

Employment and Earnings Expectations of Jobless Young Skilled: Evidence from Italy

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Abstract

This paper uses an innovative survey instrument on employment and earnings quantitative expectations to measure the amount of job instability, insecurity, and earnings risk that jobless young skilled perceive. The survey was fielded in Italy, as one of the EU countries that suffered the highest increase in youth unemployment, and the data were merged with administrative records on local labor market conditions. The results show that Italian jobless young skilled perceive substantial job instability, insecurity and earnings risk, which correlate with several important choices and behaviors, and depend on individual characteristics rather than on local labor market conditions.

Key Words: Job instability and insecurity; Earnings risk; Subjective expectations; Youth unemployment.

JEL Codes: J31; J6; J62; D84.

1. Introduction

Since the 2008 financial crisis, jobs have become scarce and more precarious. The job crisis hit young Europeans particularly hard. Between 2007 and 2012, employment in Greece, Ireland and Portugal declined by 1.6 million, but 75 per cent of this reduction was concentrated among young people aged 15-34 years (ILO 2014). At the same time, job insecurity and temporary employment significantly increased: in most EU countries, between 2007 and 2014 the share of temporary contracts increased, on average, by 23 per cent (European Commission 2016, Schmid and Wagner 2017).

The young adults between the age of 25 and 34 have been the most affected by jobs' scarcity and instability: in the age of family formation, a precarious job situation and the lack of financial stability are major obstacles to planning for the future (Chung, Bekker, and Houwing 2012). Italy is one of the countries that suffered the highest rise in unemployment and temporary jobs among young adults. Since 2011, the unemployment rate for the 25 to 34 age group has been increasing at a higher rate than the unemployment rate for any other age group, and, at the end of 2014, it reached 19 per cent, which was 6 per cent higher than the EU average.¹ Joblessness also affected the young with a University degree:² between 2011 and 2014, the unemployment rate for Italian University graduates aged 25-34 increased by 46 per cent, while, for those employed, real wages decreased by 20 per cent, and temporary employment sharply increased (AlmaLaurea 2014 and ISFOL 2014).³

An extensive literature has investigated how joblessness and job insecurity experienced at a young age affect individuals and societies (Bell and Blanchflower 2011; Dolado 2015). For societies, early unemployment is associated with a number of social illnesses such as increased crime and drug offences (Bell and Blanchflower 2011). For individuals, it is associated with 'scarring effects' on future wages and employment (e.g. Gregg and Tominey 2005; Fairlie and Kletzer 2003; Arulampalam 2001), and physiological effects such as depressive symptoms (Goldsmith, Veum, and Darity 1996), lack of self-confidence, self-blame, stress, and resignation (Hammarström and Janlert 1997).

In a context of scarce and precarious job opportunities, one additional channel through which joblessness could affect the young is by shaping the subjective expectations of their future employment and earnings prospects, and, through these expectations, the amount of job and earnings

¹ Evidence from the Italian Labour Force Survey: <http://dati.istat.it/Index.aspx>

² The job crisis hit Italian University graduates despite Italy having one of the lowest shares of University graduates in Europe: in 2014, the share of Italian University graduates in the age group 30-34 was 22 per cent compared to an EU average of 37 per cent (<http://ec.europa.eu/eurostat>).

³ Consistently with this employment crisis, unemployment in Italy is perceived as top priority problem: according to the Eurobarometer 2015, 46 per cent of Italians think that unemployment is among the top two most pressing issues the country is facing, and 44 per cent think that life for the future generations will be harder.

instability and insecurity that they perceive. The goal of this paper is to measure these expectations of future earnings, job instability and insecurity, assess their determinants, and their relationship with current choices and behaviors.

In doing so, the contribution is twofold. First, this paper uses the quantitative expectations data methodology (Manski 2004) to design new survey questions on subjective employment probabilities and expected earnings, which allow, for the first time, to robustly measuring perceived job instability, job insecurity and earnings risk for the jobless young. I fielded these questions using an original survey instrument, the Italian Youth Employment Survey (IYES).

I administered the IYES in early 2015 to a nationally representative sample of jobless Italian University graduates aged 25-34. In addition to the expectations questions, the IYES contains detailed socio-demographic and family background information, together with several questions on political, economic, and social attitudes, job search and job experience, risk attitude, and a proxy for the inaccuracy of predictions to account for knowledge of the economic reality where individuals form expectations. I then merged the IYES data with province-level administrative data to control for relevant local labor market conditions that characterize the economic context where people live.

The richness of information of the IYES dataset allows for the second contribution of this paper: accurately studying both the individual-level and the local labor market determinants of job instability, job insecurity and earnings risk, and how they correlate with important life choices and behaviors.

The remainder of the paper is as follows. Section 2 discusses the measurement of job instability and insecurity; section 3 describes the data; section 4 presents the new measures of job instability, insecurity, and earnings risk, and validates the expectations data used to construct these measures. Section 5 and section 6 discuss the determinants and the consequences of job instability, insecurity and earnings risk for the jobless young. Section 7 briefly concludes. The Appendix reports all Tables.

2. Theory and measurement of job instability and insecurity

2.1 Theory

In a seminal contribution, Pissarides (1974) includes perceptions of job stability and security as two main factors driving job search, especially for the jobless. Pissarides (1974) develops a simple framework where a job offer is described by a single wealth variable that can be interpreted as the present discounted value of the income stream associated to a job offer adjusted for the factors related

to future uncertainty through a discount rate. The information that individuals have about the labor market is summarized in a probability distribution of expected income earnings. Probabilities may be objective or subjective and are revised through job search. A job offer is accepted if the mean expected wage offer does not exceed the offer by more than the risk premium. The model makes an important distinction between employed and jobless individuals: assuming that those in employment have a better knowledge about their earnings prospects, once employed, an individual expects to earn a known certain income. Therefore, the uncertainty of future income streams is particularly relevant for the jobless: future income's uncertainty is a function of perceived job instability and insecurity that drive job search for those that do not have a job.

Despite Pissarides' contribution, most of the theoretical literature that followed defined job instability and insecurity only for individuals who do have a job, by referring to these concepts as the prospects and expectations of changing job's type and duration for the employed (Mortensen 1986; Gottschalk and Moffitt 1999). In particular, job instability refers to perceptions and expectations of job turnover and duration: a worker faces a higher job instability if expecting to have jobs of short duration. Job insecurity refers to perceptions and expectations of changing the quality of the employment prospects; more specifically, job insecurity refers to the subjective probability of exogenous job destruction and the subjective distribution of its outcome if the worker looks for new employment (Lippman and McCall 1976; Mortensen 1986).

As discussed by Gottschalk and Moffitt (1999), job insecurity differs from job instability since it refers to job turnovers associated with less desirable outcomes. In addition to jobs of short duration or even if jobs' duration has not changed, a worker may expect turnovers that lead to worse outcomes, such as an increase in the probability of unemployment spells or a decrease in the wage gains from changing employers.

Following the theoretical literature, a vast empirical literature has proposed various measures of job instability and insecurity for the employed. Researchers have used several different empirical methods and strategies (Sverke, Hellgren and Naswall 2006), which we can group into two main approaches: the traditional approach and the quantitative expectations data approach.

2.2 Traditional measurement approach

The traditional approach describes two main empirical strategies. The first common strategy has been to infer expectations from realizations, for example using statistics on unemployment rates and durations, and data on job losses to measure subjective probabilities of job destruction (e.g. Aaronson

and Sullivan 1998). The second and most common empirical strategy has been to proxy subjective expectations with information collected through qualitative survey questions. These qualitative questions typically ask individuals the likelihood or chance that they assign to losing their current job and finding a new job (e.g. Origo and Pagano 2009 and Clark and Postel-Vinay 2009), or the extent to which they worry about the security of their job (e.g. Böckerman 2004), and the possibility of becoming unemployed (Theodossiou and Vasileiou 2007). In addition, some studies have investigated the relationship between labor market insecurity and perceived job satisfaction and security using linked survey and register data. As one example of this literature, Böckerman et al. (2011) use detailed micro-data for Finland to examine the effect of establishment- and industry-level labor market turnover on wages, job satisfaction and job security. They find that churning and excess job reallocation at the industry level have significant effects on wages, while they do not affect job satisfaction and satisfaction with the security of the job.

Both empirical strategies suffer from important limitations that result into measurement bias. On the first strategy, credible inference from realizations to expectations is difficult since researchers have to make strong assumptions on the information that individuals have and on how they use it to form expectations. These assumptions remain untestable and drive the empirical results that may or may not reflect individuals' expectations of changing job conditions and future job prospects. On the second strategy, most qualitative survey questions ask respondents to report whether they "think" or "expect" that an event will occur and express the strength of this belief by attaching one option among "definitely," "high chance," "fifty-fifty", "low chance" or "not at all" likely. While seemingly simple and straightforward, and as such included in several major surveys, these qualitative or verbal expectations (VE) questions inadequately elicit subjective expectations about the future.⁴ As Manski (2004, 2017) discusses in two comprehensive surveys of the literature, VE questions present two main limitations. First, the inter-personal comparability across VE responses is limited by the difficulty in knowing how respondents interpret the questions. Second, the coarseness of the response options induces substantial bias by restricting the range of possible answers, thus limiting the accurate reporting of future uncertainty that respondents may perceive but cannot provide. In addition to these limitations, in the context of measuring job insecurity, Dominitz and Manski (1997b) note how standard VE questions to elicit job losses confound the probability of losing a job with its subjective

⁴ VE questions are common in many large surveys such as the *World Values Surveys*, the *European Values Survey*, the *European Elections Survey*, the *American and British National Election Studies*, the *Eurobarometer Series*, and the *International Social Survey Programme*.

cost. This is the case, for example, for one of the most commonly used VE question to measure job security, which asks respondents how satisfied they are with the security of their current job.⁵

2.3 Quantitative expectations data approach

An alternative approach to measuring expectations through realizations and to using VE questions is the probabilistic elicitation of quantitative expectations (QE) questions.

For continuous variables, the QE methodology elicits information on the future expected value of the variable at different quantiles of its distribution together with the corresponding expected probabilities of realization. One example of a commonly used continuous variable is individuals' expected earnings, which are elicited by asking respondents to report the minimum and the maximum earnings they expect to make, and the subjective probabilities of different quantiles of the earnings' distribution (e.g. Dominitz and Manski 1997a). In this way, for each individual in the sample, it is possible to construct the full distribution of future expected earnings, and therefore all of its moments, such as the variance of expected earnings, which can be used to measure earnings risk.

For discrete variables, the QE methodology elicits individuals' subjective probabilities of future expected realizations. For example, to elicit the chance of finding a job in the next 12 months, respondents are asked to state the expected probability to find a job in the next 12 months. In this way, the coarseness of the pre-stated response options that VE questions provide is reduced, and individuals can fully express the degree of future uncertainty that they perceive using the well-defined 0-100 probability scale, which makes responses inter-personally comparable.⁶

To the best of my knowledge, in the literature on job instability and insecurity, Manski and Straub (2000) is the only paper that uses the QE methodology to elicit employment expectations and construct a measure of perceived job insecurity. In particular, they focus on a sample of American adult workers, and use three main quantitative subjective probability questions: one question on job loss (What do you think is the percent chance that you will lose your job during the next 12 months?); one question on job search (If you were to lose your job during the next 12 months, what is the percent chance that the job you eventually find and accept would be at least as good as your current job, in terms of wages and benefits?); and, one question on voluntary quits (What do you think is the percent

⁵ This VE question on job security is included in several major surveys, such as the *European Community Household Panel*, which has been extensively used to study job security (e.g. Böckerman et al. 2011).

⁶ Two examples of surveys that include QE questions on both expected earnings and the expected probability to find a job are the US *Health and Retirement Study* and *Survey of Economic Expectations*, and the Italian *Survey of Household Income and Wealth*.

chance that you will leave your job voluntarily during the next 12 months?). They find that individuals answer meaningfully each of the three QE questions, and that these questions provide an informative description of the degree of perceived job insecurity in the sample.

2.4 Measuring job instability and insecurity for the jobless

Despite the important role that perceived job instability and insecurity have for the jobless (Pissarides 1974), the empirical literature has measured these concepts only for individuals that do have a job. However, jobless individuals also form expectations about their future earnings prospects and on the duration and quality of potential future jobs.

Can we use the QE methodology to measure perceived job instability and insecurity for the jobless, and, in particular, for the jobless young? To answer this question, I designed an original survey instrument, the Italian Youth Employment Survey (IYES), which targets jobless young adults and includes an extensive battery of QE questions on future earnings and employment prospects.

On employment prospects, the IYES includes three subjective probability questions on the length and duration of future expected jobs, and three questions on the prospects to find a secure and high quality job. The first three questions capture the expectations of the length and duration of future jobs, and the second three questions measure the expectations of the quality of future jobs. On the expected length and duration of future jobs, the IYES elicits the subjective probability to start working in the next twelve months, the expected duration of the job that one expects to find, and the probability of finding a full time job. On the expected quality and security of future jobs, the IYES elicits the probability to find a job that offers adequate health insurance and pension benefits, the probability to find a job that is adequate to one's qualifications and previous job experience, and the probability to find a job without using family and personal contacts.

Following the QE literature, the subjective probability questions use the percent format and ask the respondent to provide, in a scale from 0 to 100, the chance probability of a given event. A typical employment probability question is the subjective probability to start working in the next twelve months:

"On a scale from 0 to 100, what is the probability that you will start working in the next 12 months? In other words, if you were to assign a number between 0 and 100 to the probability that you will start working in the next 12 months, what would this number be? "0": you are certain that you will not start working in the next 12 months. "100": you are certain that you will start working in the next 12 months."

As a measure of perceived job stability, I use the joint probability to find a job in the next 12 months and its expected duration, thus weighting the expected job's duration by the job finding probability. In the IYES, the question on the subjective expected job's duration has eight possible answers: less than 1 month, 1-6 months, 7-12 months, 1-3 years, 4-6 years, 7-9 years, 10 or more years, open-end contract. Since less than 90 respondents chose either the first option, or options fifth to eight, I collapsed the answers to four categories (up to 6 months, 7-12 months, 1-3 years, more than 3 years). I then multiply the median value of this expected duration variable by the probability of finding a job, thus using the job finding probabilities as weights of the expected job's duration. While the choice of the weighting scheme is arbitrary, the results are robust to different alternatives (such as using the finer expected job duration variable in the original survey question, and transforming all categories in months using as a weight the average month in each category).⁷

As the main measure of perceived job security, I use the subjective probability to find a job that offers adequate health insurance and pension benefits.

Together with the questions on future employment prospects, the IYES includes an extensive module on earnings expectations. Following an established literature (e.g. Dominitz and Manski 1997a; Guiso, Jappelli and Pistaferri 2002), earnings expectations are elicited by asking respondents to provide the minimum and maximum value of expected earnings together with the subjective probability that the expected earnings will be at least equal to the mean expected earnings. A typical earnings expectations question and the related subjective probability question are the following:

"Assume that you will start working in the next 12 months. What is the minimum monthly net earnings that you expect to be able to earn? What is the maximum monthly net earnings that you expect to be able to earn?"

"On a scale from 0 to 100, what is the probability that your monthly net earnings will be at least equal to the average monthly earnings between the minimum and the maximum monthly net earnings that you expect to be able to earn? In other words, if you were to assign a number between 0 and 100 to the probability that you will earn at least the average of the monthly earnings between the minimum and the maximum monthly earnings that you expect to be able to earn, what would this number be?"

⁷ Using a weighting scheme has some disadvantages such as assuming that a very high probability of finding a short-term job is equal to a very low probability of finding a long-term job. However, at the aggregate level, when averaging across all individuals, it satisfies the fundamental property that perceived stability increases when either the probability of finding a job in the next 12 months increases, or when the expected duration of this hypothesized job increases. An alternative method to elicit accurate perceptions of future job stability would be to elicit a series of questions on the probability of finding a job of a given expected duration.

"0": you are certain that your earnings will be lower than the average between the minimum and the maximum earnings that you expect to be able to earn. "100": you are certain that your earnings will be at least as high as the average between the minimum and the maximum earnings that you expect to be able to earn."⁸

As discussed in Section 4.2, the earnings expectations questions allow constructing a consistent measure of the volatility of earnings and thus of the amount of earnings risk that individuals perceive. Taken together, the employment and earnings expectations questions provide robust measures of the extent of job instability, job insecurity and earnings risk that the jobless young perceive.

3. Data

3.1 The Italian Youth Employment Survey

The Italian Youth Employment Survey (IYES) is an innovative survey instrument designed to collect a rich set of quantitative expectations data on future earnings and employment prospects of the jobless young aged between 25 and 34. Between January and February 2015, I used an online platform to administer an original questionnaire to a nationally representative sample of 1,462 Italian aged between 25 and 34 that were out of employment at the time of the survey, and that graduated between 2011 and 2013 at one of the 64 universities in the AlmaLaurea consortium.⁹

The IYES sample has been constructed using proportionate stratified random sampling considering the entire population of Italian University graduates that were aged 25-34 on October 1st 2014 and that graduated between 2011 and 2013, and five stratification variables (gender, type of undergraduate degree, field of study, area of residence, and age group).¹⁰

The survey starts with two compulsory questions to establish eligibility. The first compulsory question asks respondents to confirm that there are not currently working, and the second compulsory

⁸ Eliciting expected earnings requires an explanation of the probability concept, which increases the length of the questions but is necessary for respondents to be willing and able to provide meaningful answers (Manski 2004 and 2017). Dominitz and Manski (1996) is the seminal paper that discusses the survey methodology of using the quantitative subjective elicitation of future expectations. They provide evidence that the expectation data is informative and reliable by considering the internal consistency of the answers, the prevalence of response patterns, and the comments made by respondents in a debriefing session.

⁹ At the time of the survey, the AlmaLaurea consortium was representative of 76 per cent of all Italian graduates.

¹⁰ Gender, type of undergraduate degree, field of study, and area of residence have, respectively, 2, 4, 16 and 6 categories. Age group has 4 categories each representing 25 per cent of the population. The combination of all the different values that each stratification variable could take resulted into 1,597 strata. AlmaLaurea used these strata to randomly proportionally select a sample of 17,784 graduates who were asked whether they were not currently employed and available to take part in a study on employment and earnings expectations. Of the graduates that stated to be jobless, 1,462 agreed to participate to the study.

question asks to confirm an age between 25 and 34. 1,238 young provided valid answers to both compulsory questions, and 1,074 completed the survey. Therefore, 87 per cent of the eligible young responded to the full survey.

The IYES questionnaire consists of 71 questions divided into three main sections: a first section on socio-demographic information and political, economic, and social attitudes, a second section on job search and job experience, and a third section that contains a rich battery of questions on subjective employment probabilities and expected earnings in different scenarios.

3.1.1 Descriptive statistics

Table 1 presents descriptive statistics for some main socio-demographic characteristics. 63 per cent of the sample is female, in good health and predominantly under-30, with 78 per cent aged between 25 and 29. Almost 60 per cent have lived in the same place of residence since birth, and the sample is well balanced between geographical areas of residence and areas of study¹¹ across the different types of University degrees that are available in Italy.¹²

Confirming that Italian parents represent an important source of financial support, 84 per cent of the young report that they can turn to the family of origin in case of financial difficulties. 66 per cent are in a stable relationship and 70 per cent plan to have children in the future. Importantly, 68 per cent of the sample have both parents with, at most, a high school degree.¹³ Therefore, the sample is characterized by a high upward educational mobility.

On political participation and satisfaction with democracy, 82 per cent are politically active having voted at the national political elections in 2013, and 90 per cent are unsatisfied with the functioning of the democratic political process in Italy. On job search, 77 per cent are actively looking for a job.

¹¹ The IYES asks respondents to report their area of study using the AlmaLaurea classification of Italian University degrees into four main macro-areas: "Medicine", which includes Medicine and Nursing degrees; "Hard Sciences", which includes Math, Physics, Computer Science, Architecture, Engineering, Chemistry, Pharmacy, Industrial Design, Agrarian and Veterinarian studies, Biology, Sports, Defense and Strategic Studies, Cultural Heritage, Art, Geology, and Geography; "Social Sciences", which includes Economics, Statistics, Law, Political Science, Communication Sciences, Psychology, International Relations, Tourism, and Sociology; "Humanities and Teaching", which includes Italian Literature, Anthropology, Art, Religion, Language, Translation, Education, History, Philosophy, Pedagogy, and Art History. There is also a residual category "other - specify", which no IYES respondent in the sample chose.

¹² In Italy there are three main types of undergraduate degrees: "laurea triennale di primo livello", "laurea di 4 o piu' anni" (also called "laurea magistrale a ciclo unico"), and "laurea specialistica/magistrale biennale". "Laurea triennale di primo livello" is a 3-year undergraduate degree, which is comparable to a UK and American bachelor degree. "Laurea di 4 o piu' anni" is a 4 to 6-year undergraduate degree that is specific to some fields of studies such as medicine and engineering. "Laurea specialistica/magistrale biennale" is a two-year advanced undergraduate degree that can be earned only after having completed either a 3-year or 4 to 6-year undergraduate degree.

¹³ This result is consistent with the finding that 70 per cent of all Italian graduates have parents without a University degree (AlmaLaurea 2015).

In addition, not reported in Table 1 for brevity, 47 per cent have never worked or have worked for less than one year, and an additional 20 per cent have worked for 1-2 years. This is consistent with evidence that young Italians with a University degree have limited job experience before entering the job market (Almalaurea 2015). In the most recent survey of Italian graduates, Almalaurea documents even an increase in the incidence of graduates without any type of work experience (Almalaurea 2017).¹⁴ While 39 per cent of the sample consider personal and family contacts as the most important factor to find a job, only 14 per cent of the sample think to have sufficient contacts to find a job. Overall, 93 per cent of the survey participants (994/1,074) responded to all the questions included in the expectations module with response rates that vary negligibly by observable characteristics.

Importantly, the survey elicits information on two crucial aspects that affect the process of expectations' formation: risk attitude, and a proxy for the inaccuracy of predictions to account for how much individuals know about the economic reality where they form expectations. Risk attitude is a key determinant of individual choices and behaviors such as occupational choices (Bonin et al. 2007), financial and moving decisions (Guiso and Paiella 2005), and educational choices (Brunello 2002). Therefore, it is an important factor to account for when studying the determinants of expectations. Using the two main standard measures of risk aversion, the IYES asks for the reservation price of a hypothetical lottery, and a self-assessment question on risk attitude on a 0-10 scale.¹⁵ Using the self-assessment question, the sample mean risk aversion is almost 6 with a distribution that is skewed towards low risk aversion.¹⁶

The inaccuracy of predictions measures the extent to which lack of information on the relevant economic context affects individuals' expectations. For the jobless young, misperceiving the actual unemployment rate could bias their employment and earnings expectations, and thus the perceived job instability and insecurity measures constructed from these expectations. In order to measure the inaccuracy of predictions, the IYES asks respondents to report the rate of unemployment for their age group. On average, the jobless young in the sample perceive an unemployment rate of 39 per cent, which is 20 percentage points higher than the actual unemployment rate for the 25 to 34 age group in

¹⁴ The IYES does not collect detailed information on previous job experience, such as the type and number of previous job opportunities, including internships. This is a limitation of the IYES, which is mainly due to the length of the survey. Since the survey already includes 71 questions with complex QE questions, and because job experience is not prevalent among Italian University graduates, job history questions were not included. A future round of data collection could correct this limitation by piloting a more extensive survey that includes a job history section.

¹⁵ As discussed by Ding, Hartog and Sun (2010), these two measures correlate with experimental measures of risk aversion by generating valid indicators of choices under risk in an experimental setting where real money is at stake.

¹⁶ The reservation price question delivers results that are consistent with the self-assessment question, and are all available upon request.

the last trimester of 2014.¹⁷ The percentage difference between the perceived unemployment rate and the actual unemployment rate gives a measure of the respondents' knowledge of unemployment. Assuming that this knowledge is a proxy measure of knowledge of relevant macroeconomic conditions, I use this variable to measure how the inaccuracy of predictions affects future expectations.

3.2 INPS data

Employment and earnings expectations are likely to reflect the macro-economic context where individuals live. For example, we expect someone living in a high-income area to face, and thus to expect, a higher probability to find a job than someone living in a low-income area. In order to account for the local economic context where people form expectations, I constructed several measures of relevant local labor market conditions using administrative data from the Italian *Istituto Nazionale della Previdenza Sociale* (INPS).¹⁸ I considered both the universe of the population of adult workers aged 18 to 65, and the population of those aged between 25 and 34 in January and February 2015, that is at the time when the IYES data were collected.¹⁹

I used two main INPS datasets: the Income Support Measures Database (*Banca dati delle Prestazioni a Sostegno del Reddito*), to compute the amount and the duration of unemployment subsidies, and the Monthly Labor Markets Survey (*Rapporto del Lavoro Mensile*), to compute several aggregate indicators of job instability and insecurity (percentage of open-ended, fixed-term, seasonal, and part time jobs), and moments of the earnings distribution (average, median, minimum, maximum, and variance). I computed these employment and earnings measures for each of all 110 Italian provinces as objective aggregate indicators of the degree of job stability and job security that characterize the local labor market where individuals form expectations. I merged the INPS and IYES data with the information on the individuals' province of residence in the IYES sample.

Table 2 presents the mean, standard deviation, minimum and maximum value of the INPS variables for the overall population of adult workers, and for the population of workers aged between 25 and 34 in January-February 2015. Table 2 shows that, compared to the overall population of workers,

¹⁷ Using data for 16 countries in 2008 from the European Social Survey, Cardoso, Loviglio and Piemontese (2016) construct a similar measure of unemployment misperceptions, and also find that people significantly overestimate the unemployment rate in their country of residence.

¹⁸ The INPS data were collected in Rome (Italy) during the summer of 2016 as part of a research project funded by the VisitINPS Scholars Program 'Expectations of Job Instability, Job Insecurity and Earnings Risk of the Italian Skilled Unemployed: Patterns and Impact on Behavior.'

¹⁹ Unfortunately, the administrative INPS data do not report the information on the individual's level of education; therefore, I considered the universe of the 25-34 years old unconditional on the level of completed education.

young Italian adults aged 25-34 have much more unstable and less secure jobs with a lower percentage of open-ended jobs, a higher percentage of temporary, seasonal and part time jobs, and lower average earnings. Section 5 will assess how much individuals' employment and earnings' expectations reflect these objective economic realities.

4. Employment and earnings expectations

This Section presents the new measures of job instability, job insecurity and earnings risk constructed with the IYES data, and tests their validity.

4.1 Job instability and insecurity

Table 3 presents the empirical distribution of the employment expectations questions. The responses' distribution is highly skewed and it is characterized by a substantial degree of both job instability and job insecurity.²⁰

60 per cent of the respondents perceive a low probability to find a job in the next 12 months, as well as a low probability to find a full time job, and over 70 per cent expect to be employed for at most one year, over 50 per cent for at most 6 months. Consistently, the mean subjective probability to find a job in the next 12 months is 44 per cent and only 6 per cent expect to find a permanent job.

Not only the young expect high jobs' turnover, but they also expect to find unstable and low-quality jobs. 60 per cent of the respondents perceive a low probability to find a job that is adequate to the acquired qualifications and experience, up to 80 per cent expect to have a less than 50 per cent chance to find a job that offers adequate health insurance coverage and pension benefits, and 60 per cent expect a low probability to find a job without using family and personal contacts. While personal contacts are considered a crucial factor to find a job, having contacts is not common. While 39 per cent rank family and personal contacts as the most important factor to find a job, 86 per cent do not have sufficient personal and family contacts to find a job. Without personal contacts and facing high job instability, while 68 per cent of the respondents have both parents with at most a high school degree, only 22 per cent of the young University graduates expect to be able to earn more than their highest earning parent. Therefore, the respondents' upward educational mobility does not map into a proportional upward income mobility, which shows an alarming trend of educated young generations that will most likely have to rely on their parents' savings and pensions to substitute for low incomes. Consistently with low earnings expectations, only 20 per cent of the respondents expect to earn more

²⁰ By denoting as "low" a subjective probability that is either lower or equal to 50 per cent, a low subjective probability perceived by a given respondent denotes high job instability and job insecurity.

than 1,200 Euros net per month and 80 per cent have to postpone important decisions due to high uncertainty about the future, and feel demoralized and pessimistic about future professional prospects.

4.2 Earnings risk

I can use the earnings expectations questions to compute a robust measure of perceived earnings risk. Improving on traditional measures of risk that use data on actual earnings, an established literature has shown that QE data allow obtaining a good measure of earnings risk by capturing the earnings' volatility that individuals actually perceive, without confounding risk with unobserved heterogeneity (e.g. Attanasio and Kaufmann 2013, and Guiso, Jappelli and Pistaferri 2002).

Following Guiso, Jappelli and Pistaferri (2002), I measure earnings risk using the coefficient of variation of expected earnings, which can be computed as the ratio between the standard deviation and the mean expected earnings, and provides a measure of earnings risk that is convenient for comparisons across individuals, groups and samples.

In order to compute the standard deviation and mean of expected earnings, let us define y_i as the expected earnings of individual i . For earnings expectations, the IYES elicits information on the points of support of the distribution, that is on the maximum and minimum value that y_i can take, $[y_{\min}; y_{\max}]$, and on the probability mass to the midpoint of the support, $\text{Prob}(y_i \leq (y_{\min} + y_{\max})/2)$ (see Section 3). Using these three pieces of information and omitting, for simplicity, the i subscript, I can compute the mean, $E(y)$, and the variance, $\text{Var}(y)$, of the expected earnings of individual i , y_i :

$$E(y) = \int_{y_{\min}}^{y_{\max}} yf(y)dy \quad (1)$$

$$\text{Var}(y) = \left[\int_{y_{\min}}^{y_{\max}} y^2 f(y)dy - \left(\int_{y_{\min}}^{y_{\max}} yf(y)dy \right)^2 \right] \quad (2)$$

In order to operationalize equations (1) and (2) and thus measure the mean and variance of future expected earnings, I follow the previous literature by considering the two intervals $[y_{\min}, (y_{\min} + y_{\max})/2]$ and $[(y_{\min} + y_{\max})/2, y_{\max}]$, and by assuming that $f(y)$ follows a triangular distribution. As discussed by a number of previous papers (e.g. Attanasio and Kaufmann 2013, and Guiso, Jappelli and Pistaferri 2002), the triangular distribution is the preferred assumption since outcomes further away from the midpoint receive less weight.²¹

²¹By giving more weight to the data points around the midpoint of the distribution, the triangular distribution provides a more realistic description of the probability distribution of earnings with respect to alternative assumptions of the distribution of $f(y)$. Another common assumption in the literature is the uniform distribution. Reassuringly and consistently with the previous literature (e.g. Attanasio and Kaufmann 2013), the results under the uniform distribution' assumption are very similar (and all available upon request). An alternative elicitation method of future expected earnings

Given equations 1 and 2, and the assumption on the distribution of $f(y)$, I can compute the mean and the variance of future expected earnings for each individual in the sample, and, therefore, obtain a cross-sectional distribution of means and variances, which is presented in Table 4.

The second and third column of Table 4 present the mean and the coefficient of variation (CV) of expected earnings. In both columns, the mean is higher than the median, which is evidence that both the cross-sectional distribution of expected earnings and their variability are rightly skewed. Monthly expected earnings after taxes are low reaching a maximum of 1,333 Euros per month for the top decile of the distribution, and are consistent with the actual average net monthly earnings of young University graduates in Italy (see Section 4.3). For robustness, the last column of Table 4 presents the variance of log of expected earnings in the sample as an alternative commonly used measure of future earnings' variation (e.g. Attanasio and Kaufmann 2013). The results obtained with the variance of the log confirm the pattern of earnings risk described by the coefficient of variation with a rightly skewed distribution and substantial earnings risk at the top half deciles.

Not only the young expect low earnings, but also highly volatile earnings. Guiso, Jappelli and Pistaferri (2002) compute the CV of expected earnings for a representative sample of the Italian adult population in 1995. Compared to the CV of expected earnings reported in Guiso, Jappelli and Pistaferri (2002), at each decile of the distribution, the CV of expected earnings risk in the IYES sample is much higher, and, on average, three times higher.²²

4.3 Validating the expectations data

Despite the challenges posed by the elicitation of the QE data (De Weerd 2005), an extensive literature has established that people are willing and able to answer in a meaningful way and that expectations significantly affect behavior in a variety of settings and countries (Manski 2017, 2004 and Delavande, Gine', and McKenzie 2011). However, concerns are sometimes raised about these data. These concerns range from the ability of individuals to answer such questions meaningfully to the endogeneity of future expectations, possibly induced by ex-post rationalization.

A diverse literature suggests that respondents may think about uncertain events using less than the full structure of modern probability theory (Camerer and Webber 1992). If respondents have

is to use a battery of probability questions for different quantiles of the expected earnings' distribution. Asking a battery of questions avoids making distributional assumptions on the density function of future expected earnings. Piloting this alternative elicitation method and comparing the results with the method used in the IYES is left for future work.

²² Guiso, Jappelli and Pistaferri (2002) use data before the 2008 financial crisis; therefore, we would expect the estimated amount of earnings risk being lower than the one estimated using data in the post-crisis period. However, the three-fold size difference suggests that only part of the difference can be attributed to the financial crisis.

difficulties in thinking in terms of probabilities, they should be unwilling to provide answers to subjective probability questions. However, the evidence presented in several papers of very high response rates given to this type of questions suggests otherwise (e.g. Dominitz and Manski 1997a and 1997b).²³ However, it could still be the case that the responses are not meaningful and respondents answer in a perfunctory manner. As discussed by Dominitz and Manski (1997b), there is no definite way to assess how seriously respondents answer to probability questions; however, as common in the QE literature, we can look for patterns of responses that may indicate a lack of care and perform some standard validation exercises of the expectations data.

The first common validation exercise is to compare expectations data with data on actual realizations. Since we expect people to draw inferences about their own potential earnings and subjective employment probabilities from what they observe from others, we should find that, on average, expected earnings and employment probabilities are close to their actual data counterparts. Therefore, finding that the expectations data collected with the IYES match the actual data provides evidence that people are willing and able to answer QE questions in a meaningful way. Data on actual realizations are available in the 2015 AlmaLaurea survey of Italian University graduates, which provides detailed information on net monthly earnings and type of jobs one year after graduation up to the year 2013, that is up to the cohort of students who graduated in 2012 (AlmaLaurea 2015). In order to make the IYES and AlmaLaurea data comparable, I exclude from the sample the 15 observations of young that have completed a PhD since PhD graduates are not included in the AlmaLaurea sample.

The expectations data closely match the actual data. The mean expected net monthly earnings in the sample is 1,097 Euros, and the actual mean net monthly earnings in the AlmaLaurea sample is 1,034 Euro. The mean subjective probability to find a job in the next 12 months is 44 per cent (52 per cent in the north, 46 per cent in the center, 39 per cent in the south and 40 per cent in the islands);²⁴ in the AlmaLaurea data, the actual proportion of young that has found a job in the next 12 months is 51 per cent. We can also compare the expected and actual earnings by type of undergraduate degree. The earnings data match closely: in the IYES data, the mean expected earnings for a 3-year undergraduate degree, a 4-6 year undergraduate degree and a 2-year advanced undergraduate degree are,

²³ In the IYES the response rate to each subjective probability question was above 90 per cent. Similar high response rates have been documented in comparable surveys eliciting future expectations such as Dominitz and Manski (1997a).

²⁴ For each individual the IYES survey provides detailed information on the city and province where the individual is currently living. The region of residence has been constructed by mapping each individual city and province with the corresponding region and by locating the region either in the north, center, south or in the islands (Sardinia and Sicily) of Italy.

respectively, 1,103, 1,069, and 1,221 Euros; actual average net monthly earnings one year after graduation are, respectively, 1,013, 1,065, and 1,024 Euros. Therefore, the jobless tend to overestimate their earning potential, but by less than 10 per cent, with the exception of the 2-year advanced undergraduate degree.

In addition to earnings, we can compare the subjective probability to find a permanent job with the actual percentage of graduates that have found a permanent job one year after graduation. In the IYES data, the average expected probability to find a permanent job is 17 per cent. In the AlmaLaurea data, the percentage of University graduates with a permanent job one year after graduation is 21 per cent. We can also check if expectations reflect past realizations by correlating the amount of work experience with the subjective expected probability of finding a job. As expected, the correlation is positive and significant: the more labor market experience an individual has, the higher the subjective expected probability of finding a job in the next 12 months.

A second validation exercise is to check how many individuals think probabilistically by assessing the extent of rounding bias in reporting subjective probabilities. As discussed by Manski and Straub (2000), we would expect respondents to probabilistic responses to use only few rounding values (0, 50, 100) instead of the refined possibilities permitted by the 0-100 per cent chance scale. However, the findings are contrary to this rounding bias. In particular, Manski and Straub (2000) find that most respondents do not round their responses to the values (0, 50, 100), but rather to the nearest multiple of 5, and that respondents perceiving very low or very high probabilities of events provide "refined" responses, with many reporting 1, 2, 98, or 99 per cent.

I can assess how many individuals think probabilistically by assessing the extent of bunching. In the quantitative expectations literature, bunching is measured by either using a summary index that computes the proportion of bunching at different percentiles of the distribution, or by looking at the distribution of responses to each probability question.

Since bunching commonly occurs at no answer and 50 values, an informative way to assess how individuals think probabilistically is to compute a summary index of the proportion of no answer and 50 per cent answers out of all expectations questions that use the percent chance format (Delavande and Rohwedder 2008 and Lillard and Willis 2002). In the IYES, the average index is 15 per cent, which is lower than the value of equivalent indexes previously computed in the literature (e.g.

Delavande and Rohwedder 2008). In addition, when computing the index at the 10th and 5th percentiles, I find that the values of the index are even lower, at 10 per cent.²⁵

An alternative to using a summary index is to assess the distribution of individuals' responses to each probability question. Manski and Molinari (2010) present an in-depth analysis of bunching when using survey questions that ask to state the percent chance that some future event will occur. Following Manski and Molinari (2010), Table 5 presents, for each probability question, the fraction of responses at different percentiles of the distribution. As in Manski and Molinari (2010), I find low non-response rates and evidence of bunching, particularly at 50 and at M10, that is at multiples of 10 excluding 0, 50 and 100. Only the questions on the probability to earn at least the mean expected earnings have a relatively high proportion of both no answer and bunching around 50 per cent; this finding is not surprising since these questions require the most advanced understanding of the probability concept. As Manski and Molinari (2010) also find, the pattern of bunching that emerges from Table 5 is at odds with consistent and systematic bunching, which would suggest that the fraction of M5 responses is slightly larger than the fraction of M10 responses and about ten times as large as the fraction of 50 responses. Overall, survey data do not reveal why respondents give rounded expectations responses. Some persons may hold precise subjective probabilities for future events, but round their responses to simplify communication. Others may perceive the future as partially ambiguous and, thus, feel unable to place precise probabilities on events.

As discussed in Manski and Molinari (2010), there are two ways forward. One is to use algorithms that assume rounding rules and consistently treat the provided responses as point probabilities in an interval range. This approach is more credible than ignoring rounding but weakens statistical inference.²⁶ Alternatively, it is possible to collect richer data on expectations. Manski and Molinari (2010) propose a sequence of survey questions that follow the percent chance with further questions that probe to learn the extent and reasons for rounding, and use the responses to qualify the stated probabilities.²⁷

²⁵ This happens because the average proportions of 10 and 5 per cent answers are small, at, respectively, 7 and 2 per cent..

²⁶ In a recent paper, Giustinelli et al. (2018) develop a framework that interprets each numerical response given by a respondent as an interval and propose a two-stage algorithm to systematically account for rounding.

²⁷ For example, one could follow up with these questions: Q1. When you said [X%] just now, did you mean this as an exact number or were you rounding or approximating? If a person answers "rounding or approximating," one might then ask: Q2. What number or range of numbers did you have in mind when you said [X%]? The elicited probability is taken at face value when a person responds to Q1 stating that the response was intended as an exact number; otherwise, the exact or range response to Q2 is used.

5. Determinants of job instability, job insecurity and earnings risk

Having validated the expectations data, I assess the determinants of the employment and earnings expectations, in particular how much they depend on individual-level variables, and on the economic context where people form these expectations. This question has relevant policy implications in order to design effective policy instruments to support the transition of the jobless young into the labor market.

In order to assess the role of local labor market conditions for expectations' formation, I specify a two-level hierarchical linear model, where each measure of job stability, security and earnings risk is estimated as a function of a rich vector of individual characteristics, and the vector of province-level variables constructed from the INPS data. Specifically, I estimate the following equation:

$$y_{ij} = \gamma_{0,0} + \beta_{1,j}X_{1,ij} + \gamma_{0,1}X_{2,j} + \mu_{0j} + \varepsilon_{ij} \quad (3)$$

where y_{ij} is the relevant outcome variable (job stability, job security or earnings risk) for individual i in province j .²⁸ X_1 is a rich vector of individual-level variables including age, gender, health status, level of education, area of study (Medicine and Nursing, Hard Sciences, Social Sciences, Humanities and Teaching), final High school and University marks²⁹, area of residence, risk aversion, job experience, parental background information (level of education and last job of mother and father, parents' health status), house owned/rented and who pays the rent, personal and family contacts to find a job, help from the family of origin in case of financial difficulties, and accuracy in predicting the unemployment rate. X_2 is the vector of the province-level variables. I include four of the aggregate indicators that I discuss in Section 3.2: average earnings, percentage of temporary jobs, and both average duration and amount of unemployment subsidies.³⁰ ε_{ij} is a normally distributed error term. $\gamma_{0,0}$ is the constant term and μ_{0j} is the province of residence fixed effect.

²⁸ The two-level hierarchical linear model (HLM) is explicitly designed to account for clustering. In particular, I assume that expectations are affected by local labor market conditions in the province of residence, and I model this dependency directly by specifying an HLM model where the clusters are the provinces. HLM estimation provides cluster-robust standard errors without requiring an explicit model for within-cluster error correlation. However, this technique does require the additional assumption that the number of clusters, and not only the number of observations, is sufficiently high. In our case, this assumption is satisfied given Italy has 110 provinces.

²⁹ In Italian high schools and universities, students take a final exam. Both the mark of the final High school and the mark of the final University exam account for the average marks that each student has across all the studied subjects in the final year, and for the score obtained in the final exam itself.

³⁰ The inclusion of the full set of indicators that I discuss in Section 3.2 does not improve the model's performance and leaves the main results unchanged.

Table 6 presents the results.³¹ The first two columns of Table 6 report the results for job stability and job security. Having a degree in Hard Sciences relative to Humanities and Teaching, having personal and family contacts to find a job, being able to turn to the family of origin in case of financial difficulties, and being risk-taker increase both job stability and job security.

The lack of statistical significance of work experience is driven by the lack of substantial variation of this variable in the sample (46 per cent of the sample reported to have never worked or to have worked for less than 1 year, and an additional 20 per cent has worked for 1-2 years). The proxy for the inaccuracy of predictions is an additional important determinant of both job stability and security. Including this variable is particularly important to control for the role of knowledge and information provision rather than the uncertainty about the future by reflecting how much information individuals have about job prospects and the labor market. The results show that making mistakes on predicting the actual value of unemployment among the 25-34 year old has a strong and statistically significant negative effect on both job stability and job security. Overall, the main determinants of both job stability and security are having personal and family contacts to find a job, being able to turn to the family of origin in case of financial difficulties, being risk taker and being informed on the level of unemployment that affects the 25-34 years old.³²

The dependent variables in the last two columns of Table 6, are, respectively, mean expected earnings and earnings risk, which is measured as the variance of the logarithm of expected earnings. Earnings expectations and risk are statistically significantly affected by fewer determinants than job stability and security. For earnings expectations, males, those having a degree in Hard and Social Sciences as well as in Medicine (relative to a degree in Humanities and Teaching), and a higher propensity to taking risks expect higher earnings. Interestingly, neither having personal and family contacts nor making smaller mistakes when predicting the unemployment rate are relevant determinants of earnings expectations. For earnings risk, having more than an undergraduate University degree and having personal and family contacts to find a job are associated with a higher volatility of future expected earnings. Among the aggregate province-level variables constructed from the INPS data, average earnings are statistically significant and in the expected positive direction for job stability and security, and the amount and duration of unemployment subsidies are significant for earnings risk.

³¹ Results are robust to using both robust standard errors and bootstrapping.

³² The estimation results, all available upon request, of a system of equations that allows job stability and security to be correlated are substantially the same, and are available upon request.

Overall, the results in Table 6 deliver two main findings. First, individual-level factors are the main determinants of employment and earnings expectations, while local labor market conditions only play a marginal role.³³ Second, expected earnings and employment expectations vary with individual-level factors in a similar way to how actual earnings and employment prospects vary with these factors. For example, Table 6 shows that males expect to earn more than females, and males do typically earn more than females when data on actual earnings are used. This finding gives additional support to the validity of the measures constructed using the QE data, since we expect people to draw inferences about their own potential earnings and subjective employment probabilities from what they observe from others.

6. Consequences of job instability, job insecurity and earnings risk

In addition to assessing the determinants of perceived job instability, job insecurity and earnings risk, if these measures meaningfully capture the employment and earnings' uncertainty that the jobless young perceive, they should correlate with important life choices and behaviors, and these effects could depend on the local labor market conditions and context where the young live and form expectations. In order to assess these correlations and account for the effect of local labor market conditions, I estimate the following two-level hierarchical linear model:

$$y_{ij} = \delta_{0,0} + \rho_{1,j}X_{1,ij} + \delta_{0,1}X_{2,j} + \rho_{2,j}X_{3,ij} + \varphi_{0j} + \omega_{ij} \quad (4)$$

where y_{ij} is a relevant outcome for individual i in province j (being actively looking for a job, being actively looking for a job that matches own qualifications and experiences, planning to have children, being pessimistic about future professional prospects, being satisfied with life, having to postpone important decisions due to future uncertainty, being satisfied with the political democratic process, being politically left, center or right). As in equation 3, X_1 is the vector of individual characteristics, and X_2 is the vector of the four province-level variables constructed from the INPS data (average earnings, percentage of temporary jobs, and both average duration and amount of unemployment subsidies). X_3 is a vector that contains job stability (measured as the subjective probability to start working in the next twelve months multiplied by the expected job duration), job security (measured as the probability to find a job that offers adequate health insurance and pension benefits), and

³³ Due to space constraints, Table 6 only reports the overall results obtained from estimating the model using the full sample. A heterogeneous analysis estimating equation 3 separately for males and females produces consistent results, which are all available upon request.

earnings risk. ω_{ij} is a normally distributed error term. $\delta_{0,0}$ is the constant term and φ_{0j} is the province of residence fixed effect.

Tables 7 and 8 present the results for each relevant outcome variable.³⁴ When job stability increases, individuals intensify job search and look for jobs matching their qualifications and job experience; life satisfaction, being optimistic about future professional prospects, not having to postpone important decisions due to future uncertainty, and planning to have children are all positively correlated with increased job security. In addition, job security is also correlated with political attitudes. In particular, it is positively associated with satisfaction with democracy, which confirms the findings in Loveless and Binelli (2018) that estimate a comprehensive model of the determinants of satisfaction with democracy. Finally, and consistently with the results in Table 6, the context variables barely change the impact of the individual-level controls, and job instability, insecurity and earnings risk remain important determinants of choices and behaviors.³⁵

Overall, the results show that perceived job instability, insecurity and earnings risk are significantly associated with important choices and behaviors. While remaining descriptive evidence, these correlation results are consistent with a substantial literature that has found significant effects of economic insecurity on individual choices (for example: Becker et al. 2010 for co-residence decisions, and Kim and von dem Knesebeck 2015 for health risks).

7. Conclusion

This paper uses a unique dataset merged with province-level administrative data for Italy to study the occupational and earnings expectations of jobless young skilled, and the amount of job insecurity and instability, and earnings risk that they perceive. The results show that jobless Italian young skilled perceive substantial job instability, insecurity and risk with 60 per cent of the young expecting low chances of finding a job in the next 12 months and 80 per cent facing low prospects of finding a job that offers adequate health insurance and pension benefits. While 68 per cent of the sample have both parents with less than a University degree, up to 80 per cent of the sample expect not to be able to earn more than their parents.

Having personal and family contacts, as well as being able to turn to the family of origin in case of financial difficulties are the main driving factors reducing perceived job instability and insecurity.

³⁴ Results are robust to using both robust standard errors and bootstrapping.

³⁵ Due to space constraints, Tables 7 and 8 only report the overall results obtained from estimating the model using the full sample. A heterogeneous analysis estimating equation 4 separately for males and females produces consistent results, which are all available upon request.

This finding is consistent with Italian family networks being an important economic and financial support mechanism and with the lack of meritocracy and familism that characterize the Italian labor market (Pellegrino and Zingales 2017).

In addition, perceived job instability, insecurity and earnings risk negatively correlate with job search, support for and engagement with the democratic political process, fertility choices, life satisfaction and wellbeing. The outcomes of these choices and behaviors influence the potential backsliding of the jobless young into a self-perpetuating cycle of demotivation and low chances of finding a job.

Two main policy implications derive from these findings. First, a policy priority should be the creation of high quality jobs that provide long-term security and stability. As outlined in the 1997 European Employment Strategy, the goal should be the creation of more and better jobs with job security and stability featuring among the main indicators of job quality (Davoine et al. 2008). Jobs providing long-term security and stability would benefit young motivated job seekers, and would provide an incentive to look for jobs to the demotivated young that have stopped searching.

Second, and specific to jobless skilled, it is necessary to design adequate employment protection regulations and social insurance mechanisms to prevent skill mismatch and improve productivity. Unemployment benefits play a particular important role. Schmid and Wagner (2017) find that generous short-term unemployment benefits can be effective to allow workers looking for suitable jobs that match their skills. A review by Martin and Scarpetta (2011) suggests that unemployment benefits have a positive impact on job transitions, particularly for the youth and young adults who are overrepresented in temporary jobs. Crucially for a country where a significant proportion of the young unemployed has never worked, an effective scheme of unemployment benefits should provide benefits to all jobless, rather than not only to those who have recently lost a job.

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Appendix

Table 1: Descriptive statistics of socio-economic variables in the IYES sample.

Table 1			
Variable	Obs	Mean	Std. Dev.
Male=yes	1074	0,37	0,48
Age	1064	27,78	2,31
Health status			
<i>Excellent</i>	348		
<i>Very good</i>	428		
<i>Good</i>	228		
<i>Fairly good</i>	63		
<i>Not good</i>	8		
Area of residence			
<i>North</i>	256		
<i>Center</i>	222		
<i>South</i>	364		
<i>Islands</i>	182		
Degree type			
<i>Undergraduate degree*</i>	942		
<i>Postgraduate degree</i>	118		
<i>PhD</i>	15		
Degree area			
<i>Medicine</i>	57		
<i>Hard Sciences</i>	422		
<i>Social Sciences</i>	404		
<i>Humanities</i>	191		
Help from family of origin if financial difficulties=yes	1073	0,84	0,37
Father's education			
<i>Less than high school</i>	348		
<i>High school</i>	461		
<i>Undergraduate degree</i>	187		
<i>Graduate and postgraduate degree</i>	62		
Mother's education			
<i>Less than high school</i>	349		
<i>High school</i>	483		
<i>Undergraduate degree</i>	176		
<i>Graduate and postgraduate degree</i>	45		
Stable relationship=yes	1069	0,66	0,48
Risk aversion	1003	5,83	2,28
Vote in 2013=yes	1052	0,82	0,38
Personal and family contacts to find a job=yes	1025	0,14	0,35
Actively looking for a job	1031	0,77	0,42
Perceived rate of unemployment 25-34 age group	995	39,04	18,64

Notes: *the "undergrate degree" category includes "laurea triennale primo livello" (369), "laurea di 4 o piu' anni" (120), and "laurea specialistica/magistrale biennale" (454).

Table 2: Summary statistics of employment and earnings' variables from INPS data for the overall population of adult workers, and for the population of workers aged between 25 and 34 in January 2015.

	All				Aged 25-34			
	mean	sd	min	max	mean	sd	min	max
Percentage open ended jobs	83.909	5.919	52.003	97.071	79.932	7.407	44.465	100
Percentage fixed term jobs	14.367	4.263	1.673	32.406	18.167	5.902	0	37.453
Percentage seasonal jobs	1.724	4.078	0	37.599	1.901	4.521	0	40.698
Percentage part-time jobs	29.663	6.138	4.184	45.960	34.589	9,665.745	15.535	54.423
Average earnings	1,515.966	285.442	1,126.476	3,119.678	1,258.138	191.077	1,010.812	2,407.9
Median earnings	1,414.327	225.898	1047	3035	1,248.583	219.878	939	2,463.5
Minimum earnings	0.630	14.866	0	351	2.226	52.517	0	1,240.00
Max earnings	2,291.916	338547.4	8,921	2078840	2,311.81	1,9108.57	3,937	100,324
Amount unemployment subsidy	4,444.93	802.667	1,835.081	6,127.341	3,401.101	667.568	1,009.961	6,047.16
Number of days unemployment subsidy	154.917	22.620	89.227	201.899	120.109	18.352	62.831	161
N	1,114							

Table 3: Sample distribution of employment expectations in the IYES sample.

Panel A					
Deciles	Prob to start working in the next 12 months	Prob to find a full time job	Prob to find a job that is adequate to own qualifications and job experience	Prob to find a job with adequate health insurance and pension benefits	Prob to find a job without using family and personal contacts
I	0	1	4	0	2
II	10	10	15	5	20
III	20	20	30	10	30
IV	40	30	35	20	40
Median	50	40	50	30	50
VI	50	50	50	30	50
VII	60	60	60	50	60
VIII	75	70	70	50	70
IX	90	80	80	60	90
Panel B					
For how long do you expect to be hired?	Frequency	Percent	Cumulative		
Less than 1 month	20	1,99	1,99		
1-6 months	509	50,65	52,64		
7-12 months	185	18,41	71,04		
1-3 years	105	10,45	81,49		
4-6 years	6	0,6	82,09		
7-9 years	1	0,1	82,19		
10 or more years	4	0,4	82,59		
Permanent job	58	5,77	88,36		
Don't know	117	11,64	100		
Total	1.005	100			

Table 4: Cross-sectional distribution of mean, coefficient of variation (CV), and variance of log future expected earnings in the IYES sample.

Deciles	Mean expected earnings	CV expected earnings	Variance of log expected earnings
I	566,67	4,33	0,19
II	700,00	5,87	0,36
III	800,00	7,41	0,57
IV	893,33	8,16	0,68
Median	983,33	10,10	1,06
VI	1066,67	11,87	1,52
VII	1200,00	13,61	2,00
VIII	1333,33	15,29	2,66
IX	1333,33	18,68	3,90
Mean	1100,97	11,10	2,00

Notes: expected earnings are net monthly earnings that the young expect to earn if finding a job in the next 12 months.

Table 5: Fraction of responses at different percentiles of the distribution for each probability question.

Percent chance	N	Fraction of responses									
		NR	0	1-4%	5	10	50	96-99	100	M10	M5
Find job without using family and personal contacts	1033	0,040	0,086	0,020	0,013	0,070	0,216	0,008	0,050	0,449	0,079
Find job with adequate health insurance and pension benefits	1029	0,044	0,165	0,019	0,019	0,139	0,159	0,001	0,015	0,415	0,056
Start working in the next 12 months	1006	0,068	0,104	0,051	0,031	0,056	0,209	0,006	0,060	0,424	0,047
Earn at least mean expected earnings	969	0,108	0,074	0,020	0,014	0,046	0,310	0,000	0,054	0,419	0,044
Find job that is adequate to qualifications and job experience	997	0,077	0,078	0,024	0,020	0,066	0,193	0,001	0,041	0,499	0,065
Find full time job	994	0,080	0,094	0,033	0,021	0,075	0,179	0,002	0,052	0,480	0,046
Find permanent job	992	0,083	0,330	0,046	0,054	0,159	0,072	0,000	0,007	0,292	0,031
Earn monthly more than highest earning parent	538	0,041	0,041	0,006	0,009	0,028	0,333	0,002	0,050	0,474	0,046
Find job after completing program of study	553	0,036	0,054	0,013	0,013	0,031	0,217	0,004	0,034	0,553	0,067
Earn at least mean expected earnings after finishing study	516	0,110	0,062	0,010	0,016	0,023	0,351	0,000	0,052	0,436	0,041

NOTE: N = sample size, NR = nonresponse, M10 = multiple of 10 but not (0, 50, 100), M5 = multiple of 5 but not of 10.

Table 6: Regression results of the determinants of job stability, security, and earnings' expectations.

	Employment Expectations		Earnings Expectations	
	Stability	Security	Mean	Variance of the Log
Male	7.648	4.780*	105.735+	-0.339
	[6.470]	[1.687]	[55.954]	[0.412]
25<=age<=29	-4.024	-3.177	5.468	-0.035
	[7.928]	[2.066]	[69.543]	[0.511]
Being in good health	-6.504	0.916	-14.426	-0.010
	[4.893]	[1.277]	[41.430]	[0.310]
Laurea primo livello	-11.357	2.056	-221.054	-12.226**
	[26.240]	[6.847]	[221.365]	[1.636]
Laurea magistrale	0.340	1.649	-193.323	-11.748**
	[25.709]	[6.708]	[215.833]	[1.602]
Laurea 4 or more years	1.538	-0.828	-74.868	-12.236**
	[26.841]	[7.004]	[225.317]	[1.674]
Master	0.302	-1.016	-173.363	-12.028**
	[26.935]	[7.029]	[226.982]	[1.681]

Medicine	19.979 [15.340]	1.714 [4.003]	324.632* [131.629]	-0.145 [0.970]
Hard Sciences	17.705* [8.662]	4.327+ [2.260]	219.251* [76.044]	-0.652 [0.556]
Social Sciences	7.809 [8.931]	2.169 [2.330]	188.765* [78.267]	-0.604 [0.575]
Mark maturita'	22.350 [26.136]	19.778* [6.818]	231.861 [225.498]	-1.872 [1.672]
Mark laurea	-71.946 [52.472]	-22.857+ [13.693]	-206.395 [458.630]	-0.746 [3.374]
Work experience	4.019 [8.190]	1.259 [2.135]	21.721 [70.811]	0.717 [0.520]
Work experience^2	-0.221 [1.181]	-0.432 [0.308]	-2.928 [10.185]	-0.099 [0.075]
Having contacts to find job	42.269** [8.853]	13.733** [2.310]	62.157 [75.751]	1.189* [0.560]
Able to rely on family help	14.500+ [8.652]	6.026* [2.252]	3.712 [73.106]	0.130 [0.547]
Being in stable relationship	-2.324 [6.345]	-0.592 [1.654]	-68.105 [53.950]	-0.717+ [0.404]
Risk propensity	11.331* [3.721]	2.649* [0.970]	82.209* [31.958]	0.078 [0.236]
Inaccuracy of predictions	-8.200* [3.538]	-2.938* [0.923]	-0.629 [30.425]	-0.211 [0.225]
<i>Province-level variables</i>				
Average earnings	0.059* [0.025]	0.011+ [0.007]	-0.180 [0.458]	0.002 [0.002]
Amount unempl subsidy	-0.021 [0.024]	0.007 [0.006]	-0.094 [0.391]	-0.004* [0.001]
Num days unempl subsidy	0.467 [0.719]	-0.217 [0.187]	-5.605 [12.140]	0.089+ [0.046]
Percentage temporary jobs	0.289 [0.730]	0.031 [0.190]	-13.062 [11.285]	-0.044 [0.047]
Constant	104.327 [95.287]	2.997 [24.867]	2390.435* [1122.443]	16.805* [6.091]
<i>N</i>	858	859	830	821

Notes: HLM regressions. Province-level variables are averages by province from INPS data for the universe of Italian 25-34 year old in January and February 2015. Dummy variables for type of housing arrangement, and family background variables (parental level of education, job type, and health status) controlled for. Excluded category for type of degree is PhD. Excluded category for area of degree is Humanities. Standard errors in brackets. + $p < 0.10$, * $p < 0.05$, ** $p < 0.001$. Source: IYES Survey 2015.

Table 7: Regression results of the consequences of job stability, security and earnings' risk.

	Search for job	Search for job matching qualifications	Life satisfaction	Postponing due to uncertainty	Pessimistic about future prospects
Earnings' risk	0.024 [0.024]	-0.037* [0.016]	-0.006 [0.018]	0.000 [0.029]	-0.024 [0.025]
Job stability	0.005* [0.002]	0.002 [0.001]	-0.001 [0.001]	-0.001 [0.002]	-0.001 [0.002]

Job security	-0.008 [0.006]	0.008+ [0.005]	0.027** [0.006]	-0.014+ [0.008]	-0.030** [0.007]
Expect earn more than parents	-1.272** [0.347]	0.374 [0.262]	0.649* [0.307]	-0.861+ [0.486]	-0.819* [0.357]
Male	0.342 [0.304]	0.342 [0.228]	-0.125 [0.261]	0.207 [0.429]	-0.584+ [0.322]
25<=age<=29	1.087* [0.521]	-0.762* [0.282]	-0.811* [0.290]	1.204+ [0.697]	-0.015 [0.510]
Being in good health	0.077 [0.209]	-0.160 [0.167]	0.562** [0.170]	-0.081 [0.306]	-0.546+ [0.286]
North	-1.100 [0.811]	-1.000+ [0.561]	-0.845 [0.630]	-1.638 [1.284]	0.402 [0.841]
Center	-1.043 [0.643]	-0.761+ [0.443]	-0.411 [0.493]	-0.763 [1.025]	-0.190 [0.637]
Islands	-0.337 [0.593]	-0.755* [0.384]	-0.843* [0.420]	0.337 [0.944]	0.597 [0.601]
Medicine	0.830 [0.704]	1.003* [0.511]	-0.003 [0.546]	0.812 [1.418]	-1.007 [0.834]
Hard sciences	0.159 [0.408]	1.079** [0.305]	0.329 [0.338]	-1.359+ [0.762]	-1.239* [0.566]
Social sciences	0.660 [0.442]	0.322 [0.300]	0.240 [0.341]	-0.942 [0.767]	-0.921+ [0.555]
Mark maturita'	-0.216 [1.326]	0.676 [0.939]	-0.259 [1.049]	6.121* [2.011]	2.760+ [1.447]
Mark laurea	1.531 [2.230]	1.354 [1.671]	1.752 [1.838]	-10.303* [3.579]	-4.296+ [2.608]
Work experience	0.158 [0.416]	-0.126 [0.289]	-0.540+ [0.325]	0.338 [0.597]	-0.590 [0.449]
Work experience^2	0.038 [0.064]	0.012 [0.041]	0.073 [0.047]	-0.033 [0.086]	0.113+ [0.067]
Having contacts to find job	0.023 [0.415]	-0.155 [0.319]	0.869* [0.440]	-1.328* [0.509]	-1.127* [0.389]
Able to rely on family help	-0.378 [0.440]	0.487+ [0.290]	0.278 [0.318]	-0.480 [0.637]	0.307 [0.479]
Being in a stable relationship	0.018 [0.306]	-0.015 [0.223]	0.805* [0.246]	1.187* [0.431]	0.050 [0.344]
Risk propensity	0.311+ [0.170]	-0.192 [0.127]	0.037 [0.141]	0.129 [0.255]	-0.229 [0.185]
Inaccuracy of predictions	0.480* [0.180]	0.020 [0.114]	-0.138 [0.125]	0.324 [0.273]	0.548* [0.232]
<i>Province-level variables</i>					
Average earnings	0.001 [0.002]	0.002 [0.001]	0.001 [0.001]	0.002 [0.002]	0.002 [0.002]
Unemployment subsidy	-0.001 [0.001]	-0.001 [0.001]	-0.000 [0.001]	0.002 [0.002]	-0.001 [0.001]
Num days unemployment subsidy	0.028 [0.037]	0.014 [0.026]	-0.008 [0.030]	-0.061 [0.058]	0.055 [0.039]
Percentage temporary jobs	0.015 [0.036]	-0.030 [0.025]	-0.037 [0.029]	-0.058 [0.048]	0.010 [0.036]

Constant	-2.963 [3.955]	-0.396 [2.793]	0.895 [3.097]	8.851 [6.025]	5.153 [4.344]
<i>N</i>	532	516	538	528	506

Notes: HLM regressions. Province-level variables are averages by province from INPS data for the universe of Italian 25-34 year old in January and February 2015. "Search job" equals 1 when actively looking for a job; "Search job matching qualifications" equals 1 when actively looking for a job matching own qualifications and experiences; "Life satisfaction" equals 1 when satisfied with life; "Having to postpone decisions" equals 1 when having to postpone important decisions due to uncertainty about the future; "Being pessimistic" equals 1 when being pessimistic about future professional prospects. Average monthly expected earnings, dummy variables for type of housing arrangement, and family background variables (parental level of education, job type, and health status) controlled for. Standard errors in brackets. + $p < 0.10$, * $p < 0.05$, ** $p < 0.001$. Source: IYES Survey 2015.

Table 8: Regression results of the consequences of job stability, security and earnings' risk.

	Planning to have children	Satisfaction with democracy	Political position
Earnings' risk	0.129* [0.064]	-0.018 [0.029]	-0.007 [0.009]
Job stability	0.002 [0.004]	0.001 [0.002]	0.001 [0.001]
Job security	0.040* [0.018]	0.033** [0.009]	0.006* [0.003]
Expect earn more than parents	-0.321 [0.816]	-0.778 [0.485]	-0.195 [0.143]
Male	-1.327* [0.642]	0.137 [0.392]	-0.133 [0.124]
25<=age<=29	-0.330 [0.681]	-0.608 [0.587]	0.012 [0.157]
Being in good health	0.563 [0.429]	0.264 [0.282]	-0.155+ [0.088]
North	-0.026 [1.458]	0.415 [0.960]	0.219 [0.302]
Center	0.105 [1.267]	-0.280 [0.775]	-0.188 [0.238]
Islands	-0.899 [1.030]	-1.467+ [0.794]	0.215 [0.216]
Medicine	0.936 [1.279]	-0.460 [1.322]	0.547* [0.278]
Hard sciences	0.036 [0.825]	1.579* [0.668]	0.466* [0.171]
Social sciences	1.546+ [0.894]	1.430* [0.653]	0.377* [0.172]
Mark maturita'	-0.322 [2.725]	-0.309 [1.740]	-0.033 [0.526]
Mark laurea	6.957+ [4.013]	-1.137 [2.717]	-1.668+ [0.917]
Work experience	0.619 [0.737]	-0.311 [0.509]	0.184 [0.159]
Work experience^2	-0.081 [0.105]	0.016 [0.077]	-0.020 [0.023]
Having contacts to find job	0.099 [0.886]	0.751 [0.482]	-0.082 [0.175]

Able to rely on family help	-0.095 [0.841]	-0.227 [0.536]	-0.256 [0.161]
Being in a stable relationship	1.468* [0.645]	-0.589 [0.371]	-0.022 [0.124]
Risk propensity	-0.192 [0.342]	-0.272 [0.208]	0.029 [0.070]
Inaccuracy of predictions	-0.166 [0.323]	-0.140 [0.219]	0.131* [0.064]
<i>Province-level variables</i>			
Average earnings	-0.011* [0.004]	-0.002 [0.002]	-0.000 [0.001]
Unemployment subsidy	0.006* [0.003]	-0.002 [0.001]	-0.000 [0.000]
Num days unemployment subsidy	-0.189+ [0.100]	0.035 [0.047]	0.008 [0.015]
Percentage temporary jobs	0.126 [0.098]	-0.030 [0.045]	-0.020 [0.014]
Constant	2.483 [8.252]	4.599 [5.038]	4.081* [2.002]
<i>N</i>	377	522	498

Notes: HLM regressions. Province-level variables are averages by province from INPS data for the universe of Italian 25-34 year old in January and February 2015. "Panning to have children" equals 1 when planning to have children in the future; "Satisfaction with democracy" equals 1 when satisfied with political democratic process; logistic regressions. "Political position" has 7 values from "1=extreme left" to "7=extreme right"; OLS regression. Average monthly expected earnings, dummy variables for type of housing arrangement, and family background variables (parental level of education, job type, and health status) controlled for. Standard errors in brackets. + $p < 0.10$, * $p < 0.05$, ** $p < 0.001$. Source: IYES Survey 2015.