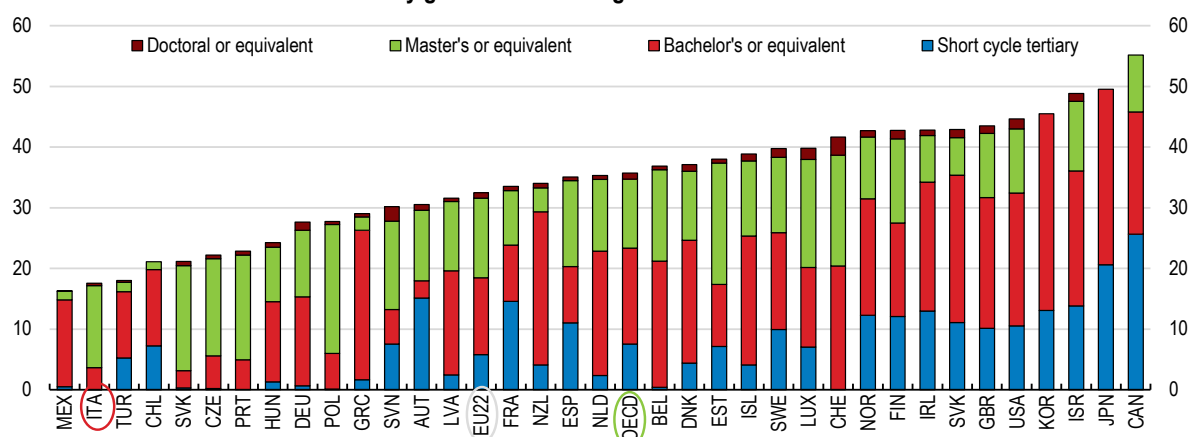
Italy stands out among countries with a small share of tertiary graduates, reflecting poor labour market outcomes. The earnings of tertiary-educated graduates relative to those adults with only upper secondary education is low in Italy - 142% compared to the OECD average of 155% (OECD, 2016a). The unemployment rate among tertiary educated adults is among the highest in OECD countries (Figure 21). The time needed to complete tertiary programmes is almost twice as long as the theoretically time required (ANVUR, 2016).

The government has taken measures to increase the quality in higher education. Under the 2010 reform, an increasing proportion of public funding for universities should be allocated on the basis of research and teaching performance. In 2015, the share of performance-related funding rose to 20% of total funding, from 13.5% in 2013, and the National Reform Programme confirmed the government's intention to gradually increase this to 30% (MEF, 2015). The 2017 Budget law introduced several measures to increase the quality of the research system, such as additional funding for the best departments and the best researchers, and increased annual endowment for ANVUR (the national agency for evaluation of the university and research system). A measure to allocate funds to universities taking into account employability rates of students is being evaluated. This is very positive measure as it gives universities incentives to focus on increasing employability of its students and should be implemented.

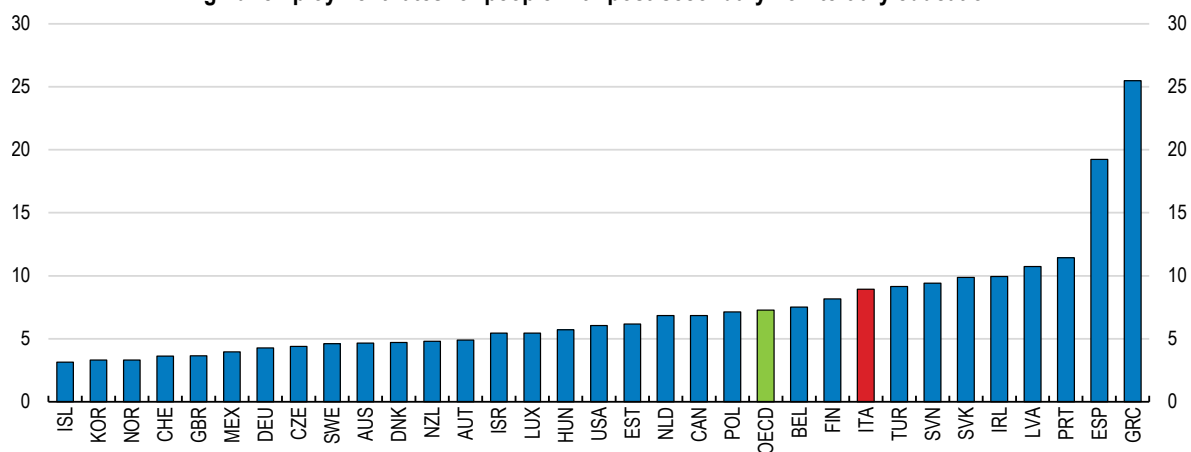
More funding will be key to improve the quality of education. Education expenditure is low, particularly in tertiary education, both relative to GDP (1.0% of GDP, compared to the OECD average of 1.6%) and to the number of students (expenditure per student was 71% of the OECD average). Giving the limited fiscal room, one alternative could be to increase tuition fees which are low compared to other OECD countries (OECD, 2016a) provided that scholarships for poor students are strengthened and a system of income-contingent loans is introduced to ensure fair access to universities for all. Very recently, the government has created a fund (right to study) financing tax exemption and grants for students in need, defined according to their family income; to the best 400 students of secondary schools who enrol in a state university, a grant of EUR 15 000 net a year is available together with the tax exemption. This is a positive measure since it can help increase the enrolment in tertiary education for the most needed youth.

Figure 21. Labour market outcomes of post-secondary graduates are unattractive

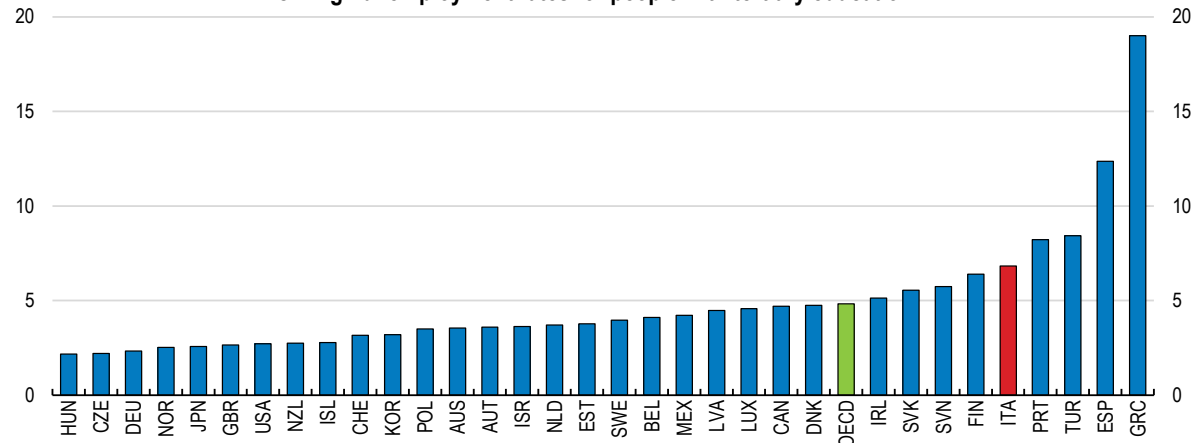
A. The share of tertiary graduates is among the lowest in OECD countries



B. High unemployment rates for people with post-secondary non-tertiary education



C. High unemployment rates for people with tertiary education



Notes: Panel A: Percentage of adults aged 25-64 by highest level of educational attainment in 2015. Panel B and C year 2015, unemployment rate of 25-64 year olds by highest level of educational attainment.

Source: OECD (2016), *Education at a Glance 2016*, OECD Publishing, Paris. See Annex 3 for notes.

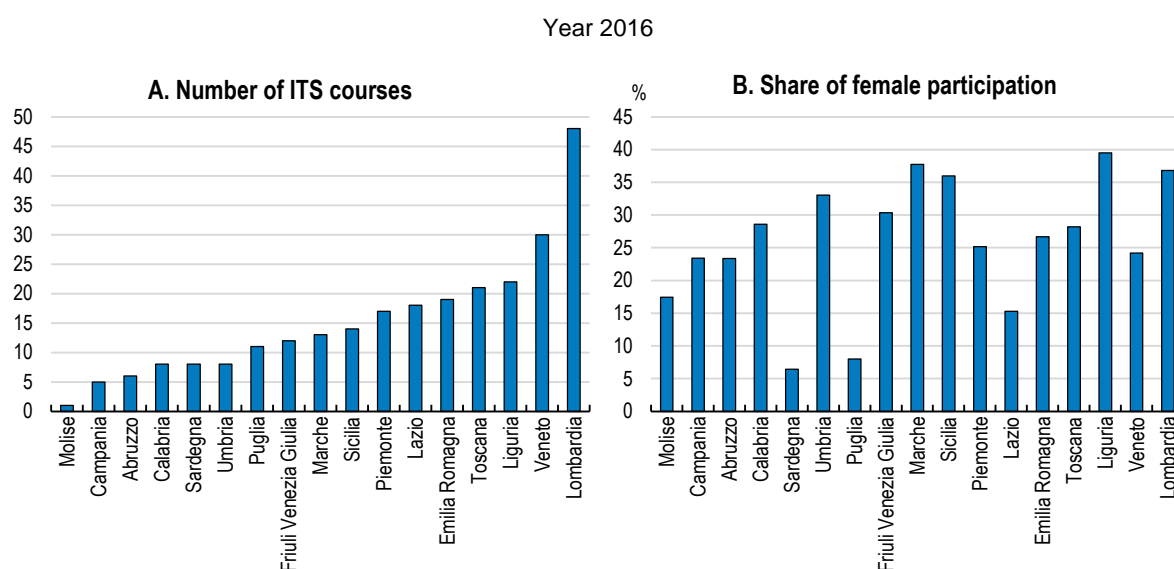
The combination of study and work can help young to develop the skills required in the labour market and reduce the drop-out from university courses. Large part of the practical studies in tertiary education takes place within the schools rather than promoting on-job experiences in the private sector. Less than 60% of students in tertiary education have a working experience (AlmaLaurea, 2016) which is low relative to other OECD countries. This explains, at least in part, the high drop-out rates from university courses, with almost 40% of students not completing the degree (ANVUR, 2016). Empirical evidence confirms that graduates in Italy, who worked besides their studies needed much less time to find their first job (AlmaLaurea, 2016).

A good example of business involvement into tertiary programmes has been developed in Italy. Higher technical institutes (Istituti Tecnici Superiori – ITS) have been created. They provide short-cycle vocationally-oriented tertiary programmes preparing students for rapid entry into the labour market, and valuable working apprenticeships while studying. The higher technical institutes are autonomous bodies, they are mixed public-private institutions which result in a strong synergy between employers, training institutions and universities and research centres. Stakeholders are involved by systematic consultation with social partners regulated and ensured by inter-ministerial decree. ITS courses are implemented with a strong focus on local needs and individualised training routes. The experience of ITS has been positive as graduating students have high level of employability, 73% of the graduates are employed in a job that matches their studies 12 months after finishing (INDIRE, 2016).

These short-cycle programmes strengthen the responsiveness of VET to labour market demand, but enrolment remains still untapped. Participation in vocationally-oriented tertiary programmes is very low – less than 1%, very low with respect to an average of 18% across OECD countries. They are concentrated in the most industrialised regions and suffer from low female participation (Figure 22). One of the reasons is that tertiary VET programmes suffer from low demand among young who prefer academic fields. Career guidance at early stages together with full information on labour market outcomes will be key to influence student choices.

Italy must continue to strengthen programmes encouraging work-based learning. *Good School* reform includes measures in order to boost courses in higher technical institutes, which include linking funding to strict quality criteria, increase the permeability between the ITS and academically-oriented higher education, and simplification of administrative procedures. A national body involving the business sector and other key stakeholders should be established to undertake strategic planning, coordination, and ensure the education-work experience mix reflects not only student preferences but also local labour market needs. Recently, the Government passed a decree creating a three year tertiary degree including one year of on-the-job training. The Government should make sure not to hurt the successful ITS system and that there are no overlaps in the offer. The aforementioned national body could be key to plan and coordinate the existing educational offer.

Figure 22. **The offer of higher technical VET programmes remains concentrated in most industrialized regions and female participation is low**



Source: ITS, INDIRE, MIUR database.

Incentivizing lifelong learning

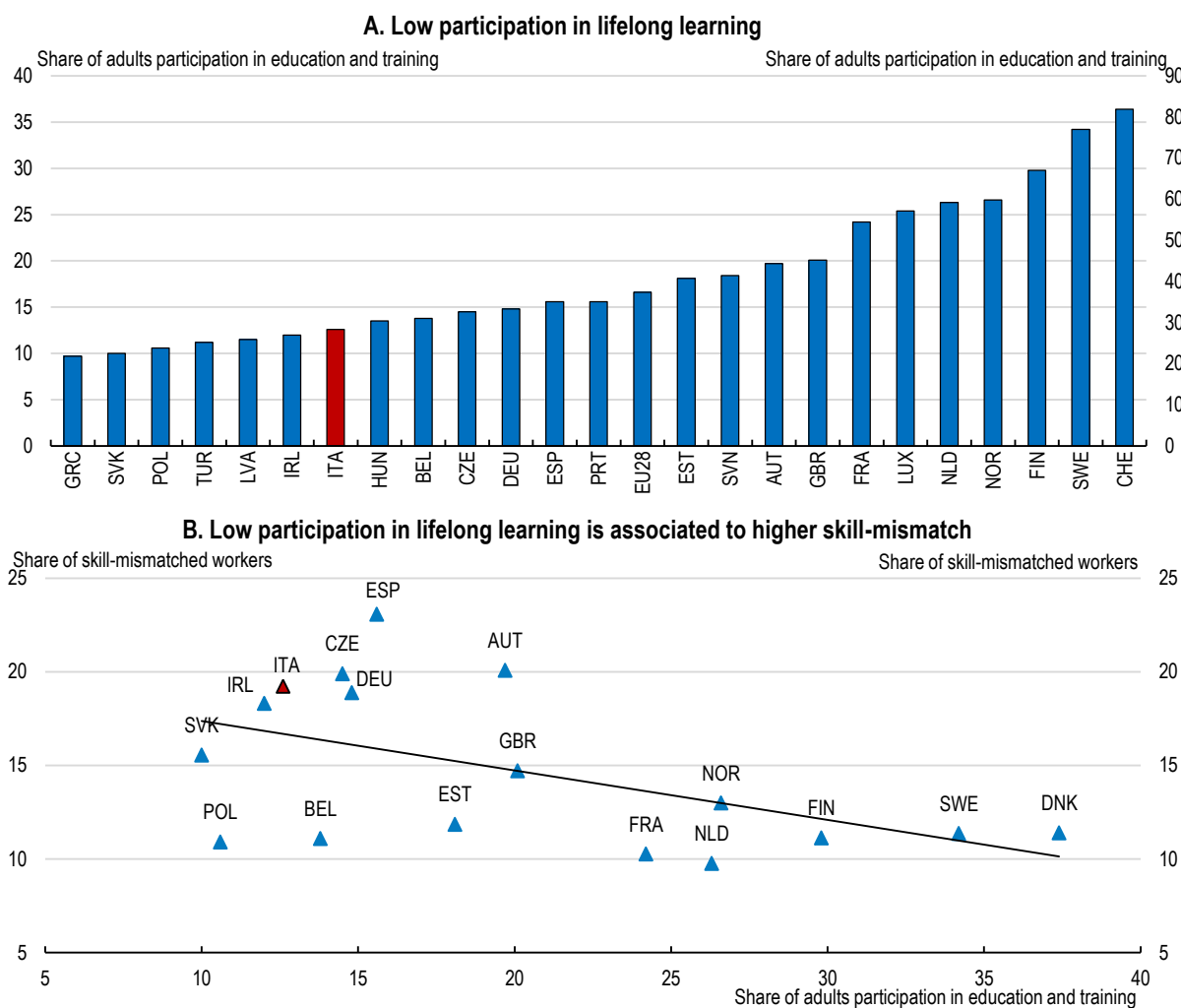
Lifelong learning is key to help reduce skills mismatch as it helps to update or acquire specific and transversal skills needed by employers. Participation in lifelong training is one of the lowest in the European Union and is associated with the presence of high skill mismatch (Figure 23). The government recently took actions to increase the provision of adult education and training, by setting up specialised institutions, the Centri Provinciali per l'Istruzione degli Adulti (CPIAs). CPIAs provide first level courses or Italian language pathways, while second level courses are carried out by upper-secondary schools providing technical, vocational or artistic pathways (Marescotti, 2014).

A life-long learning system needs to be further developed. The system is characterised by a diversity of development of networks and services for lifelong learning in the North and South of the country (ISFOL, 2016b). There is an absence of a national regulatory framework on lifelong learning with a clear national plan. Finally, there is clear need of developing instruments to reach and involve disadvantaged and low-skilled workers.

The participation of low-qualified adults in lifelong learning is particularly low. Facilitating their integration into formal education could help them acquiring general and relevant skills. This can be achieved by making education systems more flexible; increasing the offer of part-time programmes, distance learning and increasing the number of options through which students can combine financial, career and family needs.

Employers tend to provide less on-the-job training for low qualified workers, because of the higher costs (Cedefop, 2016). Individual learning accounts and vouchers have been successfully used by other countries (for example, Austria and Belgium) to encourage individuals to acquire training, and sharing the costs between the state and individuals. There is also a need to disseminate information on the rewards from lifelong learning in terms of labour market outcomes, e.g. employability and unemployment, wage evolution and job quality indicators.

Figure 23. More effort needs to be put in upskilling the labour force

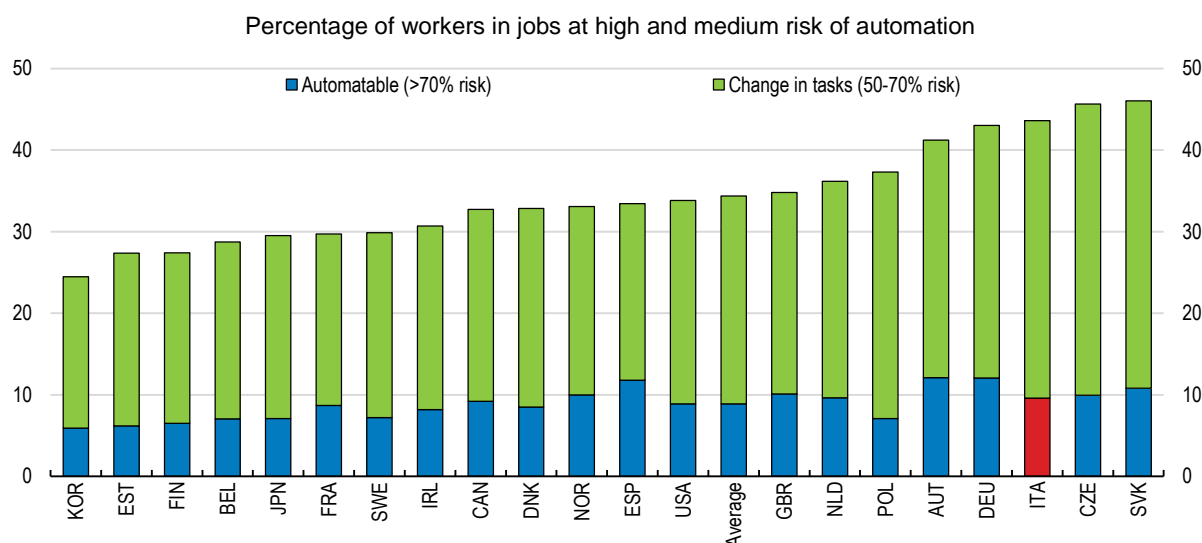


Note: For skills mismatch measures see Box 1. Share of adults (aged 25-64) participating in education and training formal or informal refers to 2015, while skills mismatch for to 2012. The correlation between participation in adult education and training with skills mismatch is -0.5, significant at 5% level

Source: Eurostat- Adult Education Survey and OECD calculations using PIAAC 2012.

Developing advanced skills

The demand for digital skills is growing across all occupations. Even manual workers need to have some digital skills, and are asked to handle basic work with computer (Arntz, et al., 2016). In contrast, routine and manual tasks are becoming less prevalent and the share of these jobs on the overall employment is gradually decreasing. These changes are likely to continue and Italy has a high share of jobs at risk due to automation (Figure 24).

Figure 24. The risk of job loss due to automation is high

Note: Data for the United Kingdom corresponds to England and Northern Ireland. Data for Belgium corresponds to the Flemish Community.

Source: Arntz, M. T. Gregory and U. Zierahn (2016), "The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis", OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris.

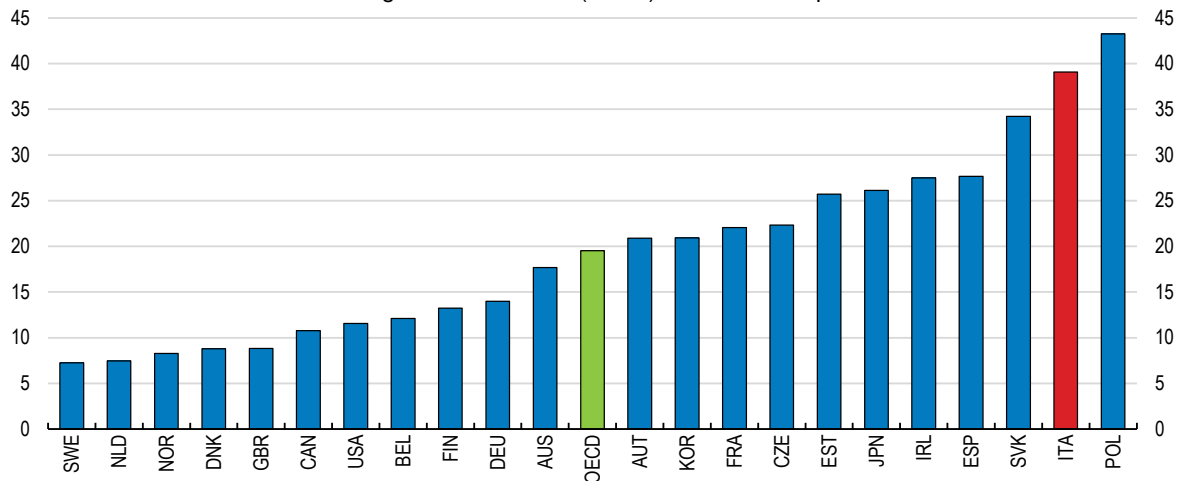
Italian workers are poorly prepared for the digital economy. The share of adults with no computer experience is the second highest among OECD countries, pointing to the need to enhance access to digital skills training (Figure 25). Basic digital skills should be adequately taught and strengthened at all levels of education and training, including adult training and active labour market policies. Some OECD countries have implemented a number of policies to promote digital literacy and inclusion for specific groups of the population who may lag behind (e.g. older people and women). A good example is the case of Norway with a national programme for digital inclusion (OECD, 2016e). The programme has developed web based resources for educators and trainers in digital competence. In addition, a magazine is being developed to inspire elderly non-digital citizens to get involved in the digital world. Plans are also on their way to develop national indicators of digital competence and digital inclusion.

The Government has stepped up efforts to improve digital literacy of Italian citizens. The Digital National Plan, launched in late 2015, provides funds (EUR1.1 billion) to improve school's IT infrastructure. The *Good School* reform includes a plan, *Digital School*, to strengthen digital competences among teachers and students, and improving internet connections in schools. Measures with the allocation of EUR 1.1 billion of resources have been approved; for infrastructure interventions, learning spaces, technological equipment, administrative digitization and connectivity, digital skills and staff training. These are positive steps as they contribute to close Italian schools' deficit in digital infrastructure and digital skills. If fully and correctly implemented these measures could drastically improve the quality and effectiveness of the Italian school system and contribute to reduce existing skill mismatches and skill shortage in the labour market.

Italy has a very low share of science, technology, engineering and mathematics (STEM) graduates and ICT specialists (EC, 2016b). A large share of employers encounters problems to hire precisely in those fields because of lack of candidates or inadequate skills (Excelsior, 2016). In 2016, the government launched the National Industry 4.0 Plan, which provides a range of incentives (for about EUR 13 billion) to boost innovation and skills in new technologies over 2017-2020. This is the first national industry plan explicitly aiming at modernizing the productive structure of the economy. The Plan pays attention to the development of relevant specialist digital skills through university courses and higher technical institutes, funding research by developing clusters and doctorates and creating competence centres and digital

innovation hubs. The Plan could boost the demand of high digital skills, increasing the imbalances and requiring skill transformation for many employees. Enterprises will need to provide the appropriate training to their workforce in order to adapt.

Figure 25. Many adults lack computer skills
Percentage share of adults (15-65) with no ICT experience



Source: OECD Skills Outlook 2013 Database.

Policy recommendations

Labour market reforms to boost employability

- Ensure ANPAL has the powers to coordinate local employment services offices and set national standards on job search and training policies.
- Increase staff-to-job seeker ratios and specialization of counsellors in public employment services.
- Implement a systematic assessment of the labour market impact of activation programmes to focus funding on those that are performing well.
- Facilitate labour mobility between regions, occupations and sectors through skills recognition and the use of skills assessment.

Raising skills that match labour market needs

- Create partnerships between schools and the business sector to create quality work-based learning opportunities for students as envisaged by the Good School reform.
- Develop work-based learning programs based on apprenticeships across all levels of education, including universities.
- Introduce minimum training quality standards to the firms providing traineeships, internships and apprenticeships.
- Scale up the post-secondary vocational education and training (VET) system with high involvement of the business sector based on the Istituti Tecnici Superiori.
- Establish a national body on VET, involving all the key stakeholders to ensure strategic coherence and coordination in the VET system.
- Target the low skilled in lifelong learning by facilitating integration into formal education through part-time programmes in post-secondary education and vocational training.
- Develop digital skills at all levels of education and training.

REFERENCES

- Adalet McGowan, M. and D. Andrews (2015a), “Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data”, *OECD Economics Department Working Papers*, No. 1209, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5js1pzx1r2kb-en>.
- Adalet McGowan, M. and D. Andrews, (2015b) “Skill Mismatch and Public Policy in OECD Countries,” *OECD Economics Department Working Papers* 1210, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5js1pzw9lnwk-en>.
- Adda, J. and A. Triggari (20016), “Labor Market Inequalities across Italian Demographic Groups: a focus on the youth and the long-term unemployed”, Policy Brief No. 1, IGER, Bocconi University, Milan.
- AlmaLaurea (2016), “Condizione Occupazionale dei Laureati”. XVIII Indagine, Roma.
- Andrews, D., A. Caldera Sánchez and Å. Johansson (2011), “Housing Markets and Structural Policies in OECD Countries”, *OECD Economics Department Working Papers*, No. 836, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5kgk8t2k9vf3-en>.
- ANVUR (2016), “Rapporto sullo stato del sistema universitario e della ricerca”, National Agency for the Evaluation of the University and Research Systems.
- Arntz, M., T. Gregory and U. Zierahn (2016), “The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis”, *OECD Social, Employment and Migration Working Papers*, No. 189, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5j1z9h56dvq7-en>.
- Bassanini, A. and A. Garnerò (2013), “Dismissal Protection and Worker Flows in OECD Countries: Evidence from Cross-Country/Cross-Industry Data”, *Labour Economics*, Vol. 21, pp. 25-41.
- Berton, F., Devicienti, F., and Pacelli, L. (2011). “Are temporary jobs a port of entry into permanent employment? Evidence from matched employer-employee data”, *International Journal of Manpower*, Vol. 32:8, pp. 879–899.
- Berton, F., Devicienti, F. and Grubanov, S. (2016) “Employment Protection Legislation and Qualification Mismatch: Evidence from a Reform”, Laboratorio Riccardo Revelli, Working Papers, No. 151.
- Bloom N., Lemos R., Sadun R., Van Reenen J. (2015), “Does Management Matter in Schools?”, *The Economic Journal*, Vol. 125 Issue 584, pp. 647-674
- Booth, A.; M. Francesconi and J. Frank (2002), “Temporary Jobs: Stepping Stones or Dead Ends?”, *The Economic Journal*, Vol. 112, No. 480, pp. F189-F213.
- Browne, J. and D. Pacifico (2016), “Faces of Joblessness: results for Italy”, Cooperation with the OECD on Assessing Activating and Enabling Benefits and Services in the EU Policy Analysis Note (PAN) for Italy.
- Brunello, G. et al. (2007) (eds), Education and Training in Europe, Oxford University Press.

- Cabrales, A., J. Dolado, and R. Mora (2014), "Dual Labour Markets and (Lack of) On-the-Job Training: PIAAC Evidence from Spain and Other EU countries", IZA Discussion Papers No. 8649, Institute for the Study of Labor (IZA).
- Cedefop (2016), "Improving career prospects for the low-educated. The role of guidance and lifelong learning", European Centre for the Development of Vocational Training research paper No 54, Luxembourg: Publications Office.
- Cedefop (2015a), "Work-based learning: apprenticeships", Information Note, European Centre for the Development of Vocational Training, Luxembourg: Publications Office.
- Cedefop (2015b), Briefing note - Making apprenticeships work for small and medium enterprises, Publications Office of the European Union, Luxembourg: Publications Office.
- Cedefop (2010), "The Skill Matching Challenge: Analysing Skill Mismatch and Policy Implications", European Centre for the Development of Vocational Training, Luxembourg: Publications Office.
- Cingano, F., M. Leonardi, J. Messina and G. Pica (2010), "The Effects of Employment Protection Legislation and Financial Market Imperfections on Investment: Evidence from a Firm-Level Panel of EU Countries", *Economic Policy*, Vol. 61, pp. 117-163.
- European Commission (2016a), "Country Report Italy 2016: Including an In-Depth Review on the prevention and correction of macroeconomic imbalances".
- European Commission (2016b), "Digital Scoreboard 2016: Strengthening the European Digital Economy and Society".
- Excelsior (2016), "Fabbisogni occupazionali e formativi delle imprese italiane nell'industria e nei servizi" Banca dati Unioncamere, Ministry of Labour, Excelsior Information System, 2016.
- Haltiwanger, J., S. Scarpetta and H. Schweiger (2013), "Cross Country Differences in Job Reallocation: The Role of Industry, Firm Size and Regulations", *Labour Economics*, Vol. 26, Pages 11-25.
- Hanushek E. A. and Woessmann L. (2011), The economics of international differences in educational achievement. In Hanushek E. A., Machin S., Woessmann, L., *Handbook of the Economics of Education*, Vol. 3, Amsterdam: North Holland, pp. 89-200.
- Hijzen, A. and B. Menyhert (2016), "Measuring labour market security and its implications for individual well-being", *OECD Social, Employment and Migration Working Papers* 175, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5jm58qvzd6s4-en>
- INDIRE (2016), "Istituti Tecnici Superiori (High Technical Institutes)", National Institute of Documentation, Innovation and Educational Research.
- INPS (2016), XV RAPPORTO ANNUALE, National Institute of Social Security.
- ISFOL (2015), "L'apprendistato tra Risultati Raggiunti e Prospettive di Innovazione (Apprenticeship: Results Achieved and Innovation Prospects)", XV Rapporto Sull'apprendistato in Italia (Report on Apprenticeship in Italy), Institute for the Development of Vocational Training of Workers.
- ISFOL (2016a), "Rapporto sulla Garanzia Giovani in Italia (Report on Youth Guarantee in Italy)", Institute for the Development of Vocational Training of Workers.

- ISFOL (2016b), “Rapporto Formazione Continua (Report on lifelong learning)”, Institute for the Development of Vocational Training of Workers.
- Mandrone, E. (2014), “Youth Guarantee and the Italian PES: insights from ISFOL PLUS Survey data”, CIMR Research Working Paper Series, Working Paper No.21.
- Marescotti, E. (2014), “The Formal System of Adult Education in Italy from CTPs (1997) to CPIAs (2013/2014): an Inside View of the Situation”, *International Journal of Humanities and Social Science*, Vol. 4, No. 12; October 2014.
- Martin, J. (2014), “Activation and Active Labour Market Policies in OECD Countries: Stylized Facts and Evidence on their Effectiveness” IZA Policy Paper No. 84, Policy Paper Series.
- MEF (Ministry of the Economy and Finance) (2015), Programma Nazionale di Riforma (National Reform Programme), Ministry of Economy and Finance.
- Montt, G. (2015), “The Causes and Consequences of Field of Study Mismatch”, *OECD Social, Employment and Migration Working Papers*, No. 167, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jrxm4dhv9r2-en>.
- Mortensen, D. and Pissarides, C., (1994), “Job Creation and Job Destruction in the Theory of Unemployment”, *Review of Economic Studies*, Vol. 61/3, pp. 397-415.
- OECD (2016a), Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2016-en>.
- OECD (2016b), OECD Employment Outlook 2016, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2016-en.
- OECD (2016c), *Getting Skills Right: Assessing and Anticipating Changing Skill Needs*, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/9789264252073-en>
- OECD (2016d), *Regions at a Glance*, OECD Publishing, Paris, http://dx.doi.org/10.1787/reg_glance-2016-en.
- OECD (2016e), "Skills for a Digital World: 2016 Ministerial Meeting on the Digital Economy Background Report", OECD Digital Economy Papers, No. 250, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5j1lwz83z3wnw-en>.
- OECD (2016f), *Society at a Glance 2016: OECD Social Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264261488-en>.
- OECD (2015a), OECD Employment Outlook 2015, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2015-en.
- OECD (2015b), OECD Skills Outlook 2015: Youth, Skills and Employability, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264234178-en>.
- OECD (2015c), In It Together: Why Less Inequality Benefits All, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264235120-en>

OECD (2014a), *OECD Employment Outlook 2014*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2014-en.

OECD (2014b), *PISA 2012 results: Students and Money. Financial Literacy Skills for the 21st Century (Volume VI)*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264208094-en>.

OECD (2013a), *Employment Outlook 2013*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2013-en.

OECD (2013b), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264204256-en>.

OECD (2012), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264177338-en>.

OECD (2010), “Institutional and Policy Determinants of Labour Market Flows”, in: *OECD Employment Outlook 2010: Moving beyond the Jobs Crisis*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2010-4-en.

OECD (2005a), *Promoting Adult Learning*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264010932-en>.

OECD (2005b), *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264018044-en>.

OECD (2002), “Taking the Measure of Temporary Employment”, in *OECD Employment Outlook 2002*, OECD Publishing, Paris. http://dx.doi.org/10.1787/empl_outlook-2002-5-en.

Pellizzari, M. and A. Fichen (2013), “A New Measure of Skills Mismatch: Theory and Evidence from the Survey of Adult Skills (PIAAC)”, *OECD Social, Employment and Migration Working Papers*, No. 153, <http://dx.doi.org/10.1787/5k3tpt04lcnt-en>;

Pisu, M. (2017), “Promoting a private investment renaissance in Italy”, *OECD Economics Department Working Papers*, No. 1388, OECD Publishing, Paris.

Quintini, G. (2011), “Right for the Job: Over-Qualified or Under-Skilled?”, *OECD Social, Employment and Migration Working Papers*, No. 120, OECD Publishing, Paris, <http://dx.doi.org/10.1787/1815199x>.

World Economic Forum (2014), “Matching Skills and Labour Market Needs: Building Social Partnership for Better Skills and Better Jobs”, Global Agenda Council on Employment, World Economic Forum.