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Heterogeneity?**

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Temporary Jobs: Port of Entry, Trap, or just Unobserved Heterogeneity?*

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Abstract

We use a discrete-time dynamic multinomial logit model with fixed effects to study the port of entry versus trap hypotheses of temporary contracts in Italy. The WHIP data allows us to observe several kinds of temporary contracts and to distinguish between contract transformations occurring within the same firm and job changes across different employers. After controlling for contract sorting due to workers' unobserved heterogeneity, we find evidence of state dependence in the form of: (i) contract persistence: whatever the initial state of a worker, retaining the same contract is always the most likely outcome; (ii) port of entry: the transition to open ended employment is more likely for individuals holding any type of temporary contracts than for the unemployed; (iii) yet, not all temporary contracts are the same: training contracts are the best port of entry, while quasi-subordinate work is the worst. (iv) When controlling for transitions within or between firms it emerges that the port of entry is observed mainly within the same firm, where a long *cursus honorum* from temporary to open ended contracts comes to light. Long-lasting open ended jobs are the only port of entry across firms.

Jel classification: J41, J63

Key words: temporary jobs, state dependence, fixed effects

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1 Motivation and literature

Temporary work represents a growing share of the employed workforce in many European countries. The EU25 average was 11.7% in 1997 and reached 14.9% in 2006, with the highest shares found in Spain (34.0%), Portugal (20.6%) and Poland (27.3%) (European Commission, 2007). As well, flows into temporary employment are all but negligible: during the nineties, over 90% of new hires have been signed under temporary contracts in Spain (Dolado et al., 2002); in Italy, whose share of temporary contracts was 13.1% in 2006, about 50% of the workers entered employment through a temporary job, as we document below.

Several reasons stand behind these developments. From the employers' perspective, the availability of temporary jobs is tantamount to a reduction in firing costs, which is particularly valuable in an uncertain environment where ordinary jobs are characterized by high employment protection (Bentolila and Bertola, 1990; Bertola, 1990; Booth, 1997). Temporary jobs can be attractive from the labour supply standpoint too: they may allow a reduction of the unemployment duration¹ and contribute to a decline in the unemployment rate of the weakest segments of the labour force. In addition, temporary jobs may represent a port of entry to more stable career paths and be useful for reaching a better combination of work and family life. However, the literature seems to be less unanimous on this last point. Indeed, while agency jobs allow high-skilled British women to work out a better combination of work and non work life, job instability is found to negatively affect family formation in the US, Spain and Italy (Albert and Bradley, 1998; Ahituv and Lerman, 2005; De La Rica and Iza, 2005; Bratti et al., 2005). Furthermore, concerns have been expressed that people in such flexible working arrangements may be at risk of experiencing precarious career paths and, at the extreme, exclusion from the labour market (D'Addio and Rosholm, 2005).

All over Europe, temporary jobs are often associated with poorer labour conditions. In fact, comparing British temporary workers and permanent ones, Booth et al. (2002) estimate a negative wage gap of about 10%; recent studies have found that temporary workers feel the highest level of job insecurity (Clark and Postel-Vinay, 2008) and that the social protection systems often fail to provide them with an adequate coverage (e.g. Madama and Sacchi, 2007, for Italy). All this reinforces the concerns that, overall, temporary jobs may be lower quality jobs.² Overall, the literature does not seem to support the claim that workers *choose* a flexible career, made of repeated temporary employment spells. Hence the main question becomes "are temporary jobs a port of entry toward open ended contracts or do the workers run the risk of being trapped into temporary jobs?" The existing literature concludes that the port of entry

¹Alonso-Borrego et al. (2005) and Berton and Garibaldi (2006) show theoretically that unemployed workers searching for a temporary job experience a shorter unemployment duration. This result finds empirical support in Blanchard and Landier (2002) for France, Bover and Gomez (2004) for Spain, De Graaf-Zijl et al. (2004) for Netherlands, Van Ours and Vodopivec (2006) for Slovenia and Berton (2008) for Italy.

²For an in depth analysis of working and non working conditions of temporary workers in Italy see Berton et al. (2008a).

hypothesis holds for some countries but not for others. Booth et al. (2002) find that young men are those who make the transition from temporary to permanent jobs more often in the UK. Hagen (2003) finds that temporary jobs act as a port of entry in Germany, but they also increase the probability to enter fixed term employment once more. The results by Hotchkiss (1999) and Autor and Houseman (2002) display no evidence of the port of entry hypothesis in the US, as well as Güell's and Petrongolo's (2007) and Casquel's and Cunyat's (2004) for Spain. De Graaf-Zijl et al. (2004) in turn find that temporary contracts in the Netherlands reduce the unemployment duration but do not represent a port of entry. As for Italy, the available evidence is only partial and not conclusive. Gagliarducci (2005) writes that the probability of obtaining an open ended job grows with the duration of the current spell in temporary employment, but decreases with the number of past temporary spells, so that it is not temporary jobs per se to be detrimental for future career opportunities, but their repetition. His multi-state multi-spell duration analysis allows for a rich dynamics and controls for unobserved heterogeneity (though random effects), but computational tractability requires that the analysis be confined to only three, highly aggregated, labour market states. Ichino et al. (2008) focus on the jobs provided by one type of temporary contracts - agency contracts - in Tuscany and Sicily: their effect on the probability of being employed again eighteen months later is positive in the former region, but not significant in the latter. Picchio (2006) tackles the hypothesis of persistence; his evidence supports this argument, but is limited by the short time span of the analysis and, once again, by a wide aggregation of the types of contracts.

We study the port of entry versus trap-effect hypotheses on the Italian labour market, in the medium run and in a multi state framework. We distinguish among contracts with different features (open ended, fixed term in strict sense, but also trainees, apprentices, quasi subordinate workers, self employed) and we include non work as a further labour market state. In order to do so, we use the *Work Histories Italian Panel* (WHIP), a large dataset provided by the LABORatorio R. Revelli and based on the administrative archives of the National Institute for Social Security (INPS). WHIP is a matched employer-employee database, which also allows us to observe whether the worker is employed in the same firm in two different points in time, with the same or with a different contract; i.e. we can distinguish between job changes and contract transformations within the same firm. Our econometric approach is based on a discrete-time dynamic multinomial logit model with "fixed effects". While the Markovian assumption embedded in these models imply that the dynamics of the process is kept relatively simple, the crucial advantage is that the estimates of transition parameters are robust to any specification of the distribution of unobserved heterogeneity (Magnac, 2000).

Our main results are the following. Individual heterogeneity plays an important role in sorting the workers into the different types of contracts. Nonetheless, whatever the initial state of a worker, retaining the same contract is always the most likely destination, even after individual heterogeneity is controlled for. Despite this evidence of persistence, and in contrast with Magnac's own results for

France, the port of entry hypothesis cannot be denied in Italy, in the sense that the transition to open ended employment is more likely for individuals holding any type of temporary contract than for unemployed individuals. However, some temporary contracts are better than others in providing access to open ended employment: our results suggest that training contracts are the best port of entry to open ended employment, while quasi subordinate work is the worst. Finally, an important qualification to the trap-effect hypothesis is found once controlling for transitions between firms as opposed to permanence within the same firm. In fact, our results indicate that both port of entry and contract persistence are present within the same firm more than across firms, i.e. it emerges a sort of long *cursus honorum* within the firm from temporary to open ended contracts. The only condition that increases the probability of getting an open ended contract in a *new* firm is having had a long employment spell with an open ended contract in the current firm.

The paper proceeds as follows: section 2 reviews the theoretical reasons for the different forms of state dependence, while section 3 presents our econometric approach. Section 4 briefly describes the institutional framework and section 5 presents the data. Sections 6 and 7, respectively, discuss the descriptive evidence and the econometric estimates. Section 8 draws the main conclusions.

2 The theoretical framework

A number of reasons emerge in the literature to explain why temporary jobs may act as a port of entry into open ended employment, which may occur both within the same firm - i.e., the temporary contract is converted into an open ended one - or between firms, with or without an intervening spell of unemployment.

Within the same firm, temporary jobs can be used as a screening device. Since ability cannot be perfectly observed, employers often decide to post temporary vacancies in order to screen the workers, and to retain with an open ended contract only the ones who proved to be more productive. The key aspect is the length of the learning process, to be able to assess whether a worker's permanence in a given firm with a temporary contract is justified by a "normal" screening process. To the best of our knowledge no such measure is available in the literature.³

Temporary work in one firm may also be a port of entry to open ended employment in another firm. This is more likely to occur if temporary workers receive general purpose training in their current job, as this would increase their human capital with respect to unemployed individuals. However, the bulk of the empirical evidence argue that temporary workers receive less training than workers hired on an open ended base (Bassanini et al., 2005). Finally, even if no training is provided, temporary jobs may allow the worker to build a network of contacts that in turn may increase open ended employment opportunities.

³Anecdotal evidence collected with interviews to human resource managers points to a screening period of about nine months, depending also on the occupation.

Temporary jobs may also become a trap. On the one hand, when the mechanisms leading to the point of entry are not activated during a temporary contract, the latter will eventually result in either unemployment or successive spells of temporary work. This may lead to human capital depreciation and a deterioration of the future prospects of getting a permanent job, representing one case of true "scarring effect" of temporary work.⁴

On the other hand, the literature points to individual heterogeneity as a mechanism sorting individuals into different contracts, thereby explaining some or all of the observed state dependence. From this perspective tastes and preferences are one obvious candidate. Persistence in temporary employment is observed as long as some individuals prefer temporary jobs. One reason to do that is the need to combine work and family life; however, as mentioned before, the empirical evidence does not generally support this conjecture and the argument of a preference for temporary jobs is not supported by the data on job satisfaction and job security (Clark and Postel-Vinay, 2008). Worker heterogeneity may also be present in their budget constraint, e.g. some individuals searching in the labour market may face liquidity constraints. Despite possibly being high productivity workers, they may rationally choose a temporary job because more protected positions are not easily, or quickly, available. Therefore the individuals with a more stringent budget constraint - who need to earn a wage as soon as possible - sort into fixed term contracts;⁵ as long as the constraint persists we should therefore observe also persistence in the type of labour contract. Hence, persistence in temporary contracts is due to a confounding factor (unobserved heterogeneity in workers' outside options), and it should fade as soon as the constraint relaxes.

Persistence in temporary contracts may also arise as a result of employers' behaviour in the face of heterogeneity in the firm-worker match quality. As pointed out by Güell and Petrongolo (2007), even in the presence of perfectly observable worker types, firms may use temporary contracts simply because they are a cheaper and more flexible factor of production. In this case, firms are trading off lower labour costs with a higher quit rate and the risk of losing productive matches, as temporary contract workers are more likely to quit in order to accept a better match with respect to permanent workers. Using a partial equilibrium search and matching model, they show under what conditions temporary contracts (i) are never converted to permanent contracts, (ii) are converted before their legal limit, (iii) are converted only at the end of the legal limit. It turns out that temporary contracts that are never converted could coexist with both early and late conversions. In particular, both a higher match productivity and more favorable worker's outside options, which make a worker's quit threat more credible, increase the probability of contract conversion (early conversions above all).

When individual ability is not perfectly observable by the employers there

⁴In the event history literature this type of state dependence is often referred to as occurrence dependence (Lancaster, 1990).

⁵This is the intuition behind the theoretical models proposed by Alonso-Borrego et al. (2005) and Berton and Garibaldi (2006).

is room also for statistical discrimination.⁶ At least three mechanisms may induce employers to believe that former temporary workers are less productive: i) on the previous job they received less training and had themselves a lower incentive to invest in human capital (a sort of self fulfilling prophecy); ii) the previous employer hired them on a temporary arrangement just to face a demand upturn, but retention was unprofitable due to low productivity; iii) they failed the screening period proving to be of lower ability. Employers are therefore prone to offer them another temporary position. In this case persistence in temporary jobs is not due to some (observable or not) individual characteristic, but to past temporary jobs themselves, leading to a second case of true scarring effect.

As Dolado et al. (2002) point out, there is currently no theoretical approach that is able to contemplate all these mechanisms at once; moreover, in the real world they are likely to overlap. A fully structural model is beyond the scope of the present work; we estimate a reduced form model, where we control for the role of individual heterogeneity as well as possible; residual effects will be interpreted in the light of what has been discussed above. From this perspective, a high probability to move from a temporary to an open ended position within the same firm would support the hypothesis of temporary contracts as a screening device, while the same kind of transition across firms will be interpreted as evidence for a more general port of entry hypothesis. Persistence in temporary jobs will be interpreted as a true scarring effect of past temporary work when emerging from transitions across firms; when emerging within the firm it would support the idea of cost reduction behaviour by the employers.

An additional and specific feature of this work is to contrast different temporary contracts, as they provide different mixtures of labour cost, protection, renewals within the same firm and training, as discussed in section four.

3 The econometric strategy

We are interested in dynamic models in which a high number of labour market states can be taken into account and it is possible to disentangle the effect of individual heterogeneity from the effect of past labour market experiences. In this respect, a trade off is faced when choosing the appropriate econometric model. On the one hand, continuous time models (e.g., the event-history analysis used by Bonnal et al., 1997 and Gagliarducci, 2005) are in general more careful about the dynamics of the process and less on controlling for unobserved heterogeneity, which is often described as a random effect that multiplicatively enters a proportional hazard. On the other hand, multi-state models in discrete time allow the introduction of unobserved fixed effects, possibly correlated with other individual characteristics, and without the need to resort to distributional assumptions, but at the cost of a poorer dynamic specification: usually, a Markov chain. Since

⁶See the seminal papers by Phelps (1972) and Arrow (1973).

our two main concerns are in flexibly controlling for unobserved heterogeneity while maintaining a high disaggregation of the labour market states, we follow the second strategy and use the approach proposed by Magnac (2000).⁷

The model reads as follows: for each individual $i \in \{1, \dots, N\}$ the latent propensity level y_{ijt}^* to be in state $j \in \{0, \dots, K\}$ at time $t \in \{2, \dots, T\}$ is a function of the lagged state variables and of unobserved heterogeneity ϵ_{ijt}

$$y_{ijt}^* = \sum_{k=0}^K \delta_{kj} 1[y_{it-1} = k] + \epsilon_{ijt} \quad (1)$$

where $1[\cdot]$ is an indicator function. The unobserved components ϵ_{ijt} are decomposed into an individual and state specific effect α_{ij} and residuals u_{ijt} . Observed states are the states with maximum propensity

$$y_{it} = j \text{ if } y_{ijt}^* = \text{Max}_l(y_{ilt}^*) \quad (2)$$

If the residual components u_{ijt} , conditional on α_{ij} , are extreme value distributed and independent across states, individuals and periods, the probability to be in state j at time t for individual i given that she was in state k in the previous period, reads

$$\Pr\{y_{it} = j | y_{it-1} = k; \alpha, \delta\} = \frac{\exp(\delta_{kj} - \delta_{k0} + \alpha_{ij} - \alpha_{i0})}{1 + \sum_{l \neq 0} \exp(\delta_{kl} - \delta_{k0} + \alpha_{il} - \alpha_{i0})} \quad (3)$$

Identification of the state dependence parameters δ_{kj} requires a normalization constraint, namely to set to zero the parameters related to one of the destination states, here $j = 0$. Therefore, $\alpha_{i0} = 0$ and $\delta_{k0} = 0$, for any k . The interpretation of the δ_{kj} is easier once the following ratio is considered, independent of the individual and state specific effect α_{ij} :

$$\frac{\frac{\Pr\{y_{it}=j|y_{it-1}=k;\alpha,\delta\}}{\Pr\{y_{it}=0|y_{it-1}=k;\alpha,\delta\}}}{\frac{\Pr\{y_{it}=j|y_{it-1}=0;\alpha,\delta\}}{\Pr\{y_{it}=0|y_{it-1}=0;\alpha,\delta\}}} = \exp(\delta_{kj} - \delta_{0j}) \quad (4)$$

The state parameters δ_{kj} are identified once the additional normalization $\delta_{0j} = 0$, for any j , is imposed. Quoting Magnac, the interpretation is as follows: "...if δ_{kj} is positive, the odds of being in state j with respect to state 0 when the lagged state is k are larger than when the lagged state is 0". Choosing "non work" as the reference state, the estimated δ_{kj} are informative of the nature of state dependence found in the data, i.e. whether a port of entry or a trap-effect dominates for the different types of contracts considered. If a trap-effect

⁷In our experience a random-effect multi-state multi-spell approach is also computationally more demanding, especially when the number of states considered is high. However, it remains attractive for the opportunities it offers to simulate workers' complete labour market histories and to perform welfare analysis. We pursue such an approach in a companion paper (Berton et al., 2008b).

holds, the estimated transition parameters are larger when the lagged and the current states are equal than when they differ, i.e. $\delta_{kk} > \delta_{kj}$, for any $j \neq k$. In principle, this type of state dependence does not exclude a port of entry effect, i.e. $\delta_{k,j=1} > 0$, where $j = 1$ denotes open ended employment. In this case, the positive state parameter $\delta_{k,j=1}$ means that getting an open ended contract as the destination state is easier if the current state is k (say any of the temporary contracts) instead of non work.

Estimation uses a conditional maximum likelihood method (CML). As shown by Magnac, the individual likelihood contribution is

$$\Pr \{y_{i2}, \dots, y_{iT-1} | y_{i1}, Y_{i1}, \dots, Y_{iK}, y_{iT}\} = \frac{\exp \sum_{k>0} \sum_{j>0} \left(\sum_{t>1} 1[y_{it} = k] \times 1[y_{it-1} = j] \times \delta_{jk} \right)}{\sum_B \exp \sum_{k>0} \sum_{j>0} \left(\sum_{t>1} 1[y_{it} = k] \times 1[y_{it-1} = j] \times \delta_{jk} \right)} \quad (5)$$

where $Y_{ik} = \sum_{t=2}^{T-1} 1[y_{it} = k]$ is the number of occurrences of state k for individual i

from time 2 to $T-1$ and $B = \left\{ b = (y_{i2}, \dots, y_{iT-1}) | \forall k > 0; \sum_{t=2}^{T-1} 1[y_{it} = k] = Y_{ik} \right\}$

is the set of all the possible state sequences that are compatible with the number of occurrences of each state. This method compares the work histories that are equivalent in terms of the number of occurrences but differ for the sequence of the states. The variability between time 2 and $T-1$ is informative about the transitions among states; for this reason, stable histories do not enter the likelihood function and at least four periods must be observed. As we explain in sections 4 and 5, our specification includes seven labour market states and up to seven yearly observations are used in the analysis.

Three considerations are in order before applying this econometric approach to our case. First, we do not explicitly account for initial conditions. This is viable, because our empirical analysis is based on a sample of entrants in the labour market (everybody is in the same state - non work - before their initial employment spell) and because controlling for individual fixed effects we control for the initial endowment of human capital and ability.

Second, the model proposed by Magnac works out the problem of unobserved heterogeneity in a very elegant way without any distributional assumption. Nonetheless, it's not able to take into account the effect of time varying covariates. In other words, the state dependence we observe after controlling for fixed effects could be due to some individual characteristics that vary in the time interval we observe.⁸ One obvious candidate is human capital, that is expected to increase more in open ended and in training contracts. However, no other obvious candidates emerge once we control for the contract type, and

⁸Along the lines of Magnac, Honorè and Kyriazidou (2000) propose a solution to this problem. However, the conditions for the identification of the coefficients of time-varying characteristics - i.e. $x(t)$ should be almost constant when the state changes - are too data-demanding to be reasonable in our context.

hence indirectly for the possibly different rate of accumulation of human capital. Moreover, averaging over the first six years of one's career prevents any possible start up period bias.

Finally, persistence within a contract can in fact be due to an ongoing screening process on the match quality - as argued in section 2 - instead of being due to a true "scarring effect" of past temporary work. Since in this case the main issue is the length of the screening period, one way to at least partially control for this fact is to look at transitions over increasing time intervals: we do this by estimating the model at one year and at two year intervals. To single out further the two mechanisms, we next control for the fact that the worker is employed with the same contract in two points in time in the same firm or in a different firm. Hence we separate transitions not only between/within contracts but also between/within firms as a further set of labour market states. The length of the screening process is unobservable; however, if persistence with a temporary contract within the same firm is "too long", this can be interpreted as indication of a cost reducing behaviour on the part of the firm.

4 The institutional framework

Our analysis covers the years 1998 - 2004, i.e. the period immediately after the flexibilization of the Italian labour market was fully implemented. In fact, the period of analysis follows the 1997 "Treu" law that introduced agency contracts, reformed fixed term contracts and apprenticeship, promoted the diffusion of part time jobs and training contracts and reintroduced probation contracts (*tirocinio*). Another type of flexible jobs, quasi subordinate contracts, had been introduced in 1996.⁹ The last year in the data is 2004, before another comprehensive reform, the Law 30/2003 ("Legge Biagi"), was actually implemented. So we focus on a period in which legislation on temporary contracts was quite constant (with the exception of 2001 fixed term contracts' reform).

A brief discussion of the different features of the various contract types is in order.

- *Fixed term contracts* were introduced in Italy in 1962 but never widely used; collective bargaining allowed their use more and more over the '90s and the 1997 law set an easier access to them for all firms by law; their almost complete liberalization occurred in 2001. In fact, there is no maximum duration for fixed term contracts since sequences of fixed term contracts within the same firm are allowed. They provide for no training obligations and no social security rebates.

- *Agency contracts* were introduced in 1997 and became effective in 1998.¹⁰ With agency contracts the provider hires the worker and sends her to the firm;

⁹The contract existed before 1996, but was not widely used and - as social security contributions were almost not due - its actual use could not be recorded. See Berton et al. (2005) for details.

¹⁰For this reason the share of agency workers in our sample - the flow of workers who entered the labor market on 1998 - is very small. For details on this contract see Ichino et al (2008).

the firm pays the wage to the worker (without reductions) and a search cost to the provider. They can last for a maximum of 24 months but are renewable within the same firm. They provide for no training obligations and no social security rebates.

- *The training contract* was introduced in 1984. It can last a maximum of 24 months and is *not* renewable within the same firm. Only individuals under 32 years of age can be hired with this contract. It provides to the firm from 25% to almost 100% rebate on the Social Security contributions; to the worker a minimum of formal training.¹¹

- *Apprenticeship* was introduced in the early Fifties. Apprentices receive a minimum amount of external and on the job training and the employer enjoys a full Social Security contributions rebate. Its maximum duration is 5 years and is not renewable within the same firm. Only individuals under 24 years of age can be hired with this contract.

- *Quasi subordinate* workers are formally self employed but de facto dependent workers.¹² No training has to be provided by the firm. Social security contributions are lower than those of dependent workers. When the contract was introduced in 1996 it was for non manual jobs only, but this limitation disappeared in 2001. Quasi subordinate contracts can be extended and repeated at will.

- *Self employed* workers observed in WHIP include all professional persons without an autonomous social security fund, as well as artisans and traders. Since they are proper self employees, there's no room for questions about maximum duration, extensions and renewals.

In general, the use of temporary contracts of any kind to substitute workers on strike is forbidden and sequences of temporary contracts face no limits provided the employer is different.

Open ended contracts have no stated duration, no training obligations and no social security rebates. They can be broken through individual or collective layoffs. Individual layoffs in Italy are allowed at no cost for just cause only.¹³ If a judge rules that the dismissal lacked the ground of just cause, larger firms (more than fifteen employees) are forced to re-hire the worker and to pay her a compensation; in smaller firms a severance payment is due.¹⁴ In larger firms layoffs occur mainly through collective dismissals, whose access is not difficult. Italian open ended contracts are therefore not so "permanent" as common knowledge often believes.

We aggregate all the observable temporary contracts in five homogeneous groups, and we add open ended contracts and non work for an exhaustive set of seven mutually exclusive labour market states: (i) open ended contracts, (ii)

¹¹The rebate differs according to regional unemployment rate, and has been decreased over time. See Contini et al. (2003) for details.

¹²See Berton et al. (2005) for details.

¹³Misconduct, but also firm restructuring or lack of demand.

¹⁴See Garibaldi et al. (2004) for details.

fixed term contracts¹⁵, (iii) training, (iv) apprenticeship, (v) quasi subordinate work, (vi) self employees (artisans, traders, professionals) and (vii) non work.¹⁶

5 The data

We use WHIP, the Work Histories Italian Panel, a large work histories dataset built up by LABORatorio R. Revelli from the Italian social security administration archives.¹⁷ It includes self employees, quasi subordinate workers, benefit recipients as well as employees. It excludes only civil servants hired on an open ended contract, agricultural workers, high skill professions (e.g. lawyers). It also excludes workers in the black economy, by definition.

To perform our empirical analysis, we select a flow sample of entrants in employment. To be more specific, we select native people under 40 years of age never observed in employment between 1985 and 1997 that start their first paid job during 1998; we follow them until the end of 2004. We exclude from the analysis those who work with a fixed term contract in the public sector, as their eventual transition to an open ended contract in the same public sector would be unobservable. In this setting, absences from the archive can be easily labelled "non work" spells, as transitions back and forth to non observed contracts (i.e. a permanent position in the public sector, or a high skill profession) are extremely unlikely.¹⁸

For employees, we observe the firm that employs them. So we observe whether they stay with the same firm over time or move across firms, and whether or not such a move entails a change in the contract type. I.e., contract and firm code are two different pieces of information, both recorded on a monthly base.

As our econometric approach models transitions across states as a Markov chain, we record the entry contract as well as the labour market position of the workers in October of every year from 1998 to 2004. The next section provides descriptive evidence on both the entry contract and transition probabilities. We then move to the estimates.

6 Descriptive evidence

We observe 6096 individuals aged 15 to 39 in 1998; about 46% of them are women. Table 1 details the entry contract shares in 1998: 33% of individuals start with an open ended contract, 27% as apprentice, about 10% start with each of the other three temporary contracts, and the remaining 10% as self

¹⁵Here we add the very few observed temporary agency and seasonal workers.

¹⁶Our analysis does not distinguish between part time and full time jobs. Robustness checks showed that the exclusion of part time jobs is inconsequential on our results.

¹⁷Full details on the data can be found at www.laboratoriorevelli.it/whip

¹⁸Unemployment benefit recipients are included in the "non work" state, as inevitably are also employment spells in the black economy.

employees. Hence more than 56% of the individuals start their labour market career in a temporary contract.

Gender is a proxy for tastes and a relevant dimension of heterogeneity in general. Age at entry is a proxy for the initial endowment of ability (education, time spent looking for the first job). As table 1 shows, differences by gender and age at entry are sizeable. Females are more likely than males to start their working career with a fixed term or quasi subordinate contract. Modal age at entry is between 20 and 24 years. Younger workers (15 - 19 years old) enter mainly as apprentices. Individuals starting with a fixed term contract are younger than individuals starting with a training contract, while the other contracts and quasi subordinate ones in particular, are more often the entry contracts of more mature individuals. The share of open ended contracts as entry contract increases markedly as entry age increases.

Table 2 shows average transition rates in the raw data. The panels contain transitions at one, two, four and six year distance, respectively. In general individuals move to the same contract they had, to an open ended contract or to non work; all other transitions are quite rare. Persistence along the diagonal appears to be substantial.

Self employees display the largest persistence, with levels fading down slowly at increasing intervals. Persistence is high for open ended contract workers too, but it falls more rapidly. Open ended contract workers exhibit a growing transition rate to non work, confirming that open ended contracts do not prevent the possibility of losing the job. Fixed term and quasi subordinate workers display lower and decreasing levels of persistence, that nonetheless does not completely disappear at larger intervals. Both types of contract suffer from frequent exits to unemployment but enjoy increasing transition rates to open ended employment (and to fixed term contracts for the second group).¹⁹ Training contracts have a legal maximum duration of 24 months, apprenticeship ones of 60 months: they both experience a growing transition rate to open ended jobs and a low possibility of exit to other contracts. The degree of persistence in training contracts completely fades away at longer intervals²⁰, while declines less rapidly for apprentices. Persistence in non work decreases over time, but it is still at 24% after six years.

Focussing on the last panel of the table, six years after entry, we can observe the medium-long run outcome of these career paths conditional on their status in October 1998, the year in which they entered employment for the first time. As said one out of four individuals is not working, however, those who had a quasi subordinate contract or an open ended one in 1998 face the highest probabilities of being not working in 2004 (a further indication that Italian open

¹⁹The distinction between quasi subordinate workers and a component of self employees is based upon an "activity code" that is likely to suffer from measurement errors. The transition intensity between the two states is therefore less reliable.

²⁰We observe a minimal number of training contracts lasting 25 months, possibly driving up the estimation of persistence at two year intervals (also see section 7); this is mainly due to data construction reasons: starting and ending a 24-months contract during the same calendar month two years later is recorded as a 25-months spell in administrative data.

ended contracts are not so "permanent"). Almost one out of two is employed with an open ended contract; those who started with a training contract enjoy the highest probability of working with an open ended contract in 2004, even higher than those who started with an open ended contract. In 2004, 7% are employed with a fixed term contract; they entered more often with a fixed term or with a quasi subordinate contract, or they were already out of work in October of the entry year. Self employed face the highest persistence in the contract and the lowest probabilities of moving to anything else, even to an open ended contract or out of work. This confirms that self employment is a specific choice, a separate segment of the labour market, with little leakage to dependent employment. On the other hand, quasi subordinate workers move to dependent employment much more often than "true" self employees.

Finally, in table 3 we separate transitions of employees to the same or to a different firm, at both 12 month (upper panel) and 24 month (lower panel) intervals.²¹ As expected, the majority of open ended contract employees is employed in the same firm 12 or 24 months later (mainly with the same contract: 59% and 78% at one year distance for short and long elapsed tenure respectively), although the share decreases the longer the interval considered (the previous figures become 51% and 67%). Also fixed term contract workers show a high persistence within the same firm: 25% of fixed term contract workers who have worked for a given firm for at least 24 months are observed again within the same firm after 24 more months under a fixed term contract (fifth column in the lower panel), while only 22% of them are observed within the same firm after 24 more months with an open ended contract (column three). This is an example of a "very long" - at least 48 months - screening process.

Training contracts can last up to 24 months within the same firm; if they are transformed into an open ended one before expiring the firm retains the social security rebate till the original end of the training contract. Nonetheless, firms seem to wait for the end of the contract to eventually transform it into an open ended one. In fact, of those who have spent less than one year as trainee in a firm, more than half are still trainees in the same firm after 12 more months (column seven in the upper panel), while only 13% are still working there with an open ended contract. After two years nobody can be still a trainee in the same firm, and 52% of them are converted into an open ended contract (lower panel, third column, shorter tenure); another 21% has moved to a different firm. Again, this might be considered as an example of a "very long" screening process. Apprentices follow a similar pattern, i.e. the majority of them is still employed as apprentice in the same firm at one year distance; almost 20% of longer tenure apprentices are promoted to an open ended contract instead; at two year distance 20% of them is still an apprentice in the same firm, while about 40% have an open ended contract within the same firm. For them an open

²¹In the data firm coding for quasi subordinate workers is different from firm coding for employees, so we cannot observe whether quasi subordinate workers become employees in the same or in a different firm. Moreover, note that this distinction is not meaningful for the self employed.

ended contract with a different firm is a less likely event (11% of long tenure apprentices, after 2 more years). Hence it seems that apprentices follow the pattern already observed for trainees, although with lower/worse probabilities of transition. Once again hints emerge toward a "very long" screening process within the firm.

In conclusion, it seems that workers face a quite long *cursus honorum* within the firm before obtaining an open ended contract. However, the evidence depicted so far mixes up the effects of heterogeneity, of genuine port of entry and of true scarring. In the next section we estimate the transition model and try to disentangle these components.

7 Econometric Results

In this section we present our CML estimates of δ_{kj} at 12 as well as at 24 month intervals (in which case we exploit the minimum of four observations per individual required by Magnac's approach). The estimates are arranged in tables that show, for each δ_{kj} , the origin state (k) by columns and the destination state (j) by rows. In other words, within each row one reads the odds of taking different contracts keeping the origin state constant; each column in turn displays the odds of taking one specific contract for different lagged conditions. Non work is taken as the reference state. Therefore positive (negative) figures mean that the odds of taking contract j with respect to non work when the lagged state is k are larger (smaller) than when the lagged state is non work. Thus, if $\delta_{k'j} > \delta_{k''j}$ the odds of taking contract j (with respect to non work) when the lagged state is k' are larger than when the lagged state is k'' . Similarly, if $\delta_{kj'} > \delta_{kj''}$ the odds of taking contract j' when the lagged state is k are larger than the odds of taking contract j'' .

First, we compare our CML estimates of δ_{kj} , obtained after the individual fixed effects have been eliminated, with simpler estimates of δ_{kj} , call them d_{kj} , obtained from a multinomial logit approach that only controls for the lagged state, i.e. without controlling for the individual fixed effects. The CML estimates of δ_{kj} are reported in table 5 for the one year transitions and in table 7 for the two year transitions. The corresponding d_{kj} estimates are reported, respectively, in tables 4 and 6. This comparison is informative about individual heterogeneity: as long as it plays a role in sorting workers among different contracts, we expect the state dependence coefficients to change after time invariant effects (α_{ij}) are controlled for. In particular, we expect the coefficients on the main diagonal to decrease, since the same individual characteristics that sort a worker into one contract are likely to further retain her there. Our findings support this hypothesis: persistence decreases substantially and significantly after fixed effects are controlled for, as it is immediately clear comparing the main diagonals in Table 4 and 5, and in Table 6 and 7.

Claim 1 *Individual heterogeneity explains part of the observed persistence in the same contract. The effect is an overestimation.*

Insights about the port of entry hypothesis are provided by the estimates reported under the column labelled "open ended" in tables 5 and 7. In fact, note that all the estimated $\delta_{k,j=1}$ are positive, for any k . Therefore, once individual fixed effects are controlled for, open ended jobs are more easily accessible from employment than from non employment. This is true for every contract of origin but quasi subordinate work, whose port of entry effect fades away before two years. Training contracts display the highest coefficient both at one and at two year distance, possibly implying a positive effect of their formal training content. Notice that Magnac (2000) finds the opposite result: in France, training programmes are not more effective than off-the-job search in finding an open ended position.²² An ordering among the contracts with respect to the probability of taking an open ended job emerges, with training contracts at the top and quasi subordinate work at the bottom.

Claim 2 *The port of entry hypothesis holds; in particular, training contracts represent the best port of entry to open ended employment, quasi subordinate work the worst.*

This notwithstanding, persistence is still far from fading away. Table 5 shows that for any given contract, the most likely destination state is the same contract, even after fixed effects have been removed. At one year distance, each contract duration may play a role: training and apprenticeship contracts, whose maximum legal durations are two and five years respectively, may be an example, but not quasi subordinate workers, whose work relationships are shorter than one year on average. We expect persistence to decrease in most cases when computed at larger intervals. Table 7 shows that the coefficients on the main diagonal actually decrease, but are still the row-specific highest figures. Two aspects are worth a comment: i) persistence in open ended jobs falls dramatically at 24 months, confirming that open ended contracts do not completely prevent a worker from losing her current job; ii) self employment is more likely to be a choice of the worker; this induces the very high persistence and the very low transition coefficients we read in the tables.

Claim 3 *Whatever the entry state, retaining the same contract is the most likely destination, at one as well as at two year intervals. This holds even after individual effects are controlled for, meaning that persistence in the contract depends also on employers' choices.*

In order to disentangle a true scarring effect of temporary employment from a cost reduction behaviour of the employers who, as discussed in section 2, might be using temporary contracts simply as a cheaper production factor, we estimate the model separating movements toward the same firm or toward a different firm. We focus on two year transitions, as this length of time excludes the effect of stated contract duration for trainees and more in general it is likely that a screening period of average length is over.

²²The objection that employers are forced by the law to retain at least 50% of the trainees is not relevant since retention rate is well above 50% (see table 3).

We expect statistical discrimination to affect transitions across firms, since a new employer is more likely to have a worse guess about workers' productivity; on the contrary, we will interpret retention under temporary contracts in the same firm as evidence of a cost reduction behaviour, when lasting over two years. On the other hand, evidence of transitions toward open ended contracts may be interpreted either as a *cursus honorum* when it occurs within the firms, or as a more general port of entry when across them.

To keep the analysis tractable we exclude individuals who have been apprentices, quasi subordinate workers or self employed at least once in the observation period. The last two groups have no firm coding, so their inclusion would add nothing to the previous analysis; the first includes very young individuals on a potentially very long contract, so their exclusion is not too costly.

Table 8 presents the results, once again obtained with the fixed effect dynamic multinomial logit model; they can be read as in tables 5 and 7. Both training and fixed term contracts help significantly to obtain an open ended contract in the same firm (significantly positive δ_{kj} in the last three rows of column 2, Table 8). However, the probability of having still a fixed term contract in the same firm at 24 month distance is higher than the probability to obtain an open ended contract in the same firm, even for trainees (δ_{kj} in the last three rows of col. 4 larger than the corresponding δ_{kj} in col. 2).

There is no evidence of port of entry into a new firm (col. 1), i.e. having had a temporary job in the past or coming from non work provides the same probability of getting an open ended job in a new firm. There is only one port of entry across firms, i.e. having had a long open ended employment spell increases significantly the probability of getting an open ended contract in a new firm with respect to the probability faced by those who were not employed. This may suggest that both the general purpose training and the network building effects mentioned in section 2 are not at work, or that they fade away quite quickly after a temporary contract.

Persistence in temporary jobs occurs mainly within the firm, possibly meaning that employers use temporary contracts as a cost reduction device, as suggested also by Güell and Petrongolo (2007). On the other hand, persistence in temporary jobs across firms is not significant (col. 3 and 5, last three rows), hinting that also the scarring effects of temporary contracts mentioned in section 2 are weak or fade away quickly.

Notice that these results hold even if transitions are computed at intervals larger than the average or legal duration of most of the contracts and of a reasonable screening period; moreover, averaging over the first six years of one's career prevents any possible start up period bias.

Claim 4 *The port of entry effect is taken over by an internal cursus honorum effect. Little room is left for transitions across firms, except for workers holding an open ended contract who move to a new job more easily than non working individuals. Temporary jobs do not represent a port of entry into a new firm and are likely to be used as a cost reduction device.*

8 Conclusions

Are temporary jobs a port of entry toward more stable career patterns, or do they engender a trapping risk into precarious employment? Studying a sample of entrants into employment over a quite long period of time, we highlight several aspects of a many-sided answer.

Heterogeneity plays a non negligible role in sorting the workers among the contracts and in keeping them there. But, after eliminating the effect of individual heterogeneity, we can confirm that a trap-effect may exist, in the sense that retaining the same contract is always the most likely destination. On the other hand, fixed term jobs, apprenticeship and - most of all - training programmes act as a port of entry into open ended employment, providing a significantly higher probability of obtaining such contract with respect to that faced by non working individuals. However, once controlling for the identity of the employer, the port of entry effect is taken over by an internal *cursus honorum* effect, i.e. a long persistence with temporary contracts within the same firm possibly followed by an advancement to an open ended contract. The state dependence generated by temporary contracts *across* firms fades away within two years, implying that both positive (port of entry) and negative (scarring) expected effects of these contracts are not permanent. Their lasting effects (positive as well as negative) are firm specific.

Since having a temporary job is from many perspectives worse than holding an open ended contract, the next question becomes: how long does a worker take to enter an open ended job? And with what welfare cost over her entire career? This involves duration analysis and simulation of welfare levels. We leave this path to further research.

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Table 1: Entry contract in 1998. Distribution by gender and age at entry.

Entry Contract	All	Gender		Age at entry				
		Males	Females	15-19	20-24	25-29	30-34	35-39
Open ended	33.19	32.62	33.84	17.7	34.13	39.86	43.62	59.72
Fixed term	12.84	10.99	14.99	9.7	16.39	11.9	9.67	7.99
Training	9.78	10.53	8.91	3.48	10.87	17.7	8.64	0
Apprenticeship	26.59	29.13	23.66	64.98	24.29	1.41	0	0
Quasi subord.	7.37	5.48	9.55	2.23	5.75	13.47	13.99	10.42
Self employed	10.24	11.26	9.05	1.9	8.57	15.66	24.07	21.53
Total	100.00	53.61	46.39	25.02	41.34	20.95	7.97	4.72

Column percentages. Total: row percentages.

Table 2: Raw transition rates among contracts, at increasing time intervals.

Origin	Destination						
One year	Non work	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Non work	61.96	14.04	7.41	3.03	7.44	2.31	3.81
Open ended	12.14	81.30	2.99	1.10	0.92	0.42	1.13
Fixed term	25.19	26.31	38.10	4.87	2.86	1.34	1.34
Training	11.97	39.96	5.18	40.17	1.18	0.48	1.07
Apprenticeship	15.21	15.58	2.26	1.55	63.82	0.29	1.30
Quasi subord.	33.18	11.53	6.94	2.24	1.88	36.94	7.29
Self employed	5.85	2.53	0.97	0.30	0.27	0.52	89.57
Total	27.32	37.75	6.28	3.88	11.08	1.86	11.83
Two years	Non work	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Non work	49.79	20.29	8.59	3.75	9.52	2.51	5.54
Open ended	16.20	73.71	4.12	1.60	1.48	0.63	2.26
Fixed term	26.50	34.10	25.46	5.41	4.43	1.97	2.13
Training	15.65	70.07	4.68	5.71	1.26	0.46	2.17
Apprenticeship	17.34	28.67	3.49	3.00	43.83	0.55	3.12
Quasi subord.	40.80	17.17	6.73	3.71	3.16	19.09	9.34
Self employed	9.13	4.87	1.41	0.49	0.34	0.74	83.03
Total	26.60	40.34	6.42	2.82	9.97	1.69	12.15
Four years	Non work	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Non work	35.18	31.23	9.79	2.77	10.06	2.57	8.39
Open ended	21.65	64.35	5.27	1.34	1.98	1.03	4.38
Fixed term	24.24	48.29	15.53	2.60	3.68	1.44	4.22
Training	16.09	73.91	3.78	1.19	0.89	0.74	3.41
Apprenticeship	19.12	46.98	4.58	2.39	19.29	1.16	6.47
Quasi subord.	40.84	27.10	6.30	1.15	2.48	9.92	12.21
Self employed	14.94	9.14	1.90	0.28	0.56	1.11	72.07
Total	25.04	44.53	6.76	1.91	7.22	1.79	12.75
Six years	Non work	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Non work	24.01	44.09	11.00	0.88	8.35	2.02	9.65
Open ended	29.15	54.67	6.00	0.70	1.60	1.12	6.76
Fixed term	22.56	54.62	10.00	2.05	2.56	1.79	6.41
Training	19.33	69.23	3.35	0.39	0.59	1.18	5.92
Apprenticeship	21.60	50.24	6.28	1.33	11.42	0.86	8.28
Quasi subord.	40.82	31.84	7.87	0.37	1.50	4.87	12.73
Self employed	18.50	10.40	1.54	0.19	0.39	1.54	67.44
Total	24.59	47.00	7.37	0.87	5.30	1.61	13.27
Row percentages.							

Table 3: Raw transition rates among contracts at one and two year interval, to the same or to an other firm.

Origin		Destination								
		Non work		Open ended		Fixed term		Training		Apprentices
1 year			Other	Same	Other	Same	Other	Same	Other	Same
	Elapsed tenure and other/same firm									
Non work		61.96	14.04		7.41		3.03		7.44	
Open ended	<12 months	18.90	11.86	59.46	3.65	0.74	1.37	0.63	1.19	0.43
	>12 months	8.32	9.31	77.62	1.95	0.25	0.54	0.05	0.40	0.13
Fixed term	<12 months	27.24	11.63	14.60	12.70	22.20	3.15	2.67	2.43	0.53
	>12 months	18.95	9.39	17.15	8.48	39.35	0.90	1.08	1.99	0.54
Training	<12 months	11.65	6.70	13.22	3.04	2.87	5.48	53.22	1.57	0.09
	>12 months	12.47	10.94	60.94	1.80	2.22	1.80	8.86	0.28	0.14
Apprentices	<12 months	18.98	4.80	2.40	2.36	0.22	1.57	0.09	10.30	58.20
	>12 months	11.73	4.78	18.52	1.73	0.24	1.33	0.12	5.87	53.64
Total		27.32	9.74	28.01	4.36	1.93	1.79	2.09	3.67	7.41
2 years			Other	Same	Other	Same	Other	Same	Other	Same
	Elapsed tenure and other/same firm									
Non work		51.60	19.81		8.95		3.05		8.21	
Open ended	<24 months	17.36	20.94	50.63	4.21	0.42	1.70		1.54	0.22
	>24 months	10.68	15.29	67.14	2.56	0.22	0.54		0.44	0.08
Fixed term	<24 months	25.74	19.03	15.91	13.26	12.64	3.98		3.35	0.55
	>24 months	24.05	8.23	21.52	7.59	25.32	2.53		3.16	0.63
Training	<24 months	14.51	20.77	52.02	3.52	1.20	2.92		0.86	0.00
	>24 months							(*)		
Apprentices	<24 months	16.95	10.97	14.90	3.03	0.31	3.39		12.80	34.21
	>24 months	12.09	10.50	40.21	3.28	0.56	1.97		6.09	19.68
Total		25.77	16.32	26.26	5.40	1.06	2.13		4.49	4.09
Row percentages.										
Quasi subord. and Self employed as in Table 2 and not reported; no firm code available.										
(*) A training contract can not last more than 24 months in the same firm. It can be observed as a spell of 25 months for data construction reasons										

Table 4: $d(kj)$ estimates without individual fixed effects, one year interval

Origin	Destination					
	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Open ended	3.186 0.037	0.437 0.067	0.405 0.102	-0.539 0.094	-0.347 0.152	0.123 0.100
Fixed term	1.055 0.059	2.378 0.058	1.024 0.110	-0.491 0.130	-0.091 0.191	-0.590 0.187
Training	2.260 0.071	0.864 0.120	4.259 0.084	-0.557 0.214	-0.370 0.344	-0.022 0.231
Apprenticeship	0.936 0.054	-0.292 0.104	0.234 0.128	3.251 0.050	-1.182 0.268	-0.246 0.139
Quasi subord.	0.103 0.107	0.106 0.139	0.114 0.210	-1.045 0.231	3.400 0.091	0.832 0.140
Self employed	0.405 0.117	0.089 0.172	-0.141 0.289	-1.206 0.309	1.754 0.151	5.389 0.079

Multinomial logit estimates, no controls. S.e. in second rows. Bold if 95 pct significant.

Table 5: $\delta(kj)$ estimates controlling for individual fixed effects, one year interval

Origin	Destination					
	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Open ended	2.600 0.066	0.612 0.094	0.028 0.138	-0.556 0.137	0.246 0.211	0.385 0.181
Fixed term	1.221 0.092	1.826 0.099	1.027 0.169	0.036 0.186	0.471 0.247	0.155 0.288
Training	1.633 0.121	1.284 0.174	3.870 0.203	-0.123 0.283	0.639 0.434	0.225 0.344
Apprenticeship	0.684 0.095	0.124 0.154	0.331 0.201	2.288 0.095	-0.744 0.418	-0.321 0.271
Quasi subord.	0.513 0.189	0.843 0.197	0.727 0.375	-0.125 0.411	2.283 0.182	1.363 0.265
Self employed	0.463 0.218	0.701 0.292	0.042 0.442	-0.169 0.429	0.915 0.412	3.569 0.168

Discrete time dynamic multinomial logit with fixed effects estimates. S.e. in second rows. Bold if 95 pct significant.

Table 6: $d(kj)$ estimates without individual fixed effects, two year interval

Origin	Destination					
	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Open ended	3.186 0.037	0.437 0.067	0.405 0.102	-0.539 0.094	-0.347 0.152	0.123 0.100
Fixed term	1.055 0.059	2.378 0.058	1.024 0.110	-0.491 0.130	-0.091 0.191	-0.590 0.187
Training	2.260 0.071	0.864 0.120	4.259 0.084	-0.557 0.214	-0.370 0.344	-0.022 0.231
Apprenticeship	0.936 0.054	-0.292 0.104	0.234 0.128	3.251 0.050	-1.182 0.268	-0.246 0.139
Quasi subord.	0.103 0.107	0.106 0.139	0.114 0.210	-1.045 0.231	3.400 0.091	0.832 0.140
Self employed	0.405 0.117	0.089 0.172	-0.141 0.289	-1.206 0.309	1.754 0.151	5.389 0.079

Multinomial logit estimates, no controls. S.e. in second rows. Bold if 95 pct significant.
A training contract can not last more than 24 months in the same firm. It can be observed as a spell of 25 months for data construction reasons. Hence, $d(\text{training}, \text{training})$ estimates at two year distance are not totally reliable.

Table 7: $\delta(kj)$ estimates controlling for individual fixed effects, two year interval

Origin	Destination					
	Open ended	Fixed term	Training	Apprenticeship	Quasi subord.	Self employed
Open ended	1.736 0.131	0.432 0.174	-0.206 0.241	-0.506 0.221	-0.028 0.395	0.574 0.357
Fixed term	0.694 0.170	1.599 0.224	0.654 0.337	0.590 0.335	1.306 0.513	-0.787 0.566
Training	1.422 0.202	0.786 0.320	2.180 0.538	0.009 0.448	-0.514 0.848	0.898 0.597
Apprenticeship	0.354 0.173	0.384 0.247	0.557 0.371	1.942 0.215	-0.904 0.648	-0.763 0.460
Quasi subord.	0.142 0.326	0.703 0.368	1.034 0.733	0.101 0.714	1.286 0.367	1.178 0.502
Self employed	0.851 0.413	0.277 0.537	0.711 0.869	-0.696 0.985	-0.561 1.126	3.543 0.436

Discrete time dynamic multinomial logit with fixed effects estimates. S.e. in second rows. Bold if 95 pct significant
A training contract can not last more than 24 months in the same firm. It can be observed as a spell of 25 months for data construction reasons. Hence, $\delta(\text{training}, \text{training})$ estimates at two year distance are not totally reliable.

Table 8: delta(kj) estimates controlling for individual fixed effects, two year interval, to the same or to an other firm.

Origin		Destination				
	Elapsed tenure and other/same firm	Open ended		Fixed term		Training
		Other	Same	Other	Same	Other
Open ended	<24 months	0.316 0.191	4.592 0.391	0.404 0.248	3.781 1.701	0.018 0.368
	>24 months	0.809 0.327	5.078 0.511	-0.120 0.488	1.347 2.298	-1.051 0.615
Fixed term	<24 months	-0.385 0.261	2.395 0.419	0.458 0.332	5.963 1.668	-0.063 0.556
	>24 months	-0.782 1.685	3.544 1.460	-0.012 1.451	5.353 2.761	1.459 3.341
Training	<24 months	-0.530 0.333	3.391 0.458	-0.687 0.494	4.716 1.841	0.934 0.848

Discrete time dynamic multinomial logit with fixed effects estimates.
S.e. in second rows. Bold if 95 pct significant