



# The impact of precarious employment on mental health: The case of Italy



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## ARTICLE INFO

### Article history:

Received 17 May 2015

Received in revised form

4 March 2016

Accepted 9 March 2016

Available online 13 April 2016

### Keywords:

Italy

Precarious employment

Mental health

Psychotropic medication

Prescription

Probit

## ABSTRACT

Although there has been a sizeable empirical literature measuring the effect of job precariousness on the mental health of workers the debate is still open, and understanding the true nature of such relationship has important policy implications.

In this paper, we investigate the impact of precarious employment on mental health using a unique, very large data set that matches information on job contracts for over 2.7 million employees in Italy followed over the years 2007–2011, with their psychotropic medication prescription. We examine the causal effects of temporary contracts, their duration and the number of contract changes during the year on the probability of having one or more prescriptions for medication to treat mental health problems. To this end, we estimate a dynamic Probit model, and deal with the potential endogeneity of regressors by adopting an instrumental variables approach. As instruments, we use firm-level probabilities of being a temporary worker as well as other firm-level variables that do not depend on the mental illness status of the workers.

Our results show that the probability of psychotropic medication prescription is higher for workers under temporary job contracts. More days of work under temporary contract as well as frequent changes in temporary contract significantly increase the probability of developing mental health problems that need to be medically treated. We also find that moving from permanent to temporary employment increases mental illness; symmetrically, although with a smaller effect in absolute value, moving from temporary to permanent employment tends to reduce it. Policy interventions aimed at increasing the flexibility of the labour market through an increase of temporary contracts should also take into account the social and economic cost of these reforms, in terms of psychological wellbeing of employees.

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## 1. Introduction

Mental health has become a priority in the agenda of policy makers in many western countries, both in terms of meeting the needs of people with mental illness as well as improving the mental wellbeing of the population. According to a recent OECD report, half of the population will develop a mental illness at some point in their lives, with adverse effects on their productivity, wage, and employment opportunities (OECD, 2014). A strand of literature has been focusing on evaluating the impact of mental health problems on firm productivity (see, among others, Stewart et al., 2003). However, it is also true that employment instability may have a

major influence on psychiatric disorders. As also documented by a recent ILO report (ILO, 2011), the phenomenon of employment instability has emerged in the early 1980s, when the proportion of individuals employed in flexible work has steadily increased in all western countries. This trends could be in part explained by the need of a more flexible labour market, where entrepreneurs facing higher competition are able to quickly adapt their production to shifts in supply and demand conditions. According to ILO (2008), precarious employment is also associated with the use of new technologies, which allow fragmenting the production process and outsourcing certain tasks. The recent global crisis has exacerbated employment instability, reducing the bargaining power of many employees and offering fewer possibilities to obtain permanent jobs. As emphasized by the ILO (2012) World of Work Report, in many countries where growth of employment has resumed after the economic recession, the majority of the new contracts are

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short-term, with increasing shares of involuntary part-time and temporary employment.

There is still no universally agreed definition of precarious employment, given its multidimensional nature that differs across countries and the economic and social structure of the labour market. However, precarious employment can be seen as employment relations characterized by high uncertainty, low income, and reduced social benefits and statutory entitlements (Vosko, 2010; Benach et al., 2014). Physically heavy work, poor working conditions and higher risk of accidents have also been associated with precarious employment (Gash et al., 2007). These characteristics are likely to have a negative impact on workers' physical and mental health, ultimately resulting in absenteeism, lost firm productivity and lost employment.

The study on the impact of precarious employment on the mental health of workers is complicated by the presence of a bidirectional relationship between job instability and health. As pointed by a consistent body of literature, individuals with mental illness, such as depression, are less likely to be in employment, have lower productivity levels, lower salaries, and more absenteeism than workers without mental illness (see, among others, OECD, 2011, and Frijters et al., 2014). Hence, individuals suffering from mental health problems may also have a lower propensity to find a stable work than others. However, most empirical studies have investigated the link between health and forms of precarious employment without taking into account such reverse causality problem.

In this paper, we implement an original Instrumental Variable (IV) approach to estimate the causal impact of precarious employment on the mental health of people. In our analysis, rather than using, as in most studies, a measure of self-reported psychological health, we assume that mental health problems occur when the worker has been dispensed one or more prescriptions of psychotropic drugs, for two or more consecutive quarters within a year. We identify precarious employment with temporary employment, namely, all employment relations other than those of unlimited duration, including fixed-term and subcontracted jobs, as well as work done on projects, on call and through temporary-help agencies. As also pointed by Benach et al. (2014), one can consider temporary workers to be in an objective state of job insecurity. We also investigate the impact on the mental health of workers of the number of changes in temporary job contract observed over time, and the number of days worked under temporary contract within the year. In fact, we expect these variables to significantly affect the degree of precariousness of employees, and hence their mental health status.

We match a very large administrative data set from the Ministry of Labour in Italy on a set of employee resident in the Lombardy region, in Italy, with data on their psychotropic drug prescriptions for the years between 2007 and 2011. The resulting data set, with over 13 million observations, offers a unique opportunity to assess the precariousness of job contracts, and investigate its role in developing mental health disorders. In Italy, full-time permanent work was the most common form of employment around which labour law has been developed. However, the past decade has witnessed a growth in non-standard employment, in the form of temporary, part-time or informal employment, with seven employees out of ten recruited on fixed-term contracts in 2012. Badly designed employment regulations have been pointed, among other reasons, as discouraging employers from recruiting under permanent contracts in Italy (ILO, 2008).

We assume that the mental health status follows a dynamic process where mental health systematically varies across individuals. To control for unobserved heterogeneity in the context of a dynamic nonlinear panel, we follow Wooldridge (2005b) and use

the Chamberlain (1980) device to obtain a distribution of the outcome variable conditional on initial values and exogenous explanatory variables. To deal with the reverse causality problem between job instability and health, we adopt a two-step control function approach, a method recently advanced by Wooldridge (2014) to estimate nonlinear models with endogenous explanatory variables, within the Probit specification. For a given worker in the data set, we take as instruments firm-level probabilities of being precarious and other variables characterizing job precariousness within the firm where she is employed. These are valid instruments as long they do not directly affect the mental health status of the worker, but rather only indirectly through their impact on the labour variables. It is plausible to think that these firm-level variables are not influenced by the mental health of a single worker, but rather reflect to a large extent the recruiting policy of firms.

We believe that our rich data set combined with the use of recently advanced econometric methods allows us to estimate more accurately than previous studies the effect of employment instability on mental health.

The rest of the paper is organized as follows. Section 2 reviews existing literature on this topic, while Section 3 describes the data and presents a preliminary exploratory data analysis. Section 4 introduces our regression model and explains our econometric approach. Section 5 comments on regression results, while Section 6 explores the mental health consequences of moving to precarious employment. Finally, Section 7 concludes.

## 2. Literature review

There is a growing empirical literature measuring the effect of job precariousness on the mental health of people, although the debate is still open. Based on cross-sectional survey data from 15 European countries, Benavides et al. (2000) found that precarious employment, in the form of fixed term, temporary contract and sole traders, is positively correlated with job dissatisfaction, although negatively associated with absenteeism and stress. In a meta-analysis, Virtanen et al. (2005) found greater psychological morbidity among temporary employees relative to permanent employees. However, the analysis showed high heterogeneity across studies, in part due to differences in exposure to temporary employment, as well as in mental health outcomes and contextual factors.

More recently, Quesnel-Vallee et al. (2010) performed a propensity score analysis on a cohort of American people followed from 1979 to 2010, finding more severe depressive symptoms for those individuals who had been exposed to temporary work in the two years preceding the outcome measurement. Similar adverse effects on mental health are reported by Cottini and Lucifora (2010) by performing a panel data analysis based on three waves of the European Working Conditions Survey. The authors addressed the potential endogeneity of working condition by exploiting the variation across countries and over time in workplace, health and safety regulations as well as in regulations on working time flexibility. They showed that job characteristics such as working in shifts, performing complex and intensive tasks and having restricted job autonomy increases the probability of reporting mental health problems, and also found that adverse overall working conditions increase mental health distress. Waernerlund et al. (2011), focusing on a sample of workers aged 42 years old in Sweden, found that workers under temporary contracts have higher risk of experiencing psychological distress and non-optimal self-rated health. A negative influence on psychological well-being exerted by certain contractual and working conditions is also found by Robone et al. (2011), using twelve waves of the British Household Panel Survey. The problem of reverse causality is addressed by

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