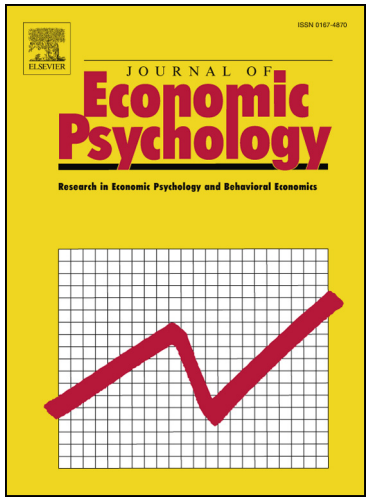

The healthy fright of losing a good one for a bad one

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The healthy fright of losing a good one for a bad one

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1. Introduction

Workers' health status is not perfectly observable by employers and it is not the only determinant of sickness absenteeism. The worker's choice to be absent from work also depends on factors other than her "true" health status, such as value for leisure, working conditions, co-workers and firm climate, job satisfaction or dissatisfaction, generosity of sickness benefits and Employment Protection Legislation. The latter, in particular, has been the focus of a number of papers: since workers covered by stricter Employment Protection Legislation are less exposed to the threat of losing their jobs, they have, ceteris paribus, a higher incentive to shirk and report as sick. While the role of employment protection on sickness absences is difficult to pin down in aggregate analysis (Bonato and Lusinyan, 2007), results on microdata are rather clear-cut and largely consistent across countries. Ichino and Riphahn (2004, 2005) compare the degree of absenteeism of a group of 858 young workers, newly hired by a large Italian bank, during and after their probation period; the authors find that in the three months after the first probationary quarter, the weekly days of absence rise by 0.04 for men and by 0.03 for women. Scoppa (2010a) relies on a representative large sample of Italian workers to show that, ceteris paribus, stronger protection raises absenteeism. More specifically, he finds that public employees, who are highly protected against firing, are more absent than private employees. Similarly, for Germany, Riphahn (2004) compares the behaviour of highly protected public employees with that of less protected private sector workers and finds that it is 35% more likely for the former to take sick leaves, which corresponds to about 3 more days of absence per year.

A number of studies exploit reforms in Employment Protection Legislation as quasi natural experiments that allow to better identify a causal effect of the degree of employment security on workers behaviour. More specifically, Lindbeck et al. (2006) and Olsson (2009)

exploit a reform that softened job security of small firms (maximum 10 employees) in Sweden in 2001. Using a differences in differences (DiD) estimator they find that absences decline in the reformed firms by 13% in terms of sickness rate (Olsson, 2009) or by 0.3 days per year (Lindbeck et al, 2006). In addition, Lindbeck et al. show that this policy causes a sorting of workers, as those with a high absence record tend to leave reformed firms. After taking this source of endogeneity into account, the decline in absence rises to 0.4 days per year. Scoppa (2010b) also exploits a normative change that took place in Italy in 1990; this reform increased the firing costs of firms with less than 16 employees, by extending them the 'just cause' provision for dismissals. Using a DiD analysis, Scoppa shows that workers in small firms reacted by increasing sick leaves by 18%, with respect to employees in larger firms. On the specific role of job contracts, Arai and Thoursie (2005) use Swedish industry-region panel data in the decade 1989-1999 to test the significance of the share of temporary workers on the sick rate. Their most conservative estimate of the coefficient on the temporary share is -0.086, which rises in absolute value to -0.28 when using a dynamic panel data model and instrumenting the share of temporary workers. On individual data, Scoppa (2010a) also finds that, other things equal, temporary workers have a 8 percentage point lower probability of taking a sick leave than permanent workers. On the contrary, for Switzerland, Engellandt and Riphahn (2005) do not find statistically significant differences in the absence rates of permanent and temporary workers though the latter display a substantially higher probability of working unpaid overtime. Furthermore, temporary workers who are more likely to gain a permanent contract are also more likely to exert higher on the job effort. More recently, Bradley et al. (2014) exploit the longitudinal administrative personnel records of the Queensland State Government, available quarterly from 2001(1) to 2004(2) and show that, once controlled for unobservable heterogeneity, the difference in absences between permanent and temporary workers is statistically significant

and amounts to about 2 hours per quarter. Moreover, they confirm that the absence behaviour of fixed-term workers is affected not only by the threat of dismissal, but also by the perceived opportunity of contractual advancement to open-end arrangements: increases in the likelihood of gaining a permanent job, proxied by temporary to permanent transition rates, is associated with a lower absence rate.[1]

While most studies provide convincing evidence that the type of contract affects workers' behaviour and that the probability of transition to a permanent contract affects the temporary worker's absenteeism, none of the existing studies investigated the potential asymmetry of the change in effort due to a change in contract. In a standard intertemporal choice model, decision of going to work or staying home - and claiming sick leave - is based on the comparison between the benefit of leisure today and the expected cost of being caught shirking. Then, for given leisure and time preferences, the optimal absence rate will be a function of the contract type. More specifically, since firing costs are lower for temporary contracts compared to permanent ones, the probability to be fired when caught shirking is higher for the first than for the latter. Hence, switching from a permanent to a temporary contract will cause a reduction in absences in order to reduce the probability of being fired in case of shirking, while switching from a temporary to a permanent contract will induce an opposite and symmetric effect.

However, many psychological studies show that there are different neurological processes that govern learning from (and hence reactions to) good and bad news (see for example the review in Baumeister et al. 2001) and that in aversive states decision biases may emerge, usually mediated by the emotional system (Dolan et al, 2012). In their seminal experimental work, Kahneman and Tversky (1979) show that the distress felt by people when losing money is greater than the joy they feel when gaining the same sum. As a

[1] This evidence is consistent with standard models of intertemporal choice (Frederick et al. 2002).

consequence, people put more weights on loss outcomes than on symmetric gain outcomes. This phenomenon, known as *loss aversion* (Liberman, et al, 2005; Tversky and Kahneman, 1992; Wilson and Gilbert, 2005), is also well documented in the financial literature, according to which investors often give more weight to potential losses than gains (e.g., Benartzi and Thaler, 1995; Thaler et al. 1997; Veronesi, 1999; Kliger and Levit, 2009; also Mayev and Vitalis 2014). Experimental evidence at the firm level confirms that negatively framed bonuses, in which employees at the beginning of the working week are provisionally given a bonus that can be retracted by the firm if the planned production goals are not reached at the end of the week, are more effective in terms of both individual and team productivity than traditional positively framed bonuses, in which a bonus is paid at the end of the working week if the planned production goals are met (Hossain and List, 2012)

Recent psychological studies have put forward alternative explanations on the effect of losses on cognitive performance. Yechiam and Hochman (2013a) propose a model in which losses increase the attention that people pay to the situation and the task they have to perform, without changing subjective weights of outcomes. Indeed, some studies find that both pupil diameter and heart rate increase more following losses compared to similar gains, suggesting that losses trigger physiological arousal (Löw et al., 2008; Hochman and Yechiam, 2011). Other than loss aversion and attention-related effects, in the specific context of gambles involving both losses and gains, a third explanation has been proposed by Slovic et al. (2002), who show that individuals prefer a gamble in which a certain expected gain is associated with a small loss rather than with no loss at all. Hence, they conclude that losses introduce an "affective contrast" between outcomes associated to a choice alternative and this contrast seems to amplify the positive part of the gamble, thus making it more appealing. On the basis of empirical data from five experimental studies, Yechiam and Hochman (2013b) claim that loss aversion is not the only explanation of the relationship

between losses and performance, since both attention and contrast-based models are coherent with the observed experimental results.

In contrast to experimental studies, in our analysis based on field data people are not always fully free to choose between different options (i.e., labour market transitions). Hence, it is very difficult to disentangle which psychological theory may better explain the observed behaviours. Nonetheless, if people tend to react more to losses than gains, either because they put more weights on losses compared to gains or because they pay more attention when losses occur, then we expect that workers losing job security should modify their working effort more than comparable workers gaining job security. Therefore, one should observe asymmetric effects of changes in job security on work effort and absences.[2] On the other hand, one should consider that the loss of a permanent job may be regarded as an exceptional and stigmatized event for the worker, whose health may then worsen significantly, thus increasing sickness days.

To the best of our knowledge, there is no direct evidence of asymmetric behaviour in the labour market with regard to workers' reactions following the gain/loss of employment protection. Given the state of the art on this issue, we present empirical evidence based on a large representative sample of Italian workers employed in the private sector drawn from administrative data. By exploiting the panel dimension of the data, we assess the difference in the magnitude of the discipline effect for workers moving from secure jobs – i.e. permanent contracts – to insecure jobs – i.e. fixed-term and temporary agency employment arrangements – with respect to workers moving from insecure to secure jobs.

In order to take into account potential differences in unobserved characteristics, we control for individual fixed effects. Furthermore, we provide a sensitivity analysis by

[2] A piece of consistent evidence is provided by De Cuyper and De Witte (2009) on a samples of Belgian workers; the authors find that workers moving from a permanent to a temporary job express higher engagement and commitment than they previously did, though the limited number of cases prevents clear-cut conclusions from this specific dataset.

confronting the main results with those obtained using two subsamples of individuals that are more comparable in terms of unemployment spell between two consecutive jobs and in terms of ex-ante probability to change job.

The paper is organized as follows. In Section 2 we discuss the main institutional features of the Italian employment protection system. Data are described in Section 3. In Section 4 we present the main empirical results on the asymmetric effect of gaining and losing job security on absenteeism. Sensitivity analysis is presented in Section 5 and in Section 6 we investigate the dynamics of absence between contracts. Section 7 concludes.

2. Two different types of temporary contracts: fixed-term vs. temporary work agency

The Italian labour market is currently characterized by a sharp segmentation. On the one hand, workers employed under an open-ended contract are granted full protection against dismissal, having the right to be reinstated in case of unjust cause (in firms with more than 15 employees) or to receive a monetary compensation.[3] On the other hand, an increasing mass of atypical workers can be laid off at the end of short contracts at no cost.

The regulation of temporary jobs has been eased since 1987, allowing collective agreements to extend the use of fixed-term contracts beyond seasonal motives and cover for absent workers. The major turning point has been Law 196/1997, which reduced the sanctions in case of minor abuse in the use of temporary contracts, fostered apprenticeship and, for the first time in Italy, legalized temporary work agencies, initially on experimental basis. The use of atypical contracts was liberalized further in 2001 (D.L. 368/2001) and subsequent laws have further modified the regulation of these contracts.

[3] A reform in 2012 restricted the motives for reinstatement, while another major reform in 2014-2015 increased the flexibility to use temporary contracts, but it substantially reduced the firing costs for new permanent contracts. However, it is too early to assess the actual impact of these reforms.

Fixed-term contracts are characterized by a definite end date. Before 2001 fixed-term arrangements were allowed only for seasonal or occasional jobs, to cover absent posts, and in other cases specified by collective agreements. Since 2001, they are also allowed for technical, productive, organizational and replacement reasons. Collective agreements may define limitations to the temporary employment share, but with several important exceptions. Fixed-term contracts can be renewed only once for a duration no longer than the first contract and for the same activity. The law does not define a maximum duration of fixed-term arrangements, but, in case of renewal, the total length cannot exceed three years. Contracts longer than three years cannot be extended. The employment arrangement automatically becomes open-ended if either the relationship continues for more than 30 days after the expiry of the contract (or of the extension) or the worker is hired under a new fixed-term contract within 20 days from the last contract.

Temporary work agency employment (TWA) has been introduced in 1997. TWA contracts are allowed for temporary and occasional jobs, to substitute temporarily absent workers and in all the cases specified by collective agreements. Collective agreements have typically constrained the use of TWA contracts to peak activity, one-off work and need of skills not available within the firm. Furthermore, they limit the employment share of TWA contracts, the number of extensions (4 times) and the maximum cumulative duration (24 months) of the contract. The temporary agency worker automatically becomes a permanent employee of the company in which she is employed if the relationship continues for more than 10 days after the expiry date.

Both types of temporary workers are entitled to equality of treatment with their permanent colleagues in the same establishment in terms of pay, sickness insurance, safety and training. Although the regulatory restrictions to fixed-term and TWA contracts are rather

similar, the latter are used for shorter and more occasional jobs than fixed-term contracts.[4] Survey data on the use of TWA contracts in Italy in 2002 show that employers turn to temporary agency work mainly for organizational reasons: 41.8% of firms mention using TWA workers to meet peaks of activity, 22.6% for covering absent workers, 9.1% for specific tasks, while only 17.2% mention screening motivation. TWA is preferred to fixed-term arrangements because agencies provide suitable workers faster than internal recruiting offices (33%), but also because of the external feature of the employment relationship (26.7%). Respondents claim that it is easier to dismiss a temporary agency employee than a directly-hired fixed-term worker who is likely to have expectations of longer-term employment (IRES, 2005). Furthermore, the internal labour market theory predicts that a high worker turnover may tarnish firm's reputation, at the expense of workers' morale – and therefore productivity – and it can even make it more difficult for the organization to recruit new employees in the future (Cappelli and Neumark 2001). In this context, a flexible use of external workers, such as temporary agency workers, may help the firm to meet changing market conditions, buffer the internal workforce and preserve firm's image (Davis-Blake and Uzzi 1993; Grimshaw et al. 2001).

Evidence on differences in the use of these two types of temporary contracts made by firms (and hence on the probability of transition to permanent jobs) is available for a number of countries. For example, in the French case Givord and Wilner (2015) find that only fixed-term contracts provide access to permanent positions significantly more often than unemployment does. A possible explanation of this result is that firms resort to temporary agency workers more for flexibility than for screening reasons. The authors show that aggregating the two types of short-term contract into one, as done in many studies, would

[4] Starting from 2003, temporary agencies were allowed to hire workers on a permanent basis, the so-called staff leasing. In fact, only a negligible number of agencies exploited this provision and only for very few workers, typically highly qualified professionals (Soldera, 2015).

lead to spurious results, instead contract-specific estimates are needed. The role of TWA contracts in tight labour markets has been extensively documented also for other countries, such as the USA (Houseman, Kalleberg and Erickcek 2003) and the Netherlands (de Graaf-Zijl and Berkhout 2007).

The higher precariousness of temporary agency contracts is confirmed by workers' perceptions. Estimates based on the 2005 European Working Condition Survey show that, in the EU-15, TWA workers report lower job security – defined as the subjective expectation of holding a job in the next six months – than fixed-term workers. Workers' perceived job stability is around 30 (22) percentage points lower for temporary agency (fixed-term) employees with respect to permanent employees. These differentials persist even after controlling for country fixed effects and a rich set of worker and job characteristics.[5]

On the whole, evidence on both the differential use of the two types of temporary contracts by the firms and on workers' perceptions highlights that TWA workers are granted a lower probability to move to a permanent contract than fixed-term employees. According to the existing evidence, as discussed in the Introduction, the increase in the likelihood of gaining a permanent job is associated with a lower absence rate. Since TWA workers are less likely to move to a permanent contract compared to fixed-term employees, other things equal, workers moving from a permanent to a TWA job would be expected to exert a lower level of effort, and hence reduce their absences by less, than workers moving from a permanent to a fixed-term contract.

However, the differential likelihood to move to a permanent contract for a TWA worker compared to a fixed-term one also entails that the loss that a permanent worker perceives when moving to a TWA job is larger than when moving to a fixed-term job.

[5] Estimates are available upon request.

Consequently, if workers' reaction increases with the size of the loss[6], we should observe a relatively larger increase in work effort, i.e. a larger decline in absences, when the transition is from a permanent to a TWA contract than when the transition is from a permanent to a fixed-term contract.

An asymmetric behaviour of this kind may also arise in a model with reference-dependent preferences (Kőszegi and Rabin, 2006), which postulates that outcomes are assessed on the basis of a value function defined over departures from a reference point (in our case, the status associated with the previously held job). TWA and fixed-term jobs are similar in terms of wages and rights assigned to workers, but the probability of transition to a permanent job is higher for fixed-term workers. For a given time discounting, the transition from permanent to temporary job would then determine a lower divergence from the reference point – and hence a lower adjustment in terms of absences - for fixed-term than for TWA workers.

The combination of loss aversion and reference-dependent preferences also predicts that people subjectively weight losses relative to the reference point more than they weight gains of the same size. Hence, we expect less adjustment in workers' absences – and smaller differences between workers starting with different temporary contracts - when they move to a job with a permanent contract.

In light of these considerations, we shall present separate estimates for TWA and fixed-term workers throughout the empirical section.

3. Data description

The Worker Histories Italian Panel (WHIP Full Edition version 3.2) is a database of

[6] Yechiam et al (2014) report the results of an experiment in which participants were also asked in some trials to report their feelings concerning the outcome, which could be a loss (or a corresponding gain) of different size. They show that losses led to feelings ratings that were more extreme than those indicated for equivalent gains. Furthermore, larger losses (gains) were associated to larger negative (positive) affective ratings.

individual work histories, drawn from the Italian Social Insurance Institute (INPS) administrative archives. INPS covers all workers employed in the private sector and self-employed. WHIP consists of a large representative sample of around 340,000 individuals, of whom 100-150,000 employees, followed from 1985 to 2004 (See Leombruni et al. (2010) for details on the sampling procedure and representativeness of WHIP version 3.2). For each of them we observe all the episodes of their working careers. WHIP reports information on worker's age, gender and region of birth, contract type (from 1998 onwards), the beginning and end of each employment spell, the number of paid working days, the workplace, the yearly gross wage and whether the worker has been on sick leave, maternity leave or if she was temporarily laid-off (the most relevant scheme is the *Cassa Integrazione Guadagni*, CIG, which is a sort of Wage Guarantee Fund). Furthermore, workers data are linked with firm characteristics taken from the INPS Firm Archive.

Since we are interested in the effect of employment protection on absence due to illness, we exclude self-employed from the analysis and concentrate on employees. We also exclude those who have been absent during the year due to temporary layoff or on maternity leave, top executives,[7] part-time workers and individuals older than 54. There are several reasons to exclude older workers. Firstly, since they are less likely to be employed under a temporary arrangement and change job, they provide less information about the effect of the contract type. Secondly, older workers are more likely to be sick due to health problems, but, on the other side, absence may be lower because they are a selected sample of individuals who are particularly attached to their job, since they are still at work even though they could benefit from pension (the earliest age for seniority pension was set at 54 and gradually increased from 1999).

Firm information is available only until 2002; therefore the sample used in the analysis

[7] Top executives' sickness benefits are not paid by the national insurance system, but by the employer. Therefore their sickness spells are not necessarily recorded in administrative data.

covers the period 1998-2002. Our final sample contains about 440,000 individual-year observations; 90.4% of them refer to workers on permanent contracts, 8.3% to workers on fixed-term contracts and 1.3% to temporary agency workers.

Our first dependent variable is a dummy, *sick*, equal to 1 if the employee had any absence due to illness during the year, and 0 otherwise. The aggregation of *sick* gives a measure of sickness incidence, i.e. the share of workers being absent during a certain period (year). The data allow us to construct a second measure of sickness, *absence rate*, defined as the number of working days lost due to sickness divided by the number of working days during the year. The variable is set at zero for those who did not report having been on sick leave.[8]

Sickness incidence, as measured by *sick*, varies greatly in the sample (Tables A1 in the Appendix). The average percentage of workers that have taken a sick leave is 14.8%, a figure that sharply differs between blue collars (21%) and white collars (5%). Furthermore, sick incidence decreases with wage, from almost 19% for low paid workers (30-50 Euros per day) to 3.5% for high paid workers (more than 100 Euros per day). The contract type also entails significant differences: permanent workers' sickness incidence is 15.7% compared to 6.7% and 5.1% for workers on fixed-term contracts and TWA, respectively. The different incidence between fixed-term and TWA is larger among men (8.5 vs. 5.2) and young workers (6.7 vs. 4.3) than it is among women (4.6 vs. 4.9) and adults (6.6 vs. 6.3)

Turning to absence rates (Table A2 in the Appendix), the average is 0.8%, which corresponds to around 2 days lost over a full year; as for the sickness incidence, the absence rate is considerably higher for blue collars (1.2%) and low-paid workers (1.0%) than it is for

[8] The data do not provide a direct measure of the number of days on sick leave, but we know the beginning and the end of the employment spell, the number of days worked and whether, during the year, the worker benefitted from sickness insurance (*sick*=1) or not (*sick*=0). We assume that when *sick*=1, all days not worked pertain to sickness leave, and compute the total number of days lost due to sickness as the difference between the number of working days within the employment spell and the number of days at work. Likewise, we assume no sickness absences when *sick*=0.

white collars (0.16%) and high-paid ones (0.38%). The difference across contract arrangements is confirmed to be large: permanent workers lose on average 2.2 days for sickness over the year, more than double the time lost by fixed-term workers (0.84) and more than three times the time lost by TWA (0.70).

4. Empirical analysis

As a further descriptive analysis and in order to compare results with previous studies, we start by presenting the relationship between contract type and absence behaviour and estimate the effect of the contract on both sickness incidence (*sick*) and absence rate (*absence*), as expressed in equations (1) and (2) below:

$$(1) \quad \Pr(sick_{it}=1)=\Phi(\alpha+\beta X_{it}+\gamma_1 F_{it}+\gamma_2 T_{it}+\varepsilon_{it})$$

$$(2) \quad absence_{it}^{*}=\alpha+\beta X_{it}+\gamma_1 F_{it}+\gamma_2 T_{it}+u_{it} \qquad u_{it} \mid X \sim N(0,\sigma^2)$$
$$absence_{it}=\max(0, absence_{it}^{*})$$

F and *T* are dummies for, respectively, fixed-term and temporary agency contract, X is a vector of worker and firm characteristics (age, age squared, gender, region of birth, qualification, the logarithm of the daily wage, workplace location and the length of the employment spell), *absence** and *absence* indicate the latent and the observed outcome, respectively, ε and *u* are normally distributed error terms. Notice that the length of the employment spell varies widely among contracts and spells shorter than a year are more likely in the case of temporary arrangements (the average number of working days is 143 (113) for workers in a fixed-term contract (TWA) with respect to 274 for permanent workers. Table A3 in Appendix). Then, even if the probability of sickness over a month were equal for flexible and stable staff, we would observe a lower sickness incidence on a yearly

basis for temporary workers. By including the length of the employment spell among the regressors, we control for this potential source of (unobserved) heterogeneity. Furthermore, in order to control for time varying heterogeneity in local labour market conditions, the regressions include controls for the local unemployment rate.[9]

Given the availability of panel data and the binary nature of the first dependent variable (i.e., *sick*), equation (1) has been estimated with both a Linear Probability estimator and a Probit one, allowing for correlation of the error terms at the individual (worker) level. Results are reported in Table 1, columns (1)-(3). Column (1) presents the Linear Probability estimates without controlling for individual unobserved heterogeneity. Exploiting the panel structure of our data, in column (2) we include individual Fixed Effects (FE). Finally, we estimate a fixed effect equivalent Probit model with the Mundlak-Chamberlain correction (RE Probit with Mundlak in column 3).[10]

With regard to the absence rate, since more than 80% of the observations are zeros, we estimate a censored Tobit model specified as in (2). Estimates reported in Table 1, columns (4) to (6), differ for the estimator used: an ordinary Tobit estimator in column (4), a random effects (RE) Tobit estimator in column (5) and a RE Tobit estimator with the Mundlak-Chamberlain correction in column (6).

In line with existing literature, Table 1 shows that workers under temporary employment arrangements are less likely to be on sick leave. With respect to permanent workers, the probability of sickness leave is 3 percentage points lower[11] for employees on fixed-term contracts, and 6 percentage points lower for temporary agency workers (column 1). Controlling for individual fixed effects (column 2), the magnitude of the estimates

[9] In alternative specifications we included also controls for region-specific time trends; main results are unchanged and available upon request.

[10] Fixed effect equivalent estimates for a Probit model are obtained by adding the averages of the time-varying covariates to the regression (Chamberlain, 1982). "Pure" Random Effects models have also been estimated in both the linear and the non linear framework; results are available upon request.

[11] Given an average incidence of sick leave of 15.7% for permanent workers, a drop of 3 p.p. corresponds to a drop of 19.1%.

increases to 4.2 and 10.3 percentage points, respectively, without loss of significance.

Similar results are obtained for the *absence rate*. Controlling for individual random effects (column 5), compared to permanent workers, the absence rate is 0.4 percentage points lower for fixed-term employees, around 0.6 percentage points lower for temporary agency workers. Results are robust to using the Mundlak correction (column 6)

(TABLE 1 AROUND HERE)

The statistically significant difference in absence between temporary and permanent workers may not reflect the actual behaviour of each individual in the two contract arrangements and may be driven, instead, by the adjustments in the behaviour of workers gaining or losing employment protection. Furthermore, as discussed in the previous Sections, the adjustment of those gaining employment protection may not be symmetric to that of workers losing protection. In fact, because of either loss aversion or higher attention triggered by losses, we expect that permanent workers moving to temporary arrangements will over-react and reduce their absences more than temporary workers gaining a permanent contract will increase their own. Notice also that, with the fixed effects estimator, identification of the coefficients is based on individuals who change their contract type at least once over the period considered (the so called "movers"). For these reasons, the strategy we follow is to focus on the subsamples of workers who experienced a change in the contract between two consecutive years. This approach shall allow us to identify the effect of the contract change on workers' absence with respect to their absence behaviour in their initial contract, before moving to the new one. In particular we consider: (1) workers who transit from a temporary employment contract to a permanent one, and (2) workers who move from a permanent employment contract to a temporary one.[12] Descriptive statistics in

[12] Flows from each temporary contract to permanent employment and from the latter to each temporary contract are rather alike in our sample. Between two consecutive years, 7068 workers moved from a fixed-term contract to a permanent one, while 843 workers moved from a temporary agency contract to a permanent one.

the last columns of Table A3 in the Appendix show that the two groups are rather alike: they are mainly males, blue collars, with medium-low wage, born and employed in the North of Italy; estimates of the contract effect are reported, respectively, in the first and second panel of Table 2.

(TABLE 2 AROUND HERE)

In terms of sickness incidence (*sick*), moving from a fixed-term contract to a permanent one increases the probability of sick absence between 2.3 and 3.7 percentage points, depending on the estimator, while moving from a permanent contract to a fixed-term contract reduces the probability of sick absence between 4.7 and 5.7 percentage points, again depending on the estimator (Table 2, columns 1-3). Temporary agency employees moving to a permanent job increase their sickness absences by a magnitude similar to that displayed by fixed-term workers; however, permanent workers moving to TWA jobs reduce their sickness incidence from a minimum of 9.8 to a maximum of 14.6 percentage points, depending on the specification. Hence, transitions from temporary to permanent contracts are associated with an increase in absences that is smaller, in absolute value, than the decline in absences observed in transitions from permanent to temporary works. This asymmetry is particularly clear in switches between permanent and TWA contracts.

The estimated effects of the employment contract on *absence rate* (columns 4-6 of Table 2) closely mimic the results on sickness incidence. Controlling for unobserved effects (col.6, Table 2), movers from fixed-term to permanent jobs increase their absence rate by about 0.66 percentage points, which correspond to 2 days over a full year, a value in line

On the other side, 5554 workers moved from a permanent to a fixed-term contract and 889 moved from a permanent to a temporary agency contract. An alternative approach would be to estimate the models (1) and (2) adding a set of dummies for the different transitions in terms of contract type and estimate the models on the full sample of workers. However, with such an approach the estimated coefficients should be interpreted as differences in absence behavior between the movers and a specific category, i.e. the reference group (for example, those always on a permanent contract). The main results obtained using this approach are coherent with those reported in the following tables and are available upon request.

with previous literature for Italy.[13] The reverse transition, from fixed-term to permanent, is slightly larger in absolute value (-0.83). Movers between TWA and permanent jobs increase their absence rate comparatively less (0.32), but reduce it comparatively more in the reverse transition, from permanent to TWA jobs (-1.7). These results are consistent with those on sickness incidence; they confirm the asymmetry associated with job changes and a higher asymmetry in switches between permanent and TWA contracts.[14]

To better assess the difference in people reaction to job security losses compared to job security gains, we also replicate the previous analysis on workers in the same objective situation, i.e. we compare absence of (1) newly temporary employees with veteran temporary employees, and (2) newly permanent employees with veteran permanent workers.[15]

(TABLE 3 AROUND HERE)

Our results confirm the asymmetric effect of changes in job security.

5. Sensitivity analysis

Our main results on the asymmetric effect observed between the two groups of movers (i.e. temporary workers gaining a permanent job and permanent workers moving into temporary jobs) take into account differences in unobserved time-invariant individual characteristics, by controlling for fixed effects.

[13] The effect of gaining employment protection is 0.04 days per week (2.1 days per year) in Ichino and Riphahn (2005); Scoppa (2010a) finds that fixed term workers stay absent, on average, 1.6 days less than permanent workers.

[14] Our estimates on samples of movers may suffer from selection bias, since changing job is not an exogenous event, but is likely to depend on the characteristics and behavior of workers. Therefore we estimate a selection model applying Heckman correction to our panel data, following Wooldridge (1995). Results do not change significantly. We thank an anonymous referee for pointing out this issue.

[15] This approach may mimic a framing effect experiment since each couple of groups is characterized by the same degree of employment protection in the last period – low for (1) and high for (2) – but only movers face either a loss – newly temporary employees in (1) – or a gain – newly permanent employees in (2). We thank an anonymous referee for suggesting the comparison between movers and veterans as a more appropriate methodology.

However, other sources of unobserved heterogeneity may potentially undermine the comparability of the two groups. Hence, in this section, we provide a number of robustness checks aimed at testing the sensitivity of our main estimates to using subsamples of movers who are similar, across the two groups, in terms of unemployment experience and ex-ante probability to change job.

The individual specific unemployment history may be a source of potential heterogeneity between the two groups; if this were the case, our estimates could capture not only the effect of changing contract, but also the experience of unemployment spells between jobs. A long unemployment spell may frighten the worker and result in a more prudential behaviour at the time the new job starts. Hence, a former temporary employee, newly hired as permanent, would increase absences to a lesser extent, had she experienced unemployment in the past. Similarly, a former permanent worker, newly hired as temporary, would exert more effort on the job and decrease absences more had she experienced unemployment between the two employment spells. The different findings associated with the two types of temporary contracts could then be partly ascribable to differences in the length of unemployment spells.

In our samples unemployment between jobs is rather low. On average, workers spend 3.2 months in unemployment before finding a job. Coherently with the definition of the subsamples of movers, (i.e. workers who change contract type between two consecutive years), unemployment duration may be computed only for workers who change job between two consecutive years. Therefore, the maximum number of months between two employment relationships is 23 months. Notice also that WHIP dataset includes only private employment; therefore, in principle, the individual may have been working in the public sector or in the shadow economy between two recorded employment spells. However, due to the short duration of these gaps, it is unlikely that the worker has been employed in the

public sector, but we cannot exclude that she may have entered the shadow economy instead of being unemployed. Furthermore, temporary agency workers take around half a month longer to find a permanent job than fixed term workers (2.5 versus 1.9 months) and permanent workers are more reluctant to accept a TWA (4.4 months) than a fixed-term contract (3.6 months). Although the gap in unemployment duration is small, it goes in the direction of the asymmetry found in the previous results and may partly explain it.

In order to disentangle the pure contract effect, we limit the analysis to workers who experienced no more than 3 months of unemployment between jobs (*fast* movers).[16] Descriptive statistics reported in the first two columns in Table A4 in Appendix show that the composition of the two groups of movers is very similar in terms of gender, age, qualification and wage.

Estimates reported in Table 3 show, as expected, that for this subgroup of workers the increase in absence is larger (sample 1), and the decrease is smaller (sample 2), relative to the estimates obtained on the whole group. The asymmetry between losing and gaining vanishes for fixed-term workers, but it is still remarkable for employees moving between permanent and TWA jobs. Losing a permanent job for a TWA contract is associated with a drop of 1.6 percentage points of the absence rate, while gaining protection after a TWA is associated with an increase of the absence rate of only half percentage point (col.6).

(TABLE 4 AROUND HERE)

Another source of potential heterogeneity is shirking propensity. Notice that, in our previous estimations, individual fixed effects should fully control for unobserved time invariant shirking attitude. However, we cannot exclude that the (unobserved) shirking

[16] We experimented with different upper limits for unemployment spells: 12 months, 9 months, 6 months and 2 months. Results are qualitatively similar and show that longer unemployment is associated with smaller increase in absence, in sample 1, and higher decrease, in sample 2. Lowering unemployment duration from 6 to 3 months has a minor effect on the estimates; a further reduction to 2 months unemployment affects only the significance but not the magnitude of the coefficients. Complete estimates are available upon request.

propensity, at least for some individuals, changes over time, for example with the contract type. In this perspective, Ichino and Muehlheusser (2008) propose a model in which workers are classified according to their shirking attitude: unconditional cooperators are always willing to exert effort, rational shirkers instead change their behaviour depending on incentives, such as employment protection. If unconditional cooperators are more abundant among workers moving from temporary to permanent jobs (sample 1), as opposed to natural shirkers among workers moving from permanent to temporary jobs (sample 2), then absence should increase by a small extent when gaining protection (i.e., moving from temporary to permanent jobs) and decrease more substantially when losing protection (i.e., moving from permanent to temporary jobs). Hence, one would observe an asymmetric response to variation in EPL.

In order to take into account of differences in shirking propensity in the two samples of movers, we use a two-step procedure. First, we estimate the probability of getting a permanent contract in a year for a temporary worker, and the probability of keeping the contract for a permanent worker as functions of individual and job characteristics, year dummies and current absence behaviour.[17] Then we replicate the previous analysis on the movers in sample 1 with predicted probability below the 75th percentile, that is temporary workers for whom the probability to become permanent is below 47.35 per cent; likewise, we replicate the previous analysis on the movers in sample 2 with predicted probability above the 25th percentile, that is permanent workers for whom the probability to remain permanent is above 96.2 per cent. The bias arising from the compositional effect should then be reduced by selecting, among the movers, those who are ex-ante less likely to change job (*unlikely* movers). Descriptive statistics reported in columns 3 and 4 of Table A4 in Appendix show that the two groups of *unlikely* movers are similar in terms of job-related

[17] In the first stage we control for gender, birth region, age, age squared, qualification, wage, workplace region, current sickness behavior, year, and industry dummies. First step estimates are available upon request.

characteristics, although workers in sample 1 are more likely to be women and young.[18]

Our estimates on these subsamples of *unlikely* movers (Table 4) show a further decrease in sickness after a loss in EPL and no significant variation in the effect of gaining higher protection; the asymmetric effect is then more pronounced for this subgroup and is clear for both types of temporary contracts, though especially so for TWA contracts.

(TABLE 5 AROUND HERE)

6. Discussion and further estimates on the adjustment process

The results presented so far provides original evidence on the existence of significant asymmetries in workers' behaviour, particularly in transitions between TWA and open-ended contracts.

The difference, in terms of absences, between TWA and fixed-term workers is largely ascribable to the behaviour subsequent the loss of a permanent job: ceteris paribus, the reduction in absences by workers hired with a TWA contract is double that that of workers hired with a fixed-term contract.

Such asymmetric behaviour is consistent with psychological theories of both loss aversion and loss-attention models discussed at the end of section 2

In line with the behavioural approach, a further issue is whether the difference observed between TWA and fixed-term workers has to do with different time preferences, which could imply different adjustment processes following the change in contract. By taking again the empirical finance literature as an example, the immediate reaction of stock market returns to positive macroeconomic news is found to be a mild one, whereas the reaction to negative news is much stronger. On the contrary, the lagged effect is sizeable in

[18] Similar results are obtained for *fast* and *unlikely* movers (columns 5 and 6 of Table A4). This reflects the fact that in the Italian labor market the shares of women and young workers tend to be relatively high in temporary jobs, as it is more difficult for them to exit temporary employment. We control for these exogenous characteristics in the second step; in addition, we provide estimates by gender and age in the following Section.

the case of positive shocks and not significant in the case of negative shocks, suggesting that stocks react slowly to good news, while immediately discounting bad news (McQueen et al., 1996; Marshall and Walker, 2002). An extremely inpatient behaviour or even an impulsive reaction is also discussed by Loewenstein (1996), who points to the role of *visceral factors*, i.e. states, moods and emotions that modify the desirability of different goods and actions, though they do not imply a permanent change in behaviour. For example, hunger affects the desirability of eating in the short run, without changing tastes for food in the long run. On the contrary, resistance to change may produce only small adjustments initially and leave further changes to future periods.[19]

In order to explore these suggestions, we investigate the dynamics of absence between contracts and replicate regressions (1) and (2) adding lagged effects of changing contract type. We estimate the reaction to good news on a subsample of workers with either a fixed term or a TWA contract at time 0 gaining a permanent contract for two consecutive years (at time 1 and 2). Similarly, we estimate the reaction to bad news for the sample of workers with a permanent contract at time 0 moving to a temporary contract for two consecutive years.

In Table 5 we report the main estimates for the subsample of movers who should be more comparable, i.e. workers with short unemployment spells (*fast movers*) and, among them, the unlikely movers (*fast unlikely movers*).[20] Consistently with our previous findings, the immediate reaction of TWA workers receiving a good news is significantly smaller, in absolute value, than the immediate reaction following a bad news: in the former case, the probability to claim sickness leave instantaneously increases by around 5 p.p. and absence rate rises by 0.5 (0.8) for low unemployment workers (*fast* and *unlikely* movers); following

[19] Resistance to changes is a well known behaviour both in organizations (Garicano and Rayo, 2016) and consumption (Heidenreich and Kraemer, 2015). Aversion to loss in current consumption has also been found, which entails a larger adjustment in future (Shea, 1995).

[20] Descriptive statistics on the *fast* and *unlikely* movers are reported in the last two columns of Table A4 in Appendix. Note that, given our selection criterion, the sample sizes get smaller, particularly for those changing from permanent to temporary jobs. Estimates referring to the whole sample of movers and to different limits in unemployment duration provide similar results and are available upon request.

the bad news, the probability of sick leave immediately falls by over 15 p.p. and the absence rate drops by around 2 p.p.. On the contrary, fixed-term workers display a more symmetric adjustment at time t.

(TABLE 6 AROUND HERE)

With regards to the lagged effects, a good news is associated with positive lags for both types of temporary jobs, suggesting a slow adjustment and a watchful behaviour in the new position. The magnitudes of the coefficients are more than double for TWA workers relative to fixed-term workers, indicating that the former actually postpone most of the adjustment. On the contrary, a bad news does not induce any statistically significant lagged effects.

On the whole, these findings confirm that workers adjust their behaviour to changes in employment protection, but at different paces depending on the sign of the change and on the initial status; in particular, they respond in a prudential way ("wait and see") to positive surprises, while negative shocks induce an immediate and large reaction, particularly in the case of permanent workers moving to TWA jobs.

Finally, we replicate our estimates by gender and age for the subsample of *fast* movers. Results are reported in Table 6.

(TABLE 7 AROUND HERE)

The asymmetry of the simultaneous effect of TWA and the lagged impact of good news is confirmed in most specifications. Furthermore the "wait-and-see" behaviour is more evident for males and adults, while females and the young change behaviour as soon as they get the protected job. These findings are in line with the visceral state interpretation: in Italy, adult men usually bear the responsibility of being the household breadwinners. Hence, the fear of an unstable employment involves a higher distress (Carrieri et al., 2014) and may induce adult men to a more cautious behaviour than the young and women.

7. Conclusions

We explored the effects of changes in employment protection on absenteeism looking at the behaviour of workers moving from secure permanent jobs to insecure temporary ones (and vice-versa) and distinguishing between fixed-term and temporary agency employment arrangements.

Using a large representative sample of Italian workers, we find that the effect of losing protection (bad news) is stronger than the effect of gaining protection (good news) when temporary agency contracts are involved. This asymmetry is consistent with both loss aversion and loss-attention models: if people react more to losses than to gains, either because they subjectively weight losses more compared to same-sized gains or because they pay more attention when losses occur than when gains occur, then workers losing job security are expected to modify their working effort more than comparable workers gaining job security. The fact that such asymmetry arises only for temporary agency contracts – and not for fixed-term ones – is consistent with the differential use that firms make of these two types of temporary contracts and with the subsequent differential probability to move to a permanent job, which is higher for fixed-term than for TWA contracts. The transition from a permanent to a temporary job would then entail a larger loss - and hence a larger adjustment in terms of absences - for TWA than for fixed-term workers.

Furthermore, we find that, regardless of the initial (temporary) contract, temporary workers slowly adjust their absence behaviour after getting a permanent contract, while permanent workers losing their jobs for a temporary one promptly reduce their absences and this immediate reduction is larger if they are hired with a temporary agency contract. We explain these asymmetries by accounting for the temporal reactions of workers, depending on the initial status. We show that good news induces positive and statistically significant

lagged effects in the behaviour of both types of temporary workers, suggesting a slow adjustment and a watchful behaviour in the new position. Our estimates suggest that temporary agency workers have stronger precautionary attitudes than fixed-term workers and postpone most of the adjustment, a behaviour that has long been known in psychology and observed in the financial markets following unexpected good news. On the contrary, workers immediately discount bad news and no lagged effect is statistically significant. Estimates by gender and age highlight that these results are particularly strong for males and adults, who delay most of the adjustment, while females and the young workers change behaviour as soon as they get the protected job.

Our results proved to be robust to a number of estimators and sensitivity checks.

From a policy perspective, our empirical evidence complements the existing literature on the discipline effect of EPL. In a period when several States have started to undo some of the changes, our results point to the relevance of the sign of the policy change (i.e., EPL reduction versus EPL increase) and draw attention to the different incentives that similar contractual forms may hide. We show that by taking both these aspects into account, we can gain a deeper understanding of workers' reactions to changes in labour market policies.

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Table 1. Absence due to sickness – marginal effect of the contract

	Sick			Absence rate		
	(1) Linear Probability	(2) FE Linear Probability	(3) RE Probit with Mundlak	(4) Tobit	(5) RE Tobit	(6) RE Tobit with Mundlak
Fixed-term (F)	-0.030***	-0.042***	-0.048***	-0.443***	-0.446***	-0.423***
	[0.002]	[0.003]	[0.002]	[0.031]	[0.026]	[0.026]
Temporary agency (T)	-0.059***	-0.103***	-0.079***	-0.555***	-0.624***	-0.565***
	[0.003]	[0.007]	[0.006]	[0.076]	[0.063]	[0.063]
Observations	436,976	436,976	436,976	430,555	430,555	430,555

Notes: ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level.
Standard errors are clustered at the individual level. All regressions control for: workers' characteristics (gender, age, age squared, region of birth), qualification, log daily wage, length of the employment spell, workplace location, regional unemployment rate and year dummies.

Table 2. Absence due to sickness – marginal effect of the contract on movers

	Sick			Absence rate		
	(1) Linear Probability	(2) FE Linear Probability	(3) RE Probit with Mundlak	(4) Tobit	(5) RE Tobit	(6) RE Tobit with Mundlak
Sample 1: temporary to permanent						
F to permanent	0.037***	0.033***	0.023***	0.715***	0.708***	0.663***
	[0.005]	[0.006]	[0.006]	[0.060]	[0.056]	[0.064]
T to permanent	0.036***	0.045***	0.024***	0.351***	0.376***	0.322**
	[0.013]	[0.015]	[0.011]	[0.126]	[0.127]	[0.133]
Observations	15,483	15,500	15,483	15,080	15,080	15,080
Sample 2: permanent to temporary						
Permanent to F	-0.051***	-0.047***	-0.057***	-0.654***	-0.656***	-0.833***
	[0.006]	[0.006]	[0.008]	[0.077]	[0.086]	[0.098]
Permanent to T	-0.098***	-0.146***	-0.120***	-1.468***	-1.472***	-1.702***
	[0.010]	[0.017]	[0.014]	[0.209]	[0.202]	[0.211]
Observations	12,326	12,340	12,300	11,839	11,839	11,839

Notes: See Table 1. ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level.
Samples include only workers who changed contract between two consecutive years.

Table 3. Absence due to sickness – marginal effect of the contract on movers vs. veterans

	Sick			Absence rate		
	(1) Linear Probability	(2) FE Linear Probability	(3) RE Probit with Mundlak	(4) Tobit	(5) RE Tobit	(6) RE Tobit with Mundlak
Sample 1: temporary to permanent VS. permanent to permanent						
F to permanent	0.037***	0.039***	0.035***	0.706***	0.695***	0.657***
	[0.005]	[0.005]	[0.005]	[0.057]	[0.051]	[0.051]
T to permanent	0.036***	0.031**	0.029**	0.348***	0.320**	0.269**
	[0.013]	[0.014]	[0.012]	[0.133]	[0.125]	[0.125]
Observations	369,703	369,967	369,703	364,801	364,801	364,801
Sample 2: permanent to temporary VS. temporary to temporary						
Permanent to F	-0.055***	-0.053***	-0.039***	-0.478***	-0.481***	-0.615***
	[0.006]	[0.006]	[0.004]	[0.049]	[0.062]	[0.066]
Permanent to T	-0.102***	-0.140***	-0.080***	-1.063***	-1.063***	-1.230***
	[0.009]	[0.015]	[0.009]	[0.126]	[0.146]	[0.149]
Observations	32,296	32,328	32,296	31,466	31,466	31,466

Notes: See Table 1. ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level.
Samples include *movers* who changed contract between two consecutive years and *veterans* who kept the same contract between two consecutive years.

Table 4. Absence due to sickness – marginal effect of the contract on *fast* movers

	Sick			Absence rate		
	(1) Linear Probability	(2) FE Linear Probability	(3) RE Probit with Mundlak	(4) Tobit	(5) RE Tobit	(6) RE Tobit with Mundlak
Sample 1: temporary to permanent						
F to permanent	0.057***	0.051***	0.041***	0.820***	0.814***	0.749***
	[0.006]	[0.007]	[0.007]	[0.068]	[0.063]	[0.070]
T to permanent	0.059***	0.072***	0.045***	0.524***	0.554***	0.473***
	[0.016]	[0.019]	[0.014]	[0.145]	[0.143]	[0.150]
Observations	12,429	12,442	12,429	12,119	12,119	12,119
Sample 2: permanent to temporary						
Permanent to F	-0.041***	-0.042***	-0.049***	-0.468***	-0.472***	-0.699***
	[0.008]	[0.009]	[0.009]	[0.053]	[0.107]	[0.123]
Permanent to T	-0.092***	-0.126***	-0.110***	-1.313***	-1.308***	-1.617***
	[0.014]	[0.024]	[0.019]	[0.211]	[0.259]	[0.270]
Observations	7,647	7,659	7,625	7,359	7,359	7,359

Notes: See Table 1. ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level.
Fast movers refer to a subsample of workers who spent no more than 3 months in unemployment between jobs.

Table 5. Absence due to sickness – marginal effect of the contract on *unlikely* movers

	Sick				Absence rate	
	All		Fast movers		All	Fast movers
	(1) FE Linear Probability	(2) RE Probit with Mundlak	(3) FE Linear Probability	(4) RE Probit with Mundlak	(5) RE Tobit with Mundlak	(6) RE Tobit with Mundlak
Sample 1: temporary to permanent						
F to permanent	0.043***	0.034***	0.056***	0.046***	0.734***	0.854***
	[0.007]	[0.006]	[0.009]	[0.008]	[0.086]	[0.102]
T to permanent	0.027**	0.031***	0.039**	0.043***	0.580***	0.744***
	[0.014]	[0.009]	[0.017]	[0.012]	[0.134]	[0.158]
Observations	8617	8578	6526	6526	8612	6523
Sample 2: permanent to temporary						
Permanent to F	-0.076***	-0.070***	-0.079***	-0.074***	-1.224***	-1.046***
	[0.009]	[0.010]	[0.012]	[0.011]	[0.166]	[0.193]
Permanent to T	-0.142***	-0.129***	-0.146***	-0.162***	-2.416***	-2.530***
	[0.027]	[0.026]	[0.037]	[0.036]	[0.429]	[0.543]
Observations	4961	4936	3183	3183	4948	3179

Notes: See Table 1. ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level.
Unlikely movers refer to a subsample of workers who were ex-ante less likely to change job, as defined in the text. Columns (3), (4) and (6) refer to the subsample of *unlikely fast* movers, who spent no more than 3 months in unemployment between jobs.

Table 6. Absence due to sickness – simultaneous and lagged marginal effects of the contract on *fast* and *unlikely* movers

	Sick				Absence rate	
	Fast movers		Fast unlikely movers		Fast movers	Fast unlikely movers
	(1) FE Linear Probability	(2) RE Probit with Mundlak	(3) FE Linear Probability	(4) RE Probit with Mundlak	(5) RE Tobit with Mundlak	(6) RE Tobit with Mundlak
GOOD NEWS						
1. From F to P						
P_t	0.053***	0.057***	0.056***	0.069***	0.729***	0.869***
	[0.010]	[0.011]	[0.013]	[0.0144]	[0.085]	[0.131]
P_{t-1}	0.026***	0.023**	0.010	0.017	0.132*	0.041
	[0.009]	[0.010]	[0.013]	[0.012]	[0.076]	[0.113]
2. From T to P						
P_t	0.055**	0.053**	0.023	0.055**	0.521***	0.828***
	[0.026]	[0.023]	[0.025]	[0.023]	[0.197]	[0.212]
P_{t-1}	0.064**	0.050*	0.089***	0.069***	0.566**	0.443**
	[0.027]	[0.026]	[0.028]	[0.023]	[0.225]	[0.222]
Observations	10,324	10,318	4,574	4,574	10,135	4,563
BAD NEWS						
3. From P to F						
F_t	-0.027	-0.047**	-0.092***	-0.092***	-0.633**	-0.918**
	[0.019]	[0.019]	[0.028]	[0.029]	[0.262]	[0.370]
F_{t-1}	0.024	0.011	0.042*	0.047	0.108	0.144
	[0.017]	[0.019]	[0.024]	[0.030]	[0.267]	[0.388]
4. From P to T						
T_t	-0.147***	-0.160***	-0.213***	-0.185***	-1.667***	-2.116**
	[0.035]	[0.032]	[0.067]	[0.056]	[0.436]	[0.831]
T_{t-1}	-0.010	-0.021	0.006	0.012	-0.978*	-5.244
	[0.028]	[0.035]	[0.042]	[0.064]	[0.549]	[10.911]
Observations	2,501	2,491	995	995	2,408	979

Notes: See Table 1. ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level.
Columns (1), (2), (5) refer to *fast* movers, a subsample of workers who spent no more than 3 months in unemployment between jobs. Columns (3), (4), (6) refer to *fast* and *unlikely* movers, a subsample of *fast* movers who were less likely to change job, as defined in the text.

Table 7. Absence due to sickness – simultaneous and lagged marginal effects of the contract on subgroups of *fast* movers

	Sick				Absence rate			
	Males	Females	Young (16-29)	Adults (30-54)	Males	Females	Young (16-29)	Adults (30-54)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOOD NEWS								
1. From F to P								
P_t	0.045***	0.078***	0.058***	0.057***	0.676***	0.813***	0.697***	0.747***
	[0.014]	[0.017]	[0.016]	[0.015]	[0.109]	[0.136]	[0.113]	[0.126]
P_{t-1}	0.020	0.029**	0.005	0.034***	0.150	0.102	0.095	0.179
	[0.012]	[0.015]	[0.015]	[0.013]	[0.099]	[0.115]	[0.099]	[0.114]
2. From T to P								
P_t	0.040	0.078**	0.068**	0.041	0.474*	0.568*	0.452*	0.613*
	[0.029]	[0.036]	[0.032]	[0.033]	[0.255]	[0.300]	[0.238]	[0.316]
P_{t-1}	0.065*	0.018	-0.001	0.090**	0.739**	0.208	0.473*	0.680*
	[0.033]	[0.043]	[0.039]	[0.037]	[0.289]	[0.358]	[0.269]	[0.364]
Obs	6,832	3,486	4,191	6,127	6,692	3,443	4,699	5,436
BAD NEWS								
3. From P to F								
F_t	-0.042	-0.049*	-0.033	-0.063**	-0.591*	-0.577	-0.904**	-0.495
	[0.026]	[0.027]	[0.028]	[0.026]	[0.342]	[0.408]	[0.440]	[0.324]
F_{t-1}	-0.006	0.034	-0.028	0.035	0.009	0.354	-0.209	0.283
	[0.027]	[0.027]	[0.030]	[0.026]	[0.350]	[0.420]	[0.460]	[0.326]
4. From P to T								
T_t	-0.190***	-0.107**	-0.172***	-0.159***	-1.732***	-1.505*	-2.001***	-1.429**
	[0.041]	[0.050]	[0.047]	[0.043]	[0.540]	[0.768]	[0.686]	[0.567]
T_{t-1}	-0.044	0.020	-0.049	-0.004	-1.577**	0.213	-1.125	-0.878
	[0.045]	[0.058]	[0.051]	[0.049]	[0.735]	[0.839]	[0.819]	[0.746]
Obs	1,544	955	1,063	1,436	1,476	932	1,029	1,379

Notes: See Table 1. ***, **, * indicate, respectively, statistical significance at 1, 5, 10 percent level. The estimator used is a RE Probit model with Mundlak correction in columns from (1) to (4), a RE Tobit model with Mundlak correction in columns from (5) to (8).

Appendix

Table A1. Sickness incidence by contract type (%)

	Permanent		Fixed-term		Temporary agency		Total		N
	mean	sd	mean	sd	mean	sd	mean	sd	
Sickness incidence	15.70	36.38	6.70	25	5.06	21.91	14.81	35.52	450360
Men	16.16	36.81	8.53	27.93	5.16	22.13	15.54	36.23	312493
Women	14.59	35.3	4.62	20.98	4.87	21.52	13.17	33.82	137867
Young (16-29)	15.88	36.55	6.75	25.09	4.35	20.4	14.29	35	127891
Adult (30-54)	15.64	36.32	6.65	24.92	6.26	24.22	15.02	35.73	322469
Region of birth:									
North	15.98	36.64	7.05	25.61	4.95	21.7	15.25	35.95	211022
Centre	14.25	34.96	6.12	23.96	4.22	20.11	13.39	34.05	70794
South & Islands	15.65	36.33	5.29	22.39	4.76	21.3	14.56	35.27	130931
Abroad	17.15	37.69	10.64	30.84	6.16	24.06	16.05	36.71	36866
Qualification:									
Blue collar	21.98	41.41	10.49	30.64	6.05	23.84	20.84	40.62	277911
White collar	5.51	22.82	1.39	11.7	2.55	15.76	5.11	22.02	172449
Daily wage (Euros):									
30-50	20.3	40.23	9.54	29.38	9.38	29.16	18.9	39.15	116614
50-70	19.24	39.42	5.79	23.35	3.77	19.05	17.64	38.12	180695
70-100	11.3	31.66	3.36	18.03	2.62	15.98	10.9	31.17	90296
100+	3.52	18.44	1.51	12.21	2.92	16.9	3.45	18.25	50068
Workplace:									
North	16.97	37.53	7.9	26.97	5.48	22.76	16.1	36.76	270902
Centre	14.51	35.22	6.34	24.37	5.05	21.9	13.54	34.21	85098
South & Islands	13.11	33.76	4.09	19.8	2.1	14.36	12.27	32.81	94360

Notes: Sickness incidence is computed, at year level, as the share of workers who have been on sick leave at least once during the year.

Table A2. Absence rate by contract type (%)

	Permanent		Fixed-term		Temporary agency		Total		N
	mean	sd	mean	sd	mean	sd	mean	sd	
Absence rate	0.81	4.84	0.59	4.2	0.62	4.3	0.79	4.78	450,360
Men	0.82	4.72	0.73	4.57	0.6	4.14	0.81	4.71	312,493
Women	0.81	5.11	0.43	3.73	0.65	4.57	0.76	4.95	137,867
Young (16-29)	0.92	5.16	0.52	3.74	0.55	4.24	0.85	4.97	127,891
Adult (30-54)	0.78	4.72	0.65	4.57	0.75	4.4	0.77	4.71	322,469
Region of birth:									
North	0.53	3.62	0.52	3.9	0.65	4.57	0.53	3.66	211,022
Centre	0.64	4.28	0.47	3.62	0.34	3.26	0.62	4.21	70,794
South & Islands	1.27	6.3	0.57	4.24	0.51	3.35	1.2	6.12	130,931
Abroad	1.2	5.84	1.07	5.72	0.86	5.19	1.17	5.81	36,866
Qualification:									
Blue collar	1.22	5.88	0.96	5.33	0.76	4.71	1.19	5.83	277,911
White collar	0.17	2.2	0.09	1.6	0.27	3.02	0.16	2.16	172,449
Daily wage:									
30-50	1.06	5.07	0.71	4.28	1.04	5.48	1.02	4.99	116,614
50-70	0.87	4.65	0.53	3.82	0.52	4.02	0.83	4.57	180,695
70-100	0.62	4.52	0.48	4.57	0.29	2.63	0.61	4.51	90,296
100+	0.38	4.94	0.45	5.62	0.23	1.81	0.38	4.96	50,068
Workplace:									
North	0.62	3.95	0.62	4.22	0.68	4.48	0.62	3.98	270,902
Centre	0.72	4.59	0.58	4.1	0.67	4.68	0.71	4.54	85,098
South & Islands	1.45	6.88	0.52	4.28	0.16	1.51	1.36	6.68	94,360

Notes: Absence rate is computed, at person-year level, as the percentage of days lost due to sickness over the number of working days.

Table A3. Sample composition (%).

	Permanent	Fixed-term	Temporary agency	Total	Temporary to Permanent		Permanent to Temporary	
					t-1	t	t-1	t
Sickness incidence	15.7	6.7	5.1	14.1	9.7	16.6	16.3	9.9
Absence rate	0.81	0.59	0.62	0.79	0.70	0.91	1.40	0.86
Working days	274	143	113	253	169	243	180	161
Men	70.9	53.3	64.3	68.4	65.6	65.6	65.4	65.4
Women	29.1	46.7	35.7	31.6	34.4	34.4	34.6	34.6
Young (16-29)	26.2	47.1	62.9	35.2	47.7	42.4	43.6	38.8
Adult (30-54)	73.8	52.9	37.1	64.8	52.3	57.6	56.4	61.2
Average age	36.35	31.64	28.58	35.86	31.52	32.11	31.79	31.52
[s.d.]	[8.97]	[8.65]	[7.55]	[9.06]	[8.28]	[8.19]	[8.25]	[8.28]
Region of birth:								
North	47.8	38.3	42.2	47.1	42.1	42.1	41	41
Centre	15.6	18	11.5	15.8	14.8	14.8	14.9	14.9
South & Islands	28.8	32.7	25.4	29	27.4	27.4	27.7	27.7
Abroad	7.8	11.1	21	8.1	15.8	15.8	16.4	16.4
Qualification:								
Blue collar	61.9	58.4	71.7	62	68.2	68.5	76.7	72.1
White collar	38.1	41.6	28.3	38	31.8	31.5	23.3	27.9
Daily wage:								
30-50	25.7	37.4	25.4	31	39.9	38.3	46.2	36.1
50-70	40.4	47.4	61	39.6	46.3	46.5	40.3	50.7
70-100	21.7	10.4	11.2	19	10.6	11.5	9.5	9.7
100+	12.2	4.9	2.4	10.4	3.2	3.6	4	3.5
Average wage	70.57	66.07	59.49	70.05	59.8	57.98	59.01	59.8
[s.d.]	[45.48]	[143.30]	[19.72]	[59.99]	[80.48]	[40.60]	[66.26]	[80.48]
Workplace:								
North	60.5	54.2	74.4	60	64	63.6	61.5	62.9
Centre	18.4	24.3	15	18.9	19.8	19.5	19.7	20.4
South & Islands	21	21.5	10.6	21	16.2	16.9	18.8	16.7
Observations	406971	37535	5807	450313	7911	7911	6430	6430

Notes: Reported figures all percentages except for working days. Working days are the number of contracted working days over a year, computed as the difference between the end of the employment contract and the beginning of it, on the base of 6 working days per week. Sickness incidence is computed, at year level, as the share of workers who has been on sick leave at least once. Absence rate is computed, at person-year level, as the percentage of days lost due to sickness over the number of working days.

Table A4. Descriptive statistics for specific subsamples of movers

	Fast movers		Unlikely Movers		Fast unlikely movers	
	Temporary to Permanent	Permanent to Temporary	Temporary to Permanent	Permanent to Temporary	Temporary to Permanent	Permanent to Temporary
% Women	35	36.4	47	28.8	49.3	30.7
Young (16-29)	41.2	38.1	61.6	12.1	53.3	9.2
Adult (30-54)	58.8	61.9	38.4	87.9	46.7	90.8
Average age	32.77	33.16	29.37	37.65	30.93	38.07
[s.d.]	[8.27]	[8.18]	[7.90]	[7.15]	[8.35]	[6.98]
Region of birth:						
North	44.5	44.3	41.7	47.1	44.1	50.7
Centre	14.7	14.6	17.5	16.5	18.1	15.6
South & Islands	25	25.3	29.8	27.4	26.7	25.5
Abroad	15.8	15.9	10.9	9	11	8.2
Qualification:						
Blue collar	66.7	70	63.3	66.3	60.4	63.8
White collar	33.3	30	36.7	33.7	39.6	36.2
Daily wage:						
30-50	35.4	33.2	39.6	31.2	35	25.3
50-70	48.5	52.2	45.6	47.9	49.5	53.5
70-100	12.2	10.6	11.8	14.8	12.4	14.6
100+	3.9	4	3	6.2	3.2	6.6
Average wage	59.19	61.92	59.56	63.8	58.82	65.5
[s.d.]	[22.28]	[75.89]	[68.37]	[48.4]	[23.63]	[70.3]
Workplace:						
North	66.8	66.3	58	60.8	61	64.5
Centre	19.3	19.7	21.8	20.3	22.6	20
South & Islands	13.8	14	20.2	18.8	16.4	15.5
Observations	6309	3974	14534	10388	3301	1599

HIGHLIGHTS

- We study changes in employment protection (EPL) on absenteeism
- We focus on permanent vs two types of temporary contract transitions
- We use individual-level panel data and find asymmetric responses to changes in EPL
- Significant overreaction of permanent workers is observed when they lose protection
- Findings are in line with psychological explanations of asymmetric reactions to good vs bad news