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Q1 Temporary jobs and the severity of workplace accidents☆

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A B S T R A C T

Introduction. From the point of view of workplace safety, it is important to know whether having a temporary job 24 has an effect on the severity of workplace accidents. We present an empirical analysis on the severity of 25 workplace accidents by type of contract. *Method.* We used microdata collected by the Italian national institute 26 managing the mandatory insurance against work related accidents. We estimated linear models for a measure 27 of the severity of the workplace accident. We controlled for time-invariant fixed effects at worker and firm levels 28 to disentangle the impact of the type of contract from the spurious one induced by unobservables at worker and 29 firm levels. *Results.* Workers with a temporary contract, if subject to a workplace accident, were more likely to be 30 confronted with severe injuries than permanent workers. When correcting the statistical analysis for injury 31 under-reporting of temporary workers, we found that most of, but not all, the effect is driven by the under- 32 reporting bias. *Conclusions.* The effect of temporary contracts on the injury severity survived the inclusion of 33 worker and firm fixed effects and the correction for temporary workers' injury under-reporting. This however 34 does not exclude the possibility that, within firms, the nature of the work may vary between different categories 35 of workers. For example, temporary workers might be more likely to be assigned by the employer dangerous 36 tasks because they might have less bargaining power. *Practical implications.* The findings will be of help in 37 designing public policy effective in increasing temporary workers' safety at work and limiting their injury 38 under-reporting. 39

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51 1. Introduction

52 Accidents at work vary considerably depending upon the economic 53 activity (Eurostat, 2014). Within the European Union (28 countries) in 54 2012, the construction, manufacturing, transportation and storage, 55 and agriculture, forestry and fishing sectors together accounted for 56 just over two thirds of all fatal accidents at work and over half of all 57 serious accidents. EU-28 data for 2012 shows that there were two 58 types of common injury, namely, wounds and superficial injuries 59 (about 30% of the total) and dislocations, sprains, and strains (about

25%). Around one in ten accidents resulted in concussion and internal 60 injuries, while a similar proportion of accidents concerned bone 61 fractures. 62

In their overview of the literature on occupational safety and health, 63 Pouliakas and Theodossiou (2013) mention that, in addition to gender 64 and economic sector, other important determinants of workplace acci- 65 dents are firm size, age and educational attainment of the worker, and 66 characteristics of the job such as long hours of work, monotony, lack 67 of autonomy at work, and job dissatisfaction. Furthermore, workers on 68 temporary and casual contracts seem to be more susceptible to work- 69 place accidents. A job is temporary if employer and employee agree 70 that the job relationship ends when some objective conditions, like a 71 specific date, the completion of a task or the return of a sick employee, 72 are met. Typical cases of temporary jobs are fixed-term jobs, in which 73 the end date of the job relationship is explicitly stated in the job 74 contract, persons with seasonal employment, and temporary-work- 75 agency workers. The higher probability of temporary workers to suffer 76

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a workplace accident might be due to the fact that they have less experience with the workplace and because firms have less incentive to provide them with workplace safety training (Pouliakas & Theodossiou, 2013).

It is important to investigate the relationship between the type of job contract and workplace accidents since the nature of the labor market is changing. Over the past decade, the share of workers with flexible labor contracts increased and is expected to continue to rise. As shown in graph a) of Fig. 1, in Italy the share of temporary jobs among total salaried employment is growing, particularly among young workers. Whereas the share of temporary workers among old workers (50–64) stayed roughly constant over the time period 1983–2015, the share of temporary workers went up from 8% to 16% for prime age female workers and from 4% to 14% for prime age male workers. The change in the share of temporary workers is spectacular among young workers, as it increased from 12% to 59% for young women and from 11% to 56% for young men. Graph b) of Fig. 1 reports the share of temporary employees by sector of activity. It shows that it increased in all sectors of activity and nowadays one third (33.1%) of salaried workers are employed on a temporary basis in agriculture and about 10% in the manufacturing and services.

From the point of view of workplace safety it is important to know whether temporary workers are more likely to suffer from severe workplace accidents. Previous studies on contract type and workplace accidents are focused on the incidence of workplace accidents and inconclusive on the effect of temporary contracts. Amuedo-Dorantes (2002) found that in Spain, temporary employees experience worse

working conditions than permanent workers. However, once working conditions are accounted for, temporary workers are not more likely to have a workplace accident. Guadalupe (2003), also using Spanish data, found that the accident rate of fixed-term workers is 5 percentage points higher than the one of permanent contract workers. García-Serrano, Hernanz, and Toharia (2010) analyzing Spanish workplace accidents found that temporary help agency workers are less likely to be confronted with an accident. Bena, Giraud, Leombruni, and Costa (2013) analyzing Italian data found that job tenure is inversely associated with injury risks.

An important issue in assessing workplace safety is the reporting behavior of workers. Boone and van Ours (2006), Davies, Jones, and Nunez (2009), Boone, van Ours, Wuellrich, and Zweimüller (2011) suggested that cyclical fluctuations in observed workplace accidents are related to reporting behavior rather than caused by changes in workplace safety. Under-reporting occurs because workers are afraid that reporting an accident may lead to job loss or denial of promotion. The under-reporting is more likely to occur in times of high unemployment and may be more likely by workers on temporary jobs. Probst, Barbaranelli, and Petitta (2013) found indeed that accident under-reporting is more relevant when workers' perception of job insecurity is larger.

Using administrative data on workplace accidents for Italy covering the period 2009–2013, we investigated the determinants of the severity of workplace accidents, focusing on the question whether the nature of the contract matters. More in detail, we aimed at answering the following three main research questions. First, for similar employees working in similar firms, were temporary workers subject to more severe

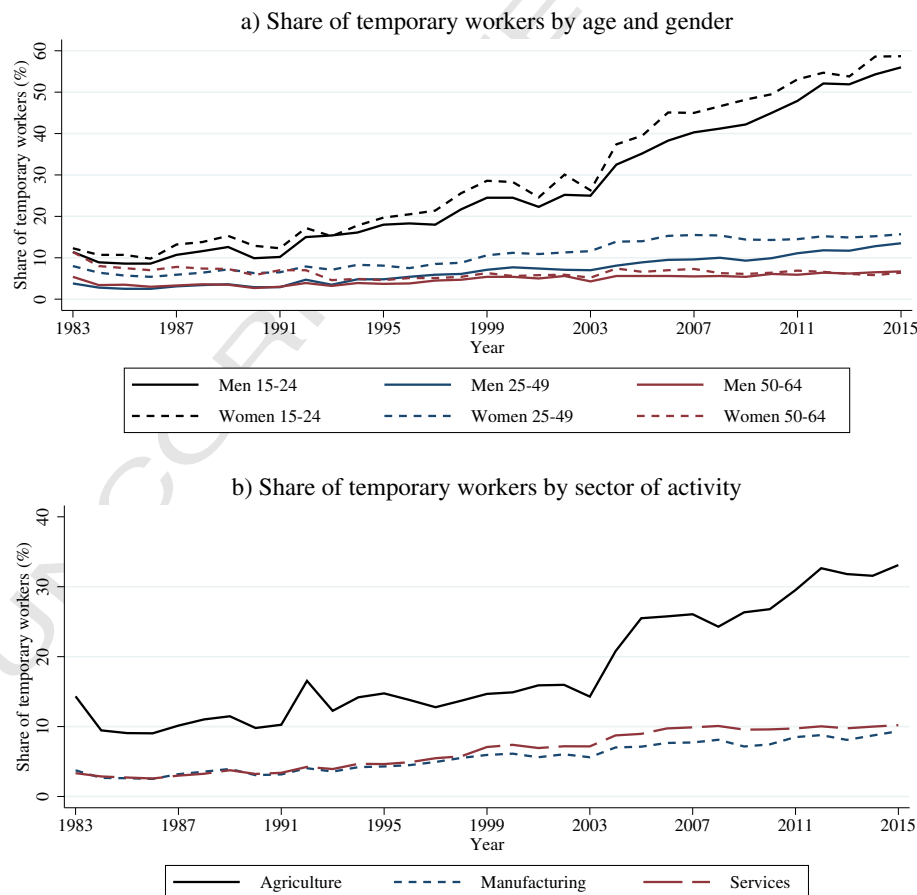


Fig. 1. Share of temporary workers in employment in Italy by: a) age and gender; b) sector of activity. *Source:* Eurostat, Labor Force Survey, available on-line at <http://ec.europa.eu/eurostat/web/lfs/data/database>. *Notes:* An employee is a temporary worker if it is stated in the job contract that the job relationship ends when some objective conditions, like a specific date, the completion of a task or the return of a sick employee, are fulfilled. Workers with seasonal employment, temporary-work-agency workers, fixed-term workers are typical cases of temporary employees.

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