

Have labour market reforms at the turn of the millennium changed job durations of the new entrants?

A comparative study for Germany and Italy

August 2009

Preliminary and incomplete draft

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Abstract

It is often claimed that the labour market reforms of employment protection legislation of the 90's implemented in some European countries have generated a trade-off between job opportunities and job security. However, evidence emerging from the rich economic literature on this topic is rather mixed. This paper aims at contributing to this stream of research. The policy relevance of the research concerns the issue of the link between employment protection and the use of flexible forms of working and its effects on the process of achieving tenure. We use administrative longitudinal data and apply survival analysis to determine the effects of the reforms on job duration and employment stability of new entrants. Germany and Italy are taken as representative examples of smooth and radical reforms, respectively. We estimate piecewise constant job and employment duration models. The results show that changes in the durations of first jobs and first employment spells can be observed in correspondence of labour market reforms that increase employment flexibility. Under our hypotheses, first job duration decreases and employment duration increases when there is a trade-off between job opportunities and job security. The analysis of employment durations over time did not confirm the existence of such a trade-off. Only German men were found to have an increase in employment durations over time. In fact, this seems to have occurred to some extent in Germany, where changes in legislation have been undertaken smoothly. For Italy, our empirical results imply that the situation of new entrants in the labour market has not improved after the relaxation of employment regulation, suggesting that too radical, once for all changes from too much rigidity to too much flexibility might not yield the expected outcomes.

JEL: J62, J64, J68, K31, C41

Keywords: employment duration, work career, tenure, precarious jobs, labour market reforms

Acknowledgements: a provisional version of this paper was presented in September 2008 at the AIEL conference in Brescia. We wish to thank Simone Bertoli, Anton Nivorozhkin and Joachim Wolff for very helpful and constructive comments on a still earlier version of this paper.

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1 Introduction

We address the issue of flexibility that has recently dominated the scene of labour market changes, namely, the growing tendency of labour to lose its permanent features. Our general framework concerns the trade-off between job security and employment opportunities for new entrants into the labour market. We start with the question if labour market reforms actually have had a diminishing effect on the stability of new entrants' first jobs, as much of the available evidence seems to suggest. From the job concept, we then turn to the employment concept, looking at what happens to the new entrants' careers after the first job has elapsed. We ask whether employment, defined as a series of jobs spells only interrupted by short periods of search, has increased or decreased in stability during (and after) the years of labour market reforms. Is it true that more job opportunities have been created, especially for a vulnerable group like new entrants, thus favouring the stability of employment at the expenses of the duration of single jobs? This question is naturally tied to the problem of the occurrence and duration of unemployment, defined as a period of interruption of employment too long to be characterized as frictional. The next step, in fact, will be to study the relation between the reforms and unemployment.

Our method of analysis is based on the study of durations of first jobs, employment and unemployment in the new entrants' careers. Specifically, our research strategy consists of two steps: 1) testing the hypothesis of the often claimed tendency towards shorter first job durations of new entrants during the period of labour market reforms; 2) addressing the issue of the scope of the reforms, that is, the creation of more employment opportunities to diminish the risk of unemployment. The idea is to extend the analysis from the concept of first job duration, to the concept of first employment duration, considering as first employment spell an uninterrupted (or shortly interrupted) period of employment in different job spells, also with different employers. Our aim is to test, for example, if a short first job is rapidly followed by another job and if this type of job mobility has become more common in the period analysed. Such observation would indicate an increase in job opportunities over the period under study. Our analysis, however, does not deal with the problem of the effects of an uninterrupted sequence of short jobs, either by the same firm or by different firms, on the accumulation of human capital.

We make a comparative analysis of the changes occurred in two regimes: one of "radical" and once for all reforms, like in the case of Italy, and one of "smooth" and continuous reforms, like in the case of Germany. During the 90's and the early 2000's, both German and Italian labour markets have experienced reforms which can be summarized under the header of "deregulation". The aim of the paper is to ascertain how these reforms could be possibly related to changes in young people's job stability and to compare the outcomes of two different reform strategies.. The samples we use

are drawn from the archives of the national social security contributions for dependent employment. The paper aims at contributing to the theme of the choice of labour market regulations for reconciling security with flexibility, since so far, to our knowledge, a comparative duration analysis of the careers of young entrants during a period of reforms has never been conducted on this kind of data. We exploit the unique opportunity to study the two countries using longitudinal data that have exactly the same administrative source, and, for this reason, an unprecedented degree of comparability. The paper is structured as follows. Section 2 reviews the literature on the evaluation of labour market reforms in general and, in particular, for Germany and Italy. Section 3 gives an account of the institutional background regarding labour market reforms in Germany and Italy. Section 4 describes the data sources. Section 5 presents the model and the results of the empirical analysis. Section 6 concludes.

2 The literature

Recently, economists have analysed the big changes occurred since the 90s in the European labour markets focusing on the effects of the institutional reforms on the level and structure of employment, firms' performance and workers' well being. The available literature, both macro and micro, is rich, but, given the complexity of the issues at stake, far from enough for giving uncontroversial answers.

As to the use of duration to measure job stability, Booth et al. (1999), using work-history data over the period 1915-1990 from the British Household Panel Survey, find that separation hazards were higher for more recent cohorts, implying a secular increase in job instability, particularly marked in the lowest occupational classification.

The most recent literature has mainly focussed on flexibility and temporary/fixed-term contracts and the relation on labour market reforms. In Germany, there is micro evidence for several legislative changes concerning the flexibility of working contracts. Boockmann and Hagen (2008) estimate the effect of initial episodes under fixed term contracts on job duration in the further course of the employment spell, using data from the German Socio-Economic Panel (SOEP) from 1985 to 2002.

Another focus of labour market deregulation has been the ease of temporary agency work. Based on the IABS and estimating duration models including time-varying covariates for periods in which labour market reforms took place, Antoni/Jahn (2006) conclude, that the extension of the maximum length of loan periods did increase employment durations in temporary work agencies. The study of Kvasnicka (2008) also relies on the IABS. Using the evaluation approach by Sianesi (2004), Kvasnicka constructs matched samples stratified by duration of unemployment before taking up

work in a temporary agency. His results imply that temporary agency work does not serve as a stepping stone to regular work (the chances to get a regular job do not change over time).

Both in Italy and in Germany, the effect of dismissal protection has been studied by exploiting the fact that small firms beneath a certain threshold of employees are exempted from the dismissal law. In Germany, this threshold has been increased in 1996 to the level of 10 employees and then set back to 5 employees under the new government in 1999 (see next section). While a study of Bauer et al. (2007) does not find clear effects of these reforms on the dismissal and hiring behaviour of firms, Boockmann et al. (2008) analyse individual employment durations in combination with establishment information for firms with 6-10 employees (for whom the threshold has been changed) within a differences-in-differences approach and find a positive influence of dismissal protection on employment stability.

Ichino, Mealli and Nannicini (2008) obtain diverging results for the effects of temporary agency work within Italy (a sensitivity analysis confirms positive effects in Tuscany, but rejects significance for Sicily). Berton, Devicienti and Pacelli (2007) study the labour market transitions of young entrants in Italy. They find that heterogeneity partially explains workers' sorting between types of contract. Different kinds of temporary contracts are found to have different effects on the probability of getting a permanent job, temporary jobs represent a port of entry towards permanent employment mainly within, but not across firms.

Boeri/Jimeno (2005) look at the effects of the threshold value exempting small firms from strict dismissal protection in Italy. They find that dismissal probabilities are indeed higher for workers in firms with less restrictive employment protection. Looking at the size distribution of firms over time, they cannot identify an impact of the 1990 reform tightening employment protection by making severance pay mandatory for small firms.

There are a few studies looking explicitly at the influence of more flexible job arrangements on job durations of labour market entrants. Gagliarducci (2005) analyzes the effects of a temporary first job in comparison to a permanent first contract or no job at all. Applying a complex duration model allowing for competing risks and for multiple transitions, he finds that the length of the first temporary contract positively influences the probability of getting a permanent job. A study close to our research question, but on survey data, is Scherer (2005). She compares job durations of school leavers in Italy (1983-1997), Great Britain and West Germany (1993-1998). Differentiating between first and first stable job, Scherer finds that labour market entry may be characterized as rapid but unstable in Great Britain, rapid and relatively stable in Germany and very protracted and - given an entry - rather stable in Italy. She concludes that attempts for deregulation alone will not be sufficient to ease labour market entry.

3 Institutional Background

While several policy areas are operating together in producing labour market outcomes, we will concentrate our discussion on employment protection legislation, which includes reforms of dismissal protection laws, reforms of temporary work and reforms of temporary agency work. This implies that we neglect changes in active and passive labour market policies as well as changes in the education and training sector, fields in which reforms probably also have an immediate influence on the job prospects of labour market entrants.

While both Italy and Germany eased their employment protection legislation during the 90s and the early 2000s, the intensity and the pace of these reforms have been rather different, with a series of continuous and moderate reforms in Germany, and a limited number of drastic (relative to the Italian context) reforms in Italy.

Table 1 summarizes the changes in employment protection legislation for Germany. Interestingly, when looking at the 90's, we may define two periods. The first period ends in 1998, together with the 16 years' government of Helmut Kohl, the "Kohl era". The second period begins with the formation of the red-green coalition under chancellor Gerhard Schröder. The reforms in these years can be summarized under the header "deregulation" in the first period and "reregulation" in the second period.

While it is difficult to assess the strength of a reform without having knowledge of its impact, the changes in legislation both in the period we titled "deregulation" and in the period we titled "reregulation" do not appear to be drastic and can be seen as rather incremental. The expected impact of the second period 1998-2001 might be lower, because only a few of the reforms of the first period were taken back. Especially for new entrants, the feasibility of concluding fixed-term contracts has not been strongly limited by the 2001 law. The need for a probation period and a new employment contract after an apprenticeship or college are examples of valid "objective" reasons.

Both in Germany and in Italy, the reforms have introduced a "two-tier system" (Boeri and Garibaldi, 2007), as the increase in labour market flexibility took place mainly through a series of legislative changes that only affected newly entered workers (i.e. the marginal increase of the employment stock), leaving the legislation concerning insider workers and the terms and conditions of their open-end contracts largely unchanged. As to Italy, since the mid 90's, the Italian labour market has undergone radical reforms towards flexibility. These reforms have substantially liberalised the use of fixed term contracts and of external collaborators who perform exactly the same tasks of employees while remaining independent. Table 2 summarizes the changes in employment protection legislation for Italy.

Table 1: Labour Market Regulations Concerning Employment Protection, Germany 1985-2001

DEREGULATION			
Year	Month	Reform	Type of Measure
1985	5	Beschäftigungsförderungsgesetz	<ul style="list-style-type: none"> ▪ Possibility of fixed-term contracts without objective reason for new hires with a maximum duration of 18 months (24 months for new firms) ▪ Extension of the maximum loan period in temporary work agencies from 3 to 6 months)
1990	1	Beschäftigungsförderungsgesetz 1990	<ul style="list-style-type: none"> ▪ Prolongation of regulations for fixed-term contracts and temporary agency work
1994	1	Erstes Gesetz zur Umsetzung des Spar-, Konsolidierungs- und Wachstumsprogramms (1. SKWPG) from December 1993	<ul style="list-style-type: none"> ▪ Extension of the maximum loan period in temporary work agencies from 6 to 9 months) ▪ Elimination of the synchronisation ban for hard-to-place unemployed
1994	8	Beschäftigungsförderungsgesetz 1994	<ul style="list-style-type: none"> ▪ Prolongation of regulations for fixed-term contracts and temporary agency work
1996	10	Arbeitsrechtliches Beschäftigungsförderungsgesetz 1996	<ul style="list-style-type: none"> ▪ Maximum duration of fixed-term contracts extended to 24 months ▪ Chain contracts: up to three prolongations within maximum duration possible ▪ Fixed-term contracts for workers of age 60 or more possible without restrictions ▪ Fixed-term contracts after a vocational training in the same firm facilitated (elimination of requirement for employer to argue with lack of permanent job for the trainee) ▪ Change in employee threshold necessary for firms to be covered by dismissal protection law ▪ Restriction of criteria for "social choice" in case of layoffs
1997	4	Arbeitsförderungsreformgesetz AFRG (Reform of the old Labour Placement Act AFG; Modification of the law regulating temporary agency work; Arbeitnehmerüberlassungsgesetz AÜG)	<ul style="list-style-type: none"> ▪ Extension of the maximum loan period in temporary work agencies from 9 to 12 months) ▪ One-time fixed-term contract possible; prolongation allowed if the new contract follows without interruption ▪ Synchronisation of initial loan period and length of fixed-term contract with the temporary work agency allowed
REREGULATION			
1999	1	Gesetz zu Korrekturen in der Sozialversicherung und zur Sicherung der Arbeitnehmerrechte (Korrekturgesetz)	<ul style="list-style-type: none"> ▪ Withdrawal of 1996 change in employee threshold for employees necessary for firms to be covered by dismissal protection law ▪ Withdrawal of 1996 change in criteria for "social choice" in the case of dismissals because of economic reasons
2001	1	Gesetz über Teilzeitarbeit und befristete Arbeitsverträge (part-time and fixed-term employment act; replaces the former Beschäftigungsförderungsgesetz	<ul style="list-style-type: none"> ▪ No discrimination of part-timers (harmonization with EU law) ▪ Part-time work may be requested by employees - employer has to find counterarguments ▪ No discrimination of fixed-term employees ▪ Fixed-term employment without objective reasons possible only for new employees ▪ Expansion of the list of objective reasons for fixed-term contracts ▪ Prolongation of fixed-term contracts (at most three prolongations up to a total contract length of two years) possible only for new employees ▪ Fixed-term contracts for persons of age 58 and older possible without objective reasons (before: age 60 and older)

Table 2: Labour Market Regulations Concerning Employment Protection, Italy 1985-2001

Year	Month	Reform	Type of Measure
1987	2	Norme sull'organizzazione del mercato del lavoro, d.l.n. 56	<ul style="list-style-type: none"> ▪ For the first time, after law 230/1962, unions could introduce in collective contracts new motivations for the application of FTC.
1995	8	Riforma del sistema pensionistico obbligatorio e complementare, legge n. 335	<ul style="list-style-type: none"> ▪ Extension of compulsory social security to independent workers who perform tasks that are very similar to those of employees for private companies or in the public sector (like external collaborators, the so called continuously and co-ordinated collaborators, co.co.co.) This norm has reduced the positive labour cost differential between employees and external collaborators, since firms have now to pay to co.co.co. 2/3 of social contributions
1997	6	Norme in materia di promozione dell'occupazione, legge n. 196, Treu's law	<ul style="list-style-type: none"> ▪ Introduction of temporary agency work ▪ Incentives to part-time work and working hour reduction/restructuring
2001	9	Attuazione della direttiva 1999/70/CE relativa all'accordo quadro sul lavoro a tempo determinato, legge n.368, 2001	<ul style="list-style-type: none"> ▪ This law abrogated the law 230/1962 and substantially liberalized FTC contracts

The reform that attracted the attention most in the period under study is the *Treu's law* (Law 1996/1997). This introduced temporary work agencies, and also included minor reforms to fixed term contracts and apprenticeships, promoted the discussion of part-time jobs and Contratti di Formazione e Lavoro (CFL, special training and labour contracts) and reintroduced probation contracts. The liberalization of fixed term contracts, coupled with the reform of 1995 that extended compulsory social security to independent workers, thus reducing the positive labour cost differential of employees, might have created an incentive to hire more dependent workers for shorter periods.

4 Data sources

The study makes use of administrative data drawn from the public record of the employers' declarations of new hirings for payment of social contributions. Administrative data have a number of advantages. First, they have a high degree of comparability for conducting comparative analysis, since, being collected for the same scope, they obey the same logic. Second, they guarantee a precise record of the timing of variables as compared to work histories based on recall data. Third, they offer a high number of observations, good for conducting finer analyses, as in our case of matching observations over different periods. Among the disadvantages, the most relevant one is that they record a limited number of individual characteristics.

For Germany, we use individual administrative data collected at the IAB (Institut für Arbeitsmarkt- und Berufsforschung), Nürnberg. The IAB Employment Samples (IABS) contain information on

the employment history of employees liable to social security on a daily basis. The information originates notifications of firms on employment to social security bodies. While the IABS also contains data on receipt of unemployment benefits and unemployment assistance drawn from the Federal Employment Agency, we only use the employment information. The IABS represents a 2% sample of persons employed from 1975 to 2004. Self-employed and life-time employed persons in the civil services (Beamte) are not subject to social security contributions and thus are not included. Apprentices with a working contract are usually included. Marginally employed persons (persons whose regular earnings are below a certain threshold) are as a rule included from 1999 onwards. Employment records for persons in East Germany are available in the IABS only after the reunification. We include spells from persons in East Germany in the basic descriptive analyses, but exclude them later on, because it is difficult to decide whether these persons already had a career before showing up in the IABS. In addition, we wanted to limit the number of groups of persons under study.

For Italy, we use the WHIP (Work History Italian Panel) which is a sample collection extracted from the Italian National Institute of Social Security (INPS) and managed by LABORatorio Revelli thanks to an agreement between the INPS and the University of Torino. The reference population is given by all the people (Italian and foreign) who have worked in Italy even only for a part of their working career. A large representative sample has been extracted from this population (the sample coefficient is about 1:180 for a dynamic population of about 370,000 people) from 1985 to 2004. For each of these people the main episodes of their working careers are observed if they are enrolled in private, self-employment or atypical contracts, but also if they are in retirement spells or non-working spells in which they receive social benefits (i.e. unemployment subsidies or mobility benefits). Individuals who have an autonomous security fund, namely people who work in the public sector or as freelancers (lawyers or notaries), are not observed in WHIP. In this paper only the section on dependent employment, which is a linked employer-employee dataset, is used.

5 The empirical analysis

The analysis is confined to persons entering the labour market in one of the years of our observation window. We follow the first three years of employment of people who entered the labour market in the years 1994 to 2001 for Germany, and 1990 to 2000 for Italy.¹ As we have seen, in these years, in Germany as well as in Italy, several reforms have to be considered as influential for the labour market opportunities of new entrants. In a first step, we will test the hypothesis that jobs for new entrants into the labour market have become less stable over time. We shall thus look at whether job

¹ For Germany, the first years of the 90's are excluded because considered a transition period after reunification.

durations have changed over time and whether these changes can be plausibly traced back to the already described labour market reforms. In a second step, we look at employment spells of new entrants. Employment spells are considered as uninterrupted (or shortly interrupted) periods of employment in different job spells, also with different employers.

The main objective of this piece of analysis is to investigate the direction of changes in employment durations as compared to changes in job durations. We would like to ascertain if first job and first employment spells of young workers entering the labour market in different years show a pattern of durations that can be related to reforms.

To start with, we describe the econometric model and the sampling strategy adopted. Then we present some descriptive evidence of the duration of the first job/employment spell in different periods and by gender. This step will give an impression of the data for both countries and allow for a first assessment of whether there have been changes in the duration of the first job/employment over time.

We then turn to the results of our duration analysis to investigate the effects of the reforms on job stability of labour market entrants.

5.1 The econometric model

We start modelling first job durations. We adopt a specification which allows for period-specific differences in the risk of job exit, namely, a piecewise constant proportional hazard model. The model is the following:

$$\lambda_j(t | x_i \beta) = \lambda_0(t) \exp(x_i \beta) \quad (1)$$

$$\lambda_0(t) = \lambda_j \text{ with } \tau_{j-1} < t < \tau_j \quad (2)$$

(1) is a multiplicative model of the hazard, where the first term $\lambda_0(t)$ is the baseline hazard that depends on duration t , the second term depends on x , a set of time invariant explanatory variables and the λ_j specified in (2) are the constant time pieces. In this case the baseline hazard is constant with J different values. The j th interval starts at duration τ_{j-1} and ends at duration τ_j . The τ_j are the points where there are discrete changes in the baseline hazard. In the j th interval the baseline hazard is constant and equal to λ_j .

Lancaster and Nickell (1980) show that unobserved heterogeneity in a proportional-hazards model gives rise to spurious negative-state dependence. Even if the baseline hazard is constant, negative

duration dependence is observed. To allow for unobserved heterogeneity we include a multiplicative random error term ν in the hazard²:

$$\lambda_j(t | x_i\beta, \nu) = \lambda_0(t) \exp(x_i\beta) \nu \quad (3)$$

The effect of reforms is captured by dummy variables for the year of entry into the first job. This kind of modelling is probably not sufficient if we are interested in the exact effect of one reform in a specific year because there might as well be anticipatory or delayed effects of this reform. Such delayed effects might in particular appear in the case of small and incremental reforms. Moreover, the time dummies could also capture the effects of the economic cycle. To deal with this problem, apart from individual and firm related characteristics included in the x vector, we also control for local economic aggregate variables (e.g. the local yearly change in value added and the local unemployment rate). Our expectation is that the changes in labour market regulation should generate time patterns in the coefficients of the dummy variables which may be attributed to single reforms or periods of reforms.

Another issue is whether there is duration dependence, and if it has increased or decreased over time. To this end, we include interaction terms between year dummies and period specific baseline hazards, namely, $\lambda_j * d_{year}$, where d is a dummy variable, for each j and each year of the period considered.³

The second part of the empirical analysis deals with careers and their development. We first ask what happens to new entrants when the first job ends, if it ends, in our observation window. We look at the subsequent jobs, keeping track of their number, duration and of the duration of search time. If the duration of search time is short (less than a fixed amount of months) we consider the sum of the durations of all jobs as a single employment spell. We then analyze the duration of employment, again using a piecewise constant proportional hazard model specification.

5.2 Sample selection

For the estimation of the hazard function we define the variable (t) that measures the duration of the first job and the first employment spells respectively. We adopt a flow-sampling scheme, according to which each individual is selected upon entry into the first job/employment, at which point its individual clock is set to zero, and followed over a fixed time interval. Hence, left censoring is eliminated by construction, but right censoring exists and must be taken into account.

² While we have already experimented with some models of unobserved heterogeneity, we still have to elaborate on finding similar specifications for the different groups in our samples.

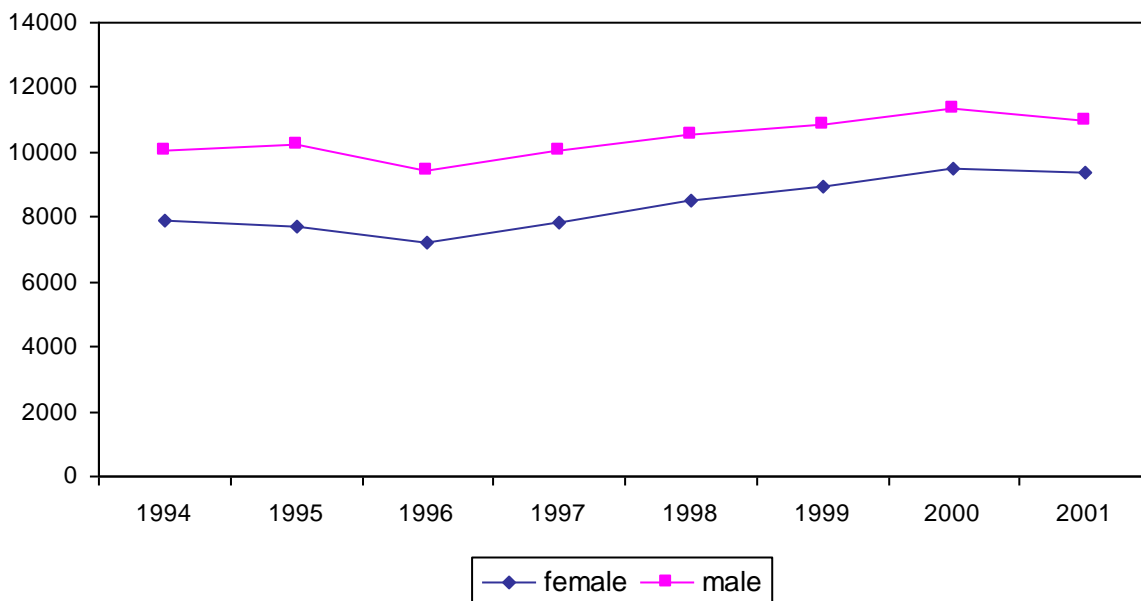
³ Preliminary analyses of these interactions showed not too clear changes in duration dependence over time.

The administrative register starts recording individual and firm characteristics at the time of entry. No information is available on earlier pre-employment periods or on previous employment experiences different from dependent employment in the private sector. As shown by Ridder (1984), under the hypothesis that the probability to flow into employment is separable into observable and unobservable characteristics, there need not be problems of initial conditions.

We focus on entry into dependent employment. We therefore exclude from the analysis self-employment, marginal employment,⁴ vocational training and employment in the public sector. We define as “new entrants” those employees who are recorded for the first time in the archive at year t , never observed from date of start of the IAB and WHIP samples up to t . Moreover, in order to minimize the possibility that those observed are not first spells, we further restrict our sample to people aged between 15 and 39.⁵

For Germany we consider the period 1994-2001 and for Italy the period 1990-2000. Graphs 1 and 2 show the number of “new entrants” each year, i.e. employees who are recorded for the first time in the archive at year t , never observed from 1985 up to t .

Graph 1 Number of new entrants into dependent employment by sex, Germany, 1994-2001

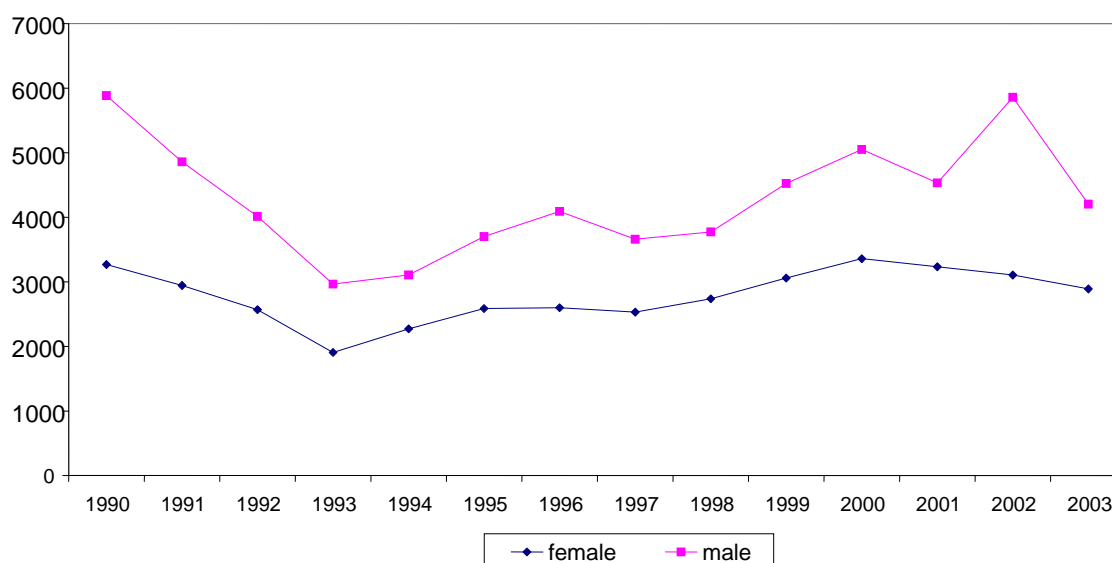


In the IAB sample for Germany we observe around 19000 new entrants on average each year, with a strong seasonal pattern (graph A.1 in the appendix) and more entries since 1996. The majority of entries still occurs after vocational training (graph A2). About 3000 yearly job entries take place in East Germany (graph A3), where we do not observe an upward trend in the late 90s like in the

⁴ Like “parasubordinati” in Italy (a form of dependent-self employment) and “mini jobs” in Germany.

⁵ For Germany, since we have information on the level of education (which is missing for Italy), we also restrict the sample to persons having already reached their highest level of education. This should exclude periods of employment in which some individuals may be moving back and forth between the educational system and the labour market.

Graph 2 Number of new entrants into dependent employment by sex, Italy, 1990-2001



West, and more men than women, with a constant differential in entry over time. The average age at entry is constant around 24 years.

In the WHIP sample for Italy we observe around 7000 new entrants on average each year, with a strong seasonal pattern. For immigrant workers, we note two peaks in correspondence of two important regularization laws (graph A4). The tendency is, after a drop on the first years of the 90's, to a moderate increase since 1993, more men than women enter the labour market, while the gender gap has tended to remain stable over time, except for some pro-cyclical increases. The average age at entry is slightly increasing over time from a low of 22.5 in 1994 to a high around 24.5 in 2002.

5.3 The duration of the first job

Turning to the definition of the duration of the first job, a spell is defined as continuous when it is an uninterrupted period of employment always with the same employer.⁶ A spell might be either completed or censored if it ends during the last year of the observation window.⁷

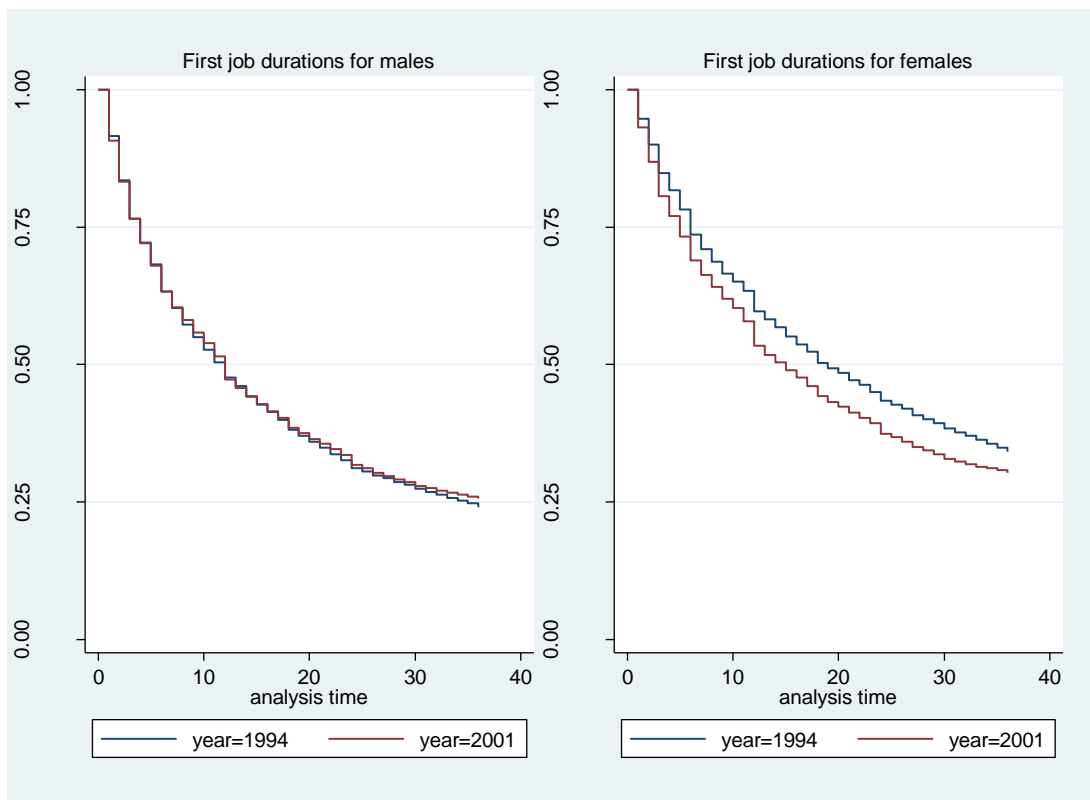
A non-parametric analysis of the duration of the first spell of employment shows that its length has decreased for several groups over the period under consideration. Graphs 3 and 4 show the differences in the first job survivor functions of people who entered the labour market in the first and the last year of the respective observation window for Germany and Italy.

In Germany, for men, 50 per cent of first jobs ended within the first 12 months. At the end of the 3-years window, about 25 percent of all first jobs were still going on. For German women, the

⁶ Within a job with the same employer, a spell that shows interruptions up to 6 months has been considered as continuous to account for the occurrence of missing data, a maternity leave, a sickness period and the like.

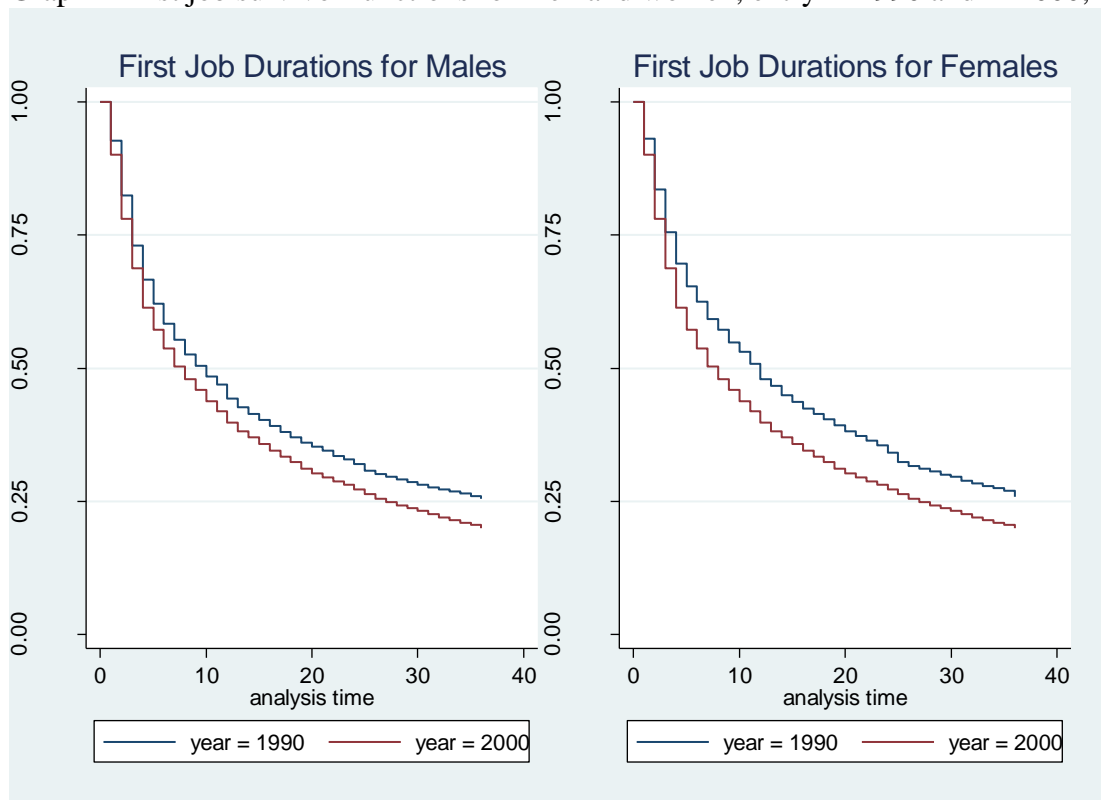
⁷ Durations are measured in days for Germany, and in months for Italy. The descriptive results are presented in months for both countries.

Graph 3 First job survivor functions for men and women, entry in 1994 and in 2001, Germany



survival probabilities are somewhat higher. Comparing the entry years 1994 and 2001, for men there is no clear downward trend in the survivor function over time, while there is a downward shift in the survivor function for women.

Graph 4 First job survivor functions for men and women, entry in 1990 and in 2000, Italy



In Italy, more than 50 percent of first jobs ended within the first 12 months, at the end of the 3-years window, less than 25 per cent of all first jobs were still going on. There is a downward shift in the survivor functions, comparing the entry years 1990 and 2000, like in Germany. Men have lower survival rates than women but the drop in duration is higher for women, like in Germany.

Turning to the parametric analysis, we estimate the same piecewise constant duration model for both countries. Our main focus is on the coefficients of the dummy variables indicating the year of entry into the first job. These coefficients should reflect whether there have been changes in job durations over time which can be attributed to changes in labour market regulation. The time pieces, instead, should catch the effects of duration dependence. They show to which extent the risk of leaving the first job is changing during the course of the spell. For the dependent variable, job tenure, negative duration dependence is expected, which implies a decreasing risk of losing the first job. Finally, we also introduce interaction terms between time pieces and time dummies whose coefficients should help answering the question if disadvantaged individuals who experience short durations have improved their situation, with hazards of ending the first job after a few months that show a decreasing trend over time.⁸ We also control for a number of individual, firm and local-macro characteristics (see table A.5 in the appendix for the list of variables).

Table 3 reports the hazard ratios of the year dummies of the model for the first job in Germany⁹ and Italy.

Table 3 First job duration: Hazard ratios of the “year dummies”

	Germany		Italy	
	Men	Women	Men	Women
1991			<i>1.03</i>	1.01
1992			<i>1.07</i>	0.97
1993			1.07	1.05
1994			1.04	1.00
1995	<i>0.95</i>	1.01	<i>1.13</i>	<i>1.12</i>
1996	0.97	1.01	<i>1.16</i>	<i>1.14</i>
1997	1.02	<i>1.11</i>	<i>1.20</i>	<i>1.19</i>
1998	0.98	<i>1.12</i>	<i>1.12</i>	<i>1.14</i>
1999	<i>0.95</i>	<i>1.11</i>	<i>1.17</i>	<i>1.16</i>
2000	0.98	<i>1.17</i>	<i>1.15</i>	<i>1.20</i>
2001	0.97	<i>1.12</i>		

red italics: *significant at $\alpha=0.05$ or less*

Germany, base year 1994; Italy base year 1990.

⁸ The presentation of the results of the interacted models is still to be done.

⁹ For Germany, we performed separate estimations for West and East Germany. For space reasons and in order to not overload the presentation, we will discuss the results for West Germany only.

In both countries we observe an increase in the probability of ending the first job. In Italy, this process occurs likewise for men and women. It starts in 1995 and is visible until 2000, the last year of entry in our observation window. Notably, the first marked increase in the hazard ratio is in 1995, thus two years before the Treu's law. However, also 1995 is a year in which a major legislative change took place (see Section 3). In accordance with the descriptive analysis (Graph 3), for German men there is no clear trend towards shorter job durations. Indeed we estimate small, but opposite effects for two of the years. Of these, only the last change in 1999 could be explained in terms of the "reregulation period". For German women instead, there is a clear and significant tendency towards shorter first job durations from 1997 onwards, lasting until the end of our observation window in 2001. In terms of the timing of reforms, this can be interpreted as an effect of the "deregulation period" which is not reversed afterwards. The divergence in these patterns for German men and women might be due to sectoral segregation by gender, with women working more often in industries making intense use of flexible work arrangements.

The coefficients of the time pieces¹⁰ are large and negative in both countries, indicating that the risk of leaving the first job decreases for longer durations. As to the other control variables, (see Table A.6 and A.7 in the Appendix), for Germany we find significant and strong effects of seasonal dummies, no significant effect of the local unemployment rate and of regional gdp growth, some significant effects of the "Länder" dummies, significant and strong effects of firm size, with longer job durations in larger firms for both men and women; significant effects of industry, significantly shorter durations for non-Germans, significantly longer durations for higher entry ages, strong and significant effects of training and education with a positive relationship between skill level and first job duration for men, but not for women, and shorter durations for part timers. In Italy, we find similar patterns. Significantly longer durations for higher entry ages like in Germany, significantly shorter durations for non-Italians, but only for females, higher job durations for apprentices (due to the nature of contract), CFL, part-timers (at variance with Germany) and white collars, lower for blue collars and agency workers, significant and strong effects of firm size, i.e. longer durations in larger firms especially for men (like in Germany), a significant effect of the local unemployment rate¹¹, a positive effect of demand (proxied by the change in value added), significant and strong effects of seasonal dummies, significant effects of regions (lower durations in the south) and significant effects of industry, stronger for men.

¹⁰ Reported in the form of hazard ratios in table A.6 for Germany and A.7 for Italy. The hazard ratio of less than one is equivalent to a negative coefficient.

¹¹ The "insiders" theory could explain this outcome: the higher the unemployment rate, the higher the power of the insiders and the lower the probability to leave their jobs.

In conclusion, the comparative analysis yields evidence of a tendency to shorter durations in the first job in both countries. However, the phenomenon is less pronounced in Germany than in Italy: in the former country it mainly affects West German women, whereas in Italy it affects all entrants. Accordingly, for Italy it is rather plausible to attribute the decrease in first job stability to the relaxation of employment protection legislation, even if the observed changes start with a certain degree of anticipation of the more drastic reforms towards flexibility (Treu's law). For Germany, where legislative changes occurred more gradually and partly followed a zigzag course, the decrease in job stability is only discernible for female workers.

5.4 Job mobility

We now study what happens after the first job, concentrating on the subsequent labour experiences of new entrants. A first insight into this issue is given by the number of jobs held by each individual in the first three years after entry. Table 4 gives the distribution of new entrants by number of jobs held in the first 3 years. In Germany, the share of persons with only one job spell goes down from 49 % for the 1994 entrants to 42 % for the 1999 entrants. It increases thereafter up to 45% for the 2001 entrants. The share of persons with two jobs in the first 3 years remains fairly constant, while for 3 and more jobs it shows an increasing trend for all cohorts of entry. The lower panel of Table 4 shows, for Italy, radical changes over time. The number of people with only one job drops from 57% in 1990, to 48% in 2001, with a low of 42% in 2000. A sort of polarization occurs: the share of people with three job and more increases faster than the share of people with two jobs. The comparison with Germany shows that at the beginning of the period (1994 for this comparison) the share of Italians who held only one job was much higher than the respective share of Germans, while at the end of the period the situation becomes more similar. So, the general impression is that in Germany there was more job mobility than in Italy in the beginning and that, after the reforms, job mobility in the two countries tends to converge.

Table 4 Distribution of new entrants by number of jobs held in the first 3 years after entry and by year of entry
(levels and %)

GERMANY						
Year of entry	1	2	3	4	5 or more	Total
1994	9031	5566	2305	858	537	18297
	49	30	13	5	3	
1995	9236	5439	2264	802	475	18216
	51	30	12	4	3	
1996	8034	5140	2321	875	519	16889
	48	30	14	5	3	
1997	7764	5648	2810	1170	705	18097
	43	31	16	6	4	
1998	8199	5894	2985	1294	908	19280
	43	31	15	7	5	
1999	8425	5965	3138	1445	1043	20016
	42	30	16	7	5	
2000	9229	6167	3206	1454	1005	21061
	44	29	15	7	5	
2001	9403	6095	3149	1315	820	20782
	45	29	15	6	4	
ITALY						
Year of entry	1	2	3	4	5 or more	Total
1990	5259	2363	1015	323	190	9150
	57	26	11	4	2	
1991	4602	1964	868	259	108	7801
	59	25	11	3	1	
1992	3959	1617	691	203	110	6580
	60	25	11	3	2	
1993	2846	1234	541	184	66	4871
	58	25	11	4	1	
1994	2959	1445	659	214	99	5376
	55	27	12	4	2	
1995	3379	1636	840	313	118	6286
	54	26	13	5	2	
1996	3308	1833	987	350	167	6645
	50	28	15	5	3	
1997	2982	1750	917	337	198	6184
	48	28	15	5	3	
1998	3036	1831	1001	410	229	6507
	47	28	15	6	4	
1999	3416	2134	1179	521	329	7579
	45	28	16	7	4	
2000	3561	2489	1366	536	458	8410
	42	30	16	6	5	

5.5 Employment duration

This aspect naturally leads to the theme of labour market opportunities, that is, the possibility to switch easily from a job to a new one, or to leave unemployment rapidly when it occurs. In order to measure the permanence into employment notwithstanding job changes, we use here the concept of “first employment duration”, considering as continuous a period of employment that might be formed either by only one spell or by different job spells with different/same employer, with a maximum interruption of three months between them.¹²

¹² We also perform a sensitivity analysis setting the length of the interruption to one month, but the results do not change significantly.

Table 5 Number of job spells in the first employment spell by year of entry - Germany and Italy

(levels and %)

GERMANY

Year of entry	1	2	3	4	5 or more	Total
1994	11000	3621	1864	890	922	18297
	60	20	10	5	5	
1995	11143	3644	1799	826	804	18216
	61	20	10	5	4	
1996	10304	3279	1724	806	776	16889
	61	19	10	5	5	
1997	11064	3533	1798	947	755	18097
	61	20	10	5	4	
1998	11420	4126	1969	1012	753	19280
	59	21	10	5	4	
1999	11634	4546	2103	981	752	20016
	58	23	11	5	4	
2000	13025	4590	2033	854	559	21061
	62	22	10	4	3	
2001	13848	4378	1652	587	317	20782
	67	21	8	3	2	

ITALY

Year of entry	1	2	3	4	5 or more	Total
1990	6715	1417	567	241	210	9150
	73	15	6	3	2	
1991	5862	1154	462	178	145	7801
	75	15	6	2	2	
1992	5146	918	308	118	90	6580
	78	14	5	2	1	
1993	3793	656	233	108	81	4871
	78	13	5	2	2	
1994	3985	803	321	131	136	5376
	74	15	6	2	3	
1995	4736	909	380	156	105	6286
	75	14	6	2	2	
1996	4956	1018	380	174	117	6645
	75	15	6	3	2	
1997	4595	917	389	153	130	6184
	74	15	6	2	2	
1998	4739	1109	405	155	99	6507
	73	17	6	2	2	
1999	5519	1255	494	184	127	7579
	73	17	7	2	2	
2000	6031	1520	519	195	145	8410
	72	18	6	2	2	
2001	5882	1283	391	125	82	7763
	76	17	5	2	1	

If the duration of the first employment spell does not decrease after the introduction of less strict employment protection rules, this could mean that the probability to stay in employment - even if in shorter job episodes - has not decreased after the reforms. Such an observation would in fact represent a piece of evidence for the existence of a trade-off between job security and employment

opportunities. As already mentioned, for the moment we leave aside the discussion of possibly detrimental effects of multiple (short) job spells on the accumulation of human capital and on the probability to end up in a stable job. We therefore test the hypothesis of a reduction of first employment duration in the period under study. First however, we look at the frequency of job changes within employment spells (see Table 5).¹³

In Germany, the degree of mobility between jobs after entry seems quite large, since around 40% of the employment spells are composed by more than one job, and 20% by more than two jobs. In the years before 1999, there is a slight tendency towards holding more jobs within one employment spell. This trend is inverted in the following years, leading to 66% of the 2001 cohort having a first employment spell coinciding with the first job spell. In Italy, the share of one-job spells is much higher than in Germany, around 75% on average, and remains fairly stable over the whole period. This confirms the previous evidence of a lower degree of job mobility in Italy, and suggests the possibility that the results of the estimated duration model will not change dramatically when switching from the job spell to the employment spell concept.

To establish the effects of reforms on first employment spells, we apply the job duration model of the previous section to the new concept of employment spells.

Table 6 First employment duration: Hazard ratios of the “year dummies”

	Germany		Italy	
	Men	Women	Men	Women
1991			<i>1.07</i>	1.03
1992			<i>1.16</i>	1.05
1993			<i>1.12</i>	<i>1.12</i>
1994			<i>1.06</i>	1.01
1995	1.00	1.04	<i>1.17</i>	<i>1.15</i>
1996	0.98	1.03	<i>1.24</i>	<i>1.16</i>
1997	0.97	<i>1.06</i>	<i>1.20</i>	<i>1.21</i>
1998	<i>0.86</i>	0.99	<i>1.11</i>	<i>1.12</i>
1999	<i>0.80</i>	0.96	<i>1.12</i>	<i>1.11</i>
2000	<i>0.88</i>	1.05	<i>1.10</i>	<i>1.13</i>
2001	<i>0.91</i>	<i>1.06</i>		
	red italics:		<i>significant at $\alpha=0.05$ or less</i>	

Germany, base year 1994; Italy base year 1990.

Table 6 reports the hazard ratios of the year dummies for Germany and Italy, respectively. In Germany, under the employment duration concept, the results turn out to be very different from the

¹³ Note that one-job employment spells and the last job of multiple-jobs employment spells might be censored or might end in unemployment.

job spell model. Males experience a significant increase in the duration of first employment from 1998 onwards, with a peak in 1999. Females do not experience clear changes in first employment duration over time, with only two significant and positive coefficients in 1997 and 2001. The hazard ratios are increasing in size after 1999, but their values remain pretty close to one. Thus, while job durations are still longer for women in Germany compared to the other groups (Graphs 3 and 4), women in Germany probably did not compensate their decrease in job durations with a higher degree of job mobility. In Italy, the decrease in duration is confirmed also for the employment spells, and it is even reinforced in some years. If the decrease in employment durations is stronger than for job durations - like in 1995 and 1996 for both men and women - this indicates a tendency towards shorter durations also for the second job in an employment spell, as more than 90% of the employment spells consist of a maximum of two jobs.

In conclusion, the results for German men reject the hypothesis of a decrease in employment duration during the period of labour market reforms, suggesting that the opportunity to switch rapidly from one job to the other has even increased. For females, however, the opportunity to stay in employment does not seem to have increased. So, under this respect, the reforms might be thought to be not completely successful. The results for Italy, instead, are clearer and at the same time less encouraging. The reduction in the first job duration has not been counterbalanced by an increase in the opportunity to find rapidly another (or more than one) and possibly more stable job. This is true for both sexes, for all years, also during periods of important labour market reforms.

6 Conclusions on employment and job durations

During the late 90s, both Germany and Italy experienced changes in labour market legislation aimed at achieving more employment flexibility. These reforms mainly affected newly entered workers, while leaving the terms and conditions of working contracts for insiders largely unchanged.

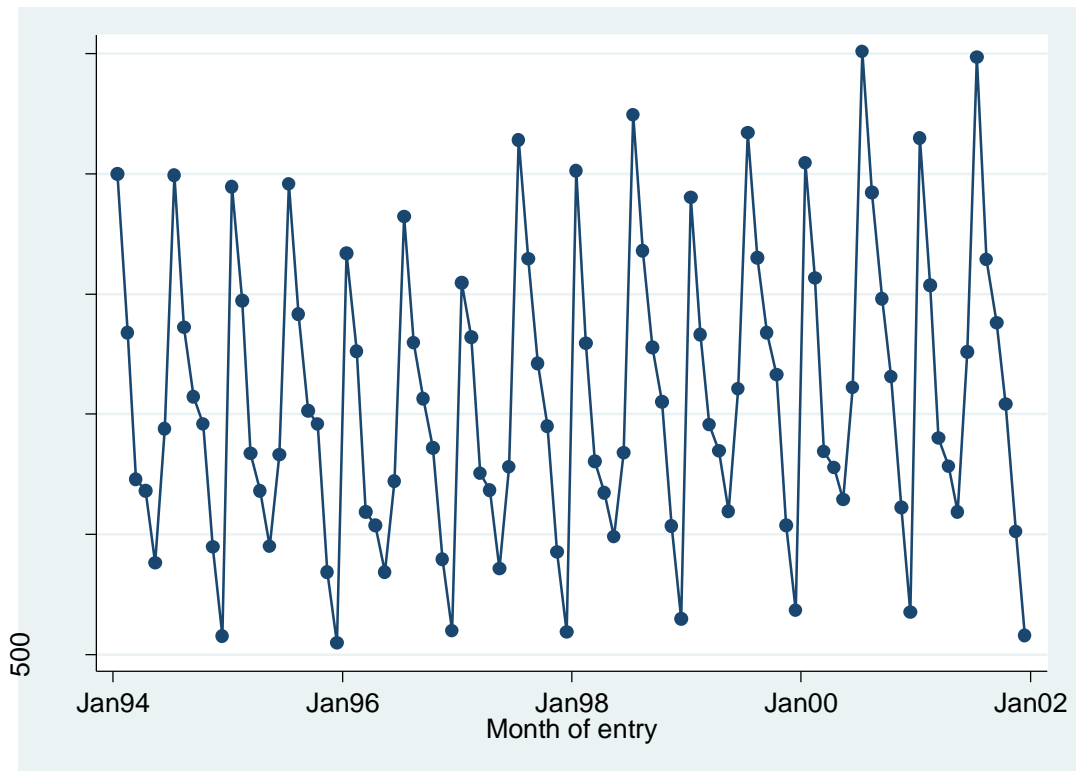
Our empirical analyses first documented the trends in job durations for labour market durations for labour market entrants in Germany and Italy during periods of labour market reforms. In accordance with our expectations, we found evidence of decreasing first job durations for both countries. In a second step, we tried to establish whether it is possible to observe a trade-off between job security and job opportunities by looking at periods of employment rather than single job spells. In fact, especially in Italy, the number of jobs held by labour market entrants in the first three years of their career has increased over time. However, the analysis of employment durations over time did not confirm the hypothesis of shorter job durations being compensated by better employment opportunities. Only German men - for whom job durations did not show a clear downward trend - were found to have an increase in employment durations over time. For German

women, employment durations seemed to be pretty stable while job durations showed a marked decrease. The picture for Italy is still clearer: for both men and women, first job *and* first employment duration have gone down. Thus, while theoretically possible, a trade-off between job stability and employment opportunities is not confirmed by our results.

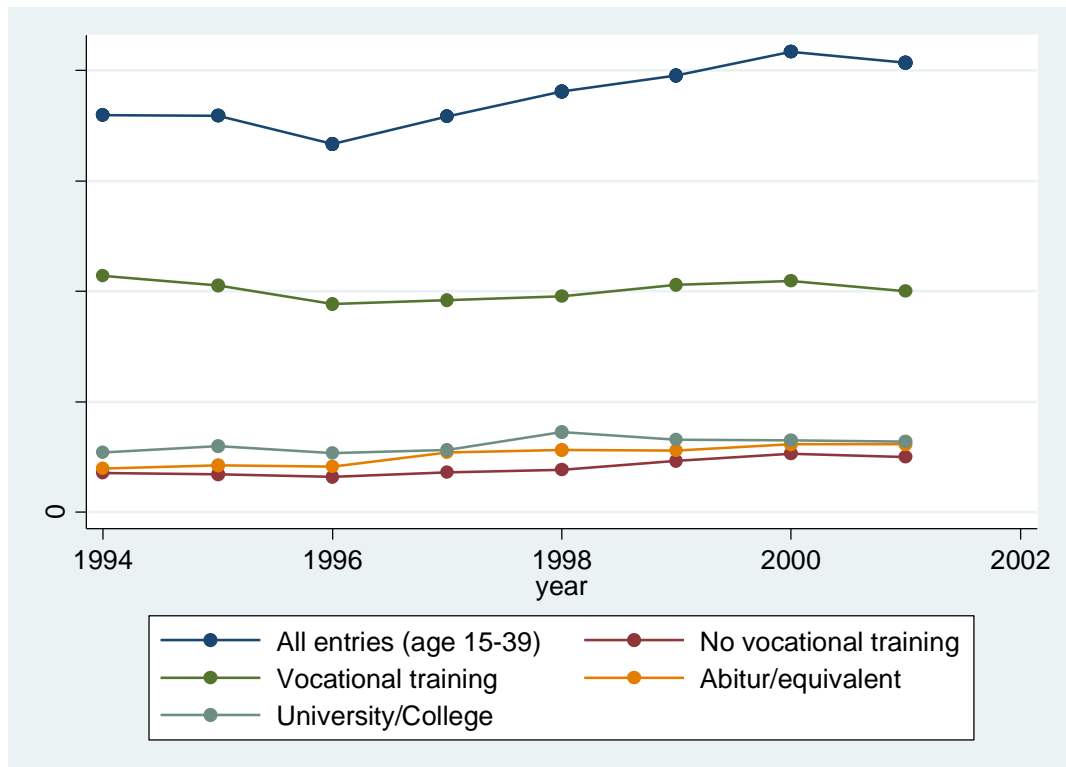
For Italy, our empirical results imply that the situation of new entrants in the labour market has not improved after the relaxation of employment regulation, suggesting that too radical, once for all changes from too much rigidity to too much flexibility might not yield the expected outcomes. The argument here is, that the labour market needs more time to adapt to new employment conditions. Otherwise, the benefits of more flexibility could just take the form of short-term profits for employers. The rather smooth reforms in Germany at least seem to have benefitted male entrants, as their opportunities to have longer first employment periods increased to some degree. German women, while having still comparatively long first job durations, could not improve their employment situation along the course of the reforms.

APPENDIX

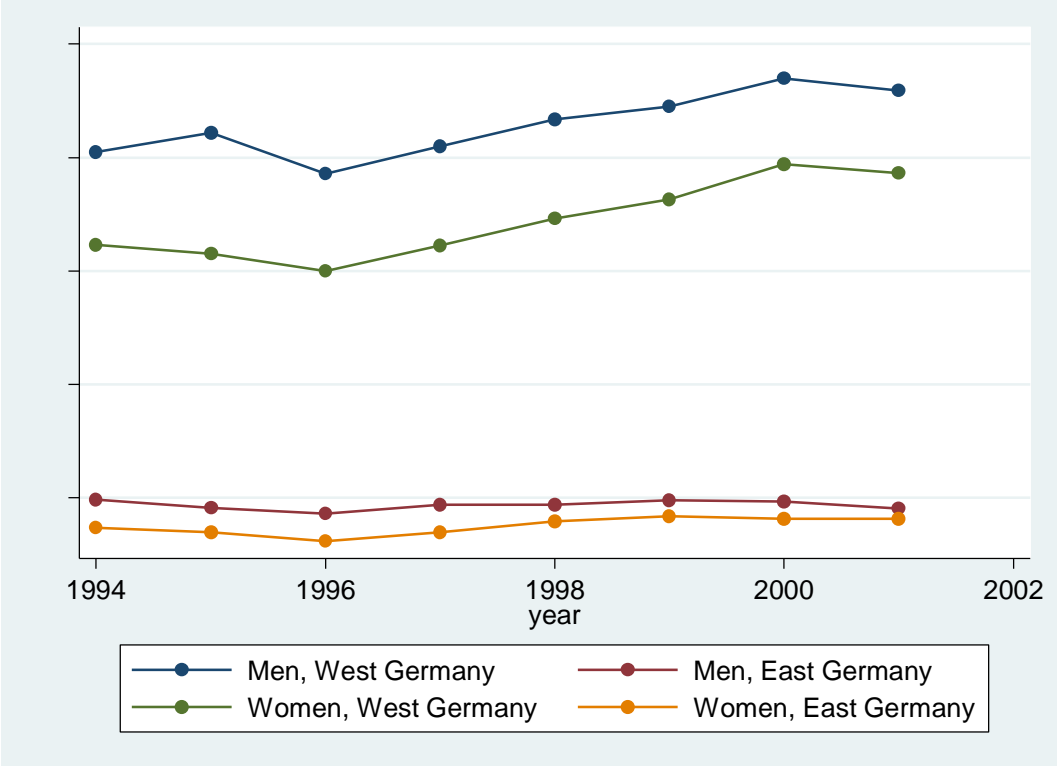
Graph A.1 Seasonal pattern in number of entries in IABS



Graph A.2 Number of entries by year and skill level in the IABS 1994-2001



Graph A.3 Number of entries by year in the IABS 1994-2001
(Men and women, East and West Germany)



Graph A.4 Seasonal pattern in number of entries in WHIP

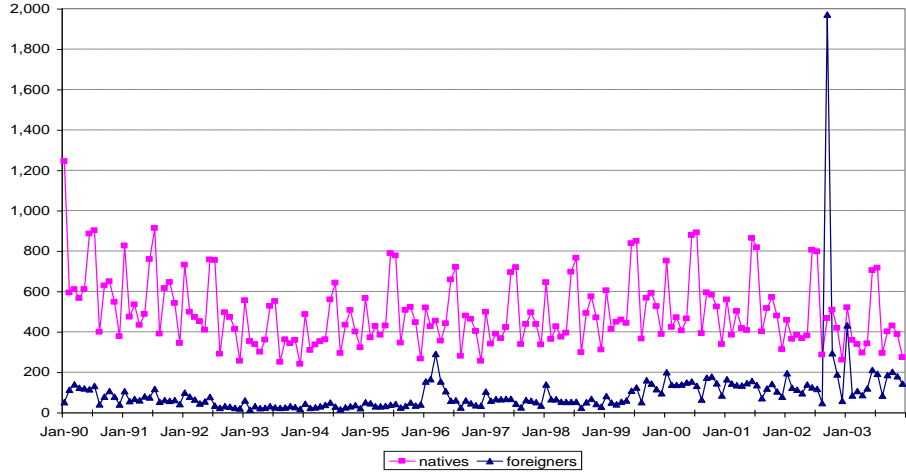


Table A.5: Individual, firm and local-macro variables in all duration models

ITALY	GERMANY
- seasonal dummies	- seasonal dummies
- local unemployment rate	- local unemployment rate
- local value added growth	- local gdp growth
- local gross worker turnover	
- region	- region (Bundesländer)
- firm size	- firm size
- industry	- industry
- foreign	- foreign
- age	- age
- skill	- education/skill
- part time	- part time
- CFL and agency contract	

Table A.6 Germany: Estimation results for job duration and employment duration models

Duration	Job duration				Employment duration			
	Male		Female		Male		Female	
	Haz. ratio	z	Haz. ratio	z	Haz. ratio	z	Haz. ratio	z
0-31 days	0.003	-131.130	0.001	-137.290	0.002	-132.720	0.001	-121.080
32-61 days	0.003	-130.590	0.002	-134.540	0.002	-130.470	0.001	-121.880
62-91 days	0.003	-125.260	0.001	-128.060	0.002	-124.650	0.001	-113.340
92-122 days	0.003	-133.980	0.002	-121.740	0.001	-132.210	0.000	-113.670
123-183 days	0.002	-143.980	0.001	-137.990	0.001	-143.870	0.000	-125.800
184-365 days	0.002	-143.620	0.001	-146.550	0.001	-146.080	0.000	-134.820
366-548 days	0.001	-154.620	0.001	-142.540	0.001	-152.490	0.000	-128.720
549-731 days	0.001	-151.630	0.001	-136.050	0.001	-154.710	0.000	-126.250
732 days and more	0.001	-155.110	0.001	-138.500	0.000	-157.240	0.000	-136.260
Year of entry								
1995	0.953	-2.370	1.012	0.480	0.999	-0.050	1.040	1.520
1996	0.970	-1.480	1.010	0.490	0.982	-0.800	1.030	1.090
1997	1.020	1.060	1.107	4.460	0.970	-1.230	1.063	2.210
1998	0.976	-1.260	1.116	4.850	0.861	-7.120	0.986	-0.530
1999	0.950	-2.450	1.112	4.920	0.796	-10.910	0.961	-1.580
2000	0.980	-0.980	1.166	8.030	0.884	-5.440	1.047	1.690
2001	0.972	-1.440	1.118	5.300	0.910	-4.250	1.065	2.390
Month of entry								
february	1.201	9.450	1.057	2.610	1.276	12.140	1.091	2.840
march	1.196	9.390	1.218	6.730	1.235	8.090	1.255	5.920
april	1.127	5.640	1.094	3.370	1.130	5.010	1.147	4.040
may	1.320	11.940	1.281	7.650	1.342	10.660	1.358	8.070
june	1.240	10.430	1.187	7.640	1.313	11.130	1.204	6.350
july	1.223	10.900	1.089	4.080	1.311	12.560	1.048	1.570
august	1.251	11.720	1.163	6.740	1.334	14.130	1.176	5.180
september	1.204	9.590	1.164	6.300	1.239	8.900	1.233	6.840
october	1.165	7.080	1.139	5.310	1.153	5.380	1.121	4.060
november	1.302	12.110	1.378	10.360	1.276	8.510	1.414	9.010
december	1.322	9.270	1.324	8.870	1.305	7.360	1.336	7.390
Local labour demand (district level)								
unemployment rate	1.005	1.750	1.005	1.410	1.009	2.850	1.012	2.770
gdp growth	0.904	-0.610	0.925	-0.360	1.080	0.380	0.810	-0.870
Federal state								
Schleswig-Holstein, Hamburg	1.104	3.380	1.109	3.970	1.128	2.760	1.069	1.850
Niedersachsen, Bremen	1.097	5.190	1.030	1.110	1.168	7.850	1.073	2.630
Hessen	0.960	-1.680	0.957	-1.700	0.974	-0.770	0.954	-1.340
Rheinland-Pfalz, Saarland	1.012	0.390	1.001	0.030	1.072	1.710	1.095	1.640
Baden-Wuerttemberg	0.970	-1.390	0.981	-0.760	0.964	-1.480	1.012	0.370
Bayern	1.000	-0.020	0.987	-0.430	1.029	1.390	1.000	0.000
Firm size (1st job)								
20-49	0.959	-3.290	1.009	0.640	0.950	-3.780	1.042	2.410
50-249	0.933	-4.130	0.960	-2.220	0.935	-3.910	1.011	0.470
250-999	0.853	-8.890	0.815	-10.140	0.899	-5.000	0.883	-6.360
1000 and more	0.825	-8.120	0.792	-7.800	0.915	-3.140	0.880	-3.940
Industry (1st job)								
agriculture, mining	1.049	1.120	1.189	2.750	1.326	5.600	1.609	6.090
energy, traffic and information	0.872	-4.470	1.078	2.080	0.868	-3.840	1.011	0.250
manufacturing	0.670	-16.710	0.888	-4.100	0.777	-9.090	1.046	1.340
construction	0.861	-5.690	0.888	-2.450	1.024	0.800	1.079	1.220
trade and retail	0.769	-11.770	0.957	-1.810	0.829	-6.950	1.061	1.770
personal and domestic services	0.939	-2.210	1.234	6.760	1.036	1.090	1.412	9.990
social and public services	0.779	-10.360	0.795	-11.190	0.919	-2.840	0.907	-3.430
Foreigner	1.124	5.670	1.175	7.590	1.116	4.120	1.394	11.850
Age								
age 15-19	0.983	-1.100	1.006	0.300	1.061	3.770	0.981	-0.780
age 25-29	0.716	-25.500	0.981	-1.300	0.635	-26.560	1.058	2.970
age 30-34	0.706	-22.700	0.861	-7.420	0.638	-23.080	0.959	-1.640
age 35-39	0.635	-14.280	0.614	-9.880	0.597	-10.400	0.625	-8.400
Skill level								
no information on educational level	1.316	8.620	1.510	13.800	1.825	18.350	2.343	25.660
no vocational training with at most intermediate	1.577	23.590	1.888	29.180	1.658	25.980	2.668	37.630
Abitur/equivalent; with or without vocational	0.824	-10.190	0.947	-2.490	0.834	-7.450	1.036	1.150
University/Technical/Professional College c	0.644	-22.450	1.029	1.490	0.475	-28.000	1.123	4.250
Part-time (min. 18h/week)	1.251	9.920	1.235	13.080	1.344	12.240	1.361	15.590

Table A.7 Italy: Estimation results for job duration and employment duration models

	Job duration						Employment duration					
	Male			Female			Male			Female		
	Haz. Ratio	Std. Err.	z	Haz. Ratio	Std. Err.	z	Haz. Ratio	Std. Err.	z	Haz. Ratio	Std. Err.	z
Duration												
0-1 month	0.039	0.0019	-66.1	0.052	0.0035	-43.6	0.023	0.0013	-69.3	0.028	0.0022	-47.0
1-2 months	0.065	0.0031	-57.0	0.080	0.0053	-37.8	0.039	0.0021	-61.1	0.044	0.0033	-41.7
2-3 months	0.071	0.0034	-55.0	0.077	0.0052	-38.2	0.043	0.0023	-59.5	0.042	0.0031	-42.2
3-4 months	0.062	0.0030	-57.0	0.068	0.0046	-39.5	0.036	0.0019	-61.7	0.036	0.0027	-43.7
4-6 months	0.043	0.0021	-65.1	0.045	0.0031	-45.7	0.023	0.0012	-70.5	0.023	0.0017	-49.9
6-12 months	0.036	0.0017	-71.2	0.037	0.0024	-50.0	0.018	0.0009	-77.2	0.017	0.0013	-54.8
12-18 months	0.025	0.0012	-76.2	0.029	0.0020	-52.6	0.012	0.0006	-82.8	0.012	0.0009	-58.3
18-24 months	0.023	0.0011	-76.0	0.028	0.0019	-52.5	0.010	0.0006	-83.8	0.011	0.0008	-59.1
24-36 months	0.022	0.0011	-79.0	0.026	0.0017	-54.3	0.002	0.0001	-116.2	0.002	0.0002	-81.9
Year of entry												
1991	1.029	0.0229	1.3	1.006	0.0298	0.2	1.072	0.0257	2.9	1.026	0.0330	0.8
1992	1.070	0.0260	2.8	0.972	0.0311	-0.9	1.162	0.0302	5.8	1.053	0.0364	1.5
1993	1.073	0.0303	2.5	1.048	0.0379	1.3	1.124	0.0341	3.8	1.120	0.0438	2.9
1994	1.036	0.0281	1.3	1.002	0.0339	0.1	1.061	0.0311	2.0	1.010	0.0371	0.3
1995	1.129	0.0288	4.8	1.119	0.0363	3.5	1.175	0.0325	5.8	1.148	0.0404	3.9
1996	1.157	0.0293	5.7	1.138	0.0377	3.9	1.241	0.0341	7.9	1.155	0.0418	4.0
1997	1.203	0.0326	6.8	1.188	0.0415	4.9	1.203	0.0356	6.2	1.210	0.0460	5.0
1998	1.120	0.0301	4.2	1.141	0.0387	3.9	1.113	0.0328	3.6	1.117	0.0417	3.0
1999	1.171	0.0305	6.1	1.160	0.0402	4.3	1.123	0.0322	4.1	1.111	0.0423	2.8
2000	1.154	0.0274	6.0	1.200	0.0366	6.0	1.097	0.0286	3.5	1.129	0.0379	3.6
Foreigner	1.008	0.0171	0.5	1.1309	0.0308	4.5	0.953	0.0178	-2.6	1.159	0.0337	5.1
Age												
age 15-19	1.1985	0.0195	11.1	1.1682	0.0227	8	1.345	0.0234	17.1	1.171	0.0249	7.5
age 25-29	0.9323	0.0151	-4.3	0.9492	0.0185	-2.7	0.907	0.0163	-5.4	0.979	0.0209	-1.0
age 30-34	0.8769	0.0179	-6.4	0.8614	0.0223	-5.8	0.896	0.0199	-4.9	0.912	0.0254	-3.3
age 35-39	0.8334	0.0205	-7.4	0.85	0.0253	-5.5	0.850	0.0228	-6.1	0.907	0.0290	-3.1
Occupation												
apprentices	0.8645	0.0208	-6.1	0.7843	0.0192	-10	0.910	0.0241	-3.6	0.825	0.0223	-7.1
blue collar	1.3199	0.0237	15.4	1.1895	0.0214	9.7	1.415	0.0287	17.1	1.270	0.0251	12.1
ptime	0.9557	0.0204	-2.1	0.8515	0.0153	-8.9	1.017	0.0233	0.8	0.889	0.0175	-6.0
training and work (cfl)	0.6068	0.0114	-26.5	0.5732	0.0136	-23.5	0.551	0.0120	-27.3	0.543	0.0148	-22.4
agency	1.991	0.1091	12.6	2.0523	0.134	11	1.388	0.0860	5.3	1.266	0.0952	3.1
Firm size												
firm size 20-199	1.0047	0.0135	0.4	1.0095	0.0174	0.6	0.996	0.0146	-0.3	0.978	0.0185	-1.2
firm size 200-999	0.8914	0.0217	-4.7	1	0.0285	0	0.876	0.0237	-4.9	1.004	0.0315	0.1
firm size > 999	0.7705	0.0231	-8.7	0.928	0.0293	-2.4	0.773	0.0255	-7.8	0.947	0.0327	-1.6
Local labour demand												
value added growth	0.8073	0.1092	-1.6	0.6917	0.167	-1.5	0.728	0.1047	-2.2	0.769	0.2003	-1.0
unemployment rate	0.9891	0.0037	-2.9	0.9853	0.0052	-2.8	0.994	0.0040	-1	0.990	0.0055	-1.8
gross worker turnoverwt	1.2781	0.0102	30.8	1.3465	0.0161	24.9	1.196	0.0092	23.1	1.331	0.0168	22.7

Table A.8 Germany: – 1st Job Model
Summary of variables – men

1 st JOB MODEL						
Summary of variables, men in West Germany						
Variable	'Mean	Std. Dev.	Min	Max		
Duration*						
0-91 days	68604	0.2138651	0.4100357	0	1	
92-183 days	68604	0.130109	0.3364258	0	1	
184-274 days	68604	0.0846452	0.278355	0	1	
275-365 days	68604	0.0571104	0.2320551	0	1	
366-548 days	68604	0.0860154	0.2803888	0	1	
549-731 days	68604	0.0657833	0.2479048	0	1	
732-1096 days	68604	0.0739461	0.2616851	0	1	
Year of entry						
1994	y1994	68604	0.1180689	0.3226921	0	1
1995	y1995	68604	0.1229374	0.3283678	0	1
1996	y1996	68604	0.1124716	0.3159481	0	1
1997	y1997	68604	0.1195411	0.3244265	0	1
1998	y1998	68604	0.1264795	0.3323914	0	1
1999	y1999	68604	0.1297009	0.3359765	0	1
2000	y2000	68604	0.1369162	0.3437614	0	1
2001	y2001	68604	0.1338843	0.3405305	0	1
Quarter of entry						
jan-mar	quart1	68604	0.3316133	0.4707963	0	1
apr-jun	quart2	68604	0.200688	0.400518	0	1
jul-sep	quart3	68604	0.3108274	0.4628356	0	1
oct-dec	quart4	68604	0.1568713	0.3636821	0	1
Local labour demand (district level)						
regional unemployment rate	alq	68604	9.478763	2.964147	3.023403	20.8539
regional gdp growth	growth	68604	0.0257088	0.0317576	-0.1982899	0.323594
Federal state						
Schleswig-Holstein, Hamburg	bul1	68604	0.0694566	0.2542308	0	1
Niedersachsen, Bremen	bul2	68604	0.1163635	0.3206626	0	1
Nordrhein-Westfalen	bul3	68604	0.2696927	0.4438034	0	1
Hessen	bul4	68604	0.0977931	0.2970369	0	1
Rheinland-Pfalz, Saarland	bul5	68604	0.0704624	0.2559265	0	1
Baden-Wuerttemberg	bul6	68604	0.1713894	0.3768516	0	1
Bayern	bul7	68604	0.2048131	0.4035679	0	1
Firm size (1st job)						
less than 20	fs1	68604	0.3100257	0.4625072	0	1
20-49	fs2	68604	0.2639934	0.4407989	0	1
50-249	fs3	68604	0.1335199	0.3401383	0	1
250-999	fs4	68604	0.1474258	0.3545325	0	1
1000 and more	fs5	68604	0.1450353	0.352139	0	1
Industry (1st job)						
agriculture, mining	ind1	68604	0.0236575	0.1519808	0	1
energy, traffic and information	ind2	68604	0.0568917	0.2316373	0	1
manufacturing	ind3	68604	0.2891085	0.4533517	0	1
construction	ind4	68604	0.1211008	0.3262468	0	1
trade and retail	ind5	68604	0.1179086	0.3225022	0	1
business services	ind6	68604	0.1961402	0.3970787	0	1
personal and domestic services	ind7	68604	0.0795435	0.2705871	0	1
social and public services	ind8	68604	0.1156492	0.3198062	0	1
Foreigner	foreign	68604	0.2288059	0.4200671	0	1
Age						
15-19	age1	68604	0.1234185	0.3289193	0	1
20-24	age2	68604	0.4465337	0.4971368	0	1
25-29	age3	68604	0.2634978	0.4405332	0	1
30-34	age4	68604	0.1396274	0.3466026	0	1
35-39	age5	68604	0.0269226	0.1618585	0	1
Skill level						
no information	sk0	68604	0.070098	0.2553139	0	1
no vocational training with at most intermediate degree	sk1	68604	0.1277768	0.3338436	0	1
vocational training with at most intermediate degree	sk2	68604	0.5075652	0.4999464	0	1
Abitur/equivalent; with or without vocational training	sk3	68604	0.1172818	0.3217581	0	1
University/Technical/Professional College degree	sk4	68604	0.1830506	0.3867108	0	1
Part-time (min. 18 hours/week)	wt1	68604	0.0689756	0.2534144	0	1

* spells with durations of 3 years or more are censored

Table A.9 –Germany – 1st Job Model
Summary of variables – women in West Germany

	Variable	Obs	Mean	Std. Dev.	Min	Max
Duration*						
0-91 days		54991	0.1669364	0.3729225	0	1
92-183 days		54991	0.1151643	0.319223	0	1
184-274 days		54991	0.0745577	0.2626786	0	1
275-365 days		54991	0.0497718	0.2174751	0	1
366-548 days		54991	0.0906148	0.2870632	0	1
549-731 days		54991	0.0714844	0.2576346	0	1
732-1096 days		54991	0.0891782	0.2850034	0	1
Year of entry						
1994	y1994	54991	0.1174192	0.3219221	0	1
1995	y1995	54991	0.1146006	0.3185422	0	1
1996	y1996	54991	0.1089815	0.3116188	0	1
1997	y1997	54991	0.1172556	0.3217275	0	1
1998	y1998	54991	0.1258388	0.3316706	0	1
1999	y1999	54991	0.1320398	0.3385371	0	1
2000	y2000	54991	0.1432962	0.3503778	0	1
2001	y2001	54991	0.1405685	0.347579	0	1
Quarter of entry						
jan-mar	quart1	54991	0.2667709	0.4422757	0	1
apr-jun	quart2	54991	0.1866851	0.3896621	0	1
jul-sep	quart3	54991	0.3733884	0.4837083	0	1
oct-dec	quart4	54991	0.1731556	0.3783852	0	1
Local labour demand (district level)						
regional unemployment rate	alq	54991	9.532497	2.943043	3.023403	20.8539
regional gdp growth	growth	54991	0.0250596	0.0308062	-0.1982899	0.323594
Federal state						
Schleswig-Holstein, Hamburg	bul1	54991	0.0778127	0.2678791	0	1
Niedersachsen, Bremen	bul2	54991	0.1191104	0.3239213	0	1
Nordrhein-Westfalen	bul3	54991	0.2608063	0.4390785	0	1
Hessen	bul4	54991	0.1013257	0.3017622	0	1
Rheinland-Pfalz, Saarland	bul5	54991	0.0671019	0.2502006	0	1
Baden-Wuerttemberg	bul6	54991	0.167191	0.3731497	0	1
Bayern	bul7	54991	0.2066338	0.4048941	0	1
Firm size (1st job)						
less than 20	fs1	54991	0.3424015	0.4745174	0	1
20-49	fs2	54991	0.2423487	0.4285081	0	1
50-249	fs3	54991	0.138459	0.3453843	0	1
250-999	fs4	54991	0.1579713	0.3647174	0	1
1000 and more	fs5	54991	0.1188194	0.3235789	0	1
Industry (1st job)						
agriculture, mining	ind1	54991	0.0098562	0.0987886	0	1
energy, traffic and information	ind2	54991	0.0379335	0.1910372	0	1
manufacturing	ind3	54991	0.1450601	0.3521646	0	1
construction	ind4	54991	0.0124202	0.1107528	0	1
trade and retail	ind5	54991	0.1642451	0.3705012	0	1
business services	ind6	54991	0.1976142	0.3982031	0	1
personal and domestic services	ind7	54991	0.11691	0.321316	0	1
social and public services	ind8	54991	0.3159608	0.4649016	0	1
Foreigner						
	foreign	54991	0.1611718	0.3676927	0	1
Age						
15-19	age1	54991	0.1438599	0.3509508	0	1
20-24	age2	54991	0.5182121	0.4996728	0	1
25-29	age3	54991	0.2211271	0.4150097	0	1
30-34	age4	54991	0.0959975	0.2945905	0	1
35-39	age5	54991	0.0208034	0.142727	0	1
Skill level						
no information	sk0	54991	0.0598643	0.2372375	0	1
no vocational training with at most intermediate degree	sk1	54991	0.1025077	0.3033175	0	1
vocational training with at most intermediate degree	sk2	54991	0.5277409	0.4992344	0	1
Abitur/equivalent; with or without vocational training	sk3	54991	0.1746286	0.3796525	0	1
University/Technical/Professional College degree	sk4	54991	0.1444054	0.3515036	0	1
Part-time (min. 18 hours/week)						
	wt1	54991	0.1632449	0.3695923	0	1

* spells with durations of 3 years or more are censored

Table A.10 –Italy – 1st Job Model
Summary of variables – men

Variable	Obs	Mean	Std. Dev.	Min	Max
Duration of first job					
1 month	lambda1	45555	0.079	0.270	0 1
2 months	lambda2	45555	0.115	0.319	0 1
3 months	lambda3	45555	0.101	0.301	0 1
4 months	lambda4	45555	0.070	0.256	0 1
5-6 months	lambda5	45555	0.043	0.202	0 1
7-12 months	lambda6	45555	0.158	0.364	0 1
13-18 months	lambda7	45555	0.088	0.283	0 1
19-24 months	lambda8	45555	0.053	0.225	0 1
more than 24 months	lambda9	45555	0.294	0.455	0 1
Year of entry					
1990	y1990	45555	0.129	0.335	0 1
1991	y1991	45555	0.106	0.308	0 1
1992	y1992	45555	0.088	0.283	0 1
1993	y1993	45555	0.065	0.247	0 1
1994	y1994	45555	0.068	0.252	0 1
1995	y1995	45555	0.081	0.273	0 1
1996	y1996	45555	0.089	0.285	0 1
1997	y1997	45555	0.080	0.272	0 1
1998	y1998	45555	0.083	0.275	0 1
1999	y1999	45555	0.099	0.299	0 1
2000	y2000	45555	0.111	0.314	0 1
Month of entry					
January	month1	45555	0.114	0.318	0 1
February	month2	45555	0.071	0.257	0 1
March	month3	45555	0.078	0.269	0 1
April	month4	45555	0.068	0.252	0 1
May	month5	45555	0.074	0.261	0 1
June	month6	45555	0.121	0.326	0 1
July	month7	45555	0.126	0.332	0 1
August	month8	45555	0.053	0.224	0 1
September	month9	45555	0.085	0.280	0 1
October	month10	45555	0.089	0.284	0 1
November	month11	45555	0.073	0.260	0 1
December	month12	45555	0.048	0.213	0 1
Local labour demand					
Regional Unemployment rate	u_t	45552	10.046	6.464	2.710 28.010
regional gdp growth	d_va	45552	0.054	0.047	-0.234 0.396
Occupation					
apprentices	apprendist	45555	0.257	0.437	0 1
blue collar	operaio	45555	0.585	0.493	0 1
ptime	ptime	45555	0.069	0.254	0 1
training and work (cfl)	cfl	45555	0.126	0.331	0 1
agency	agency	45555	0.012	0.109	0 1
Firm size (1st job)					
firm size 1-20	f_size1	45555	0.630	0.483	0 1
firm size 20-199	f_size2	45555	0.240	0.427	0 1
firm size 200-999	f_size3	45555	0.065	0.247	0 1
firm size > 999	f_size4	45555	0.065	0.247	0 1
Foreigner					
foreigner	foreigner	45555	0.158	0.365	0 1
Age					
15-19	age_cl1	45555	0.325	0.468	0 1
20-24	age_cl2	45555	0.323	0.468	0 1
25-29	age_cl3	45555	0.190	0.392	0 1
30-34	age_cl4	45555	0.100	0.300	0 1
35-39	age_cl5	45555	0.063	0.243	0 1
Industry (1st job)					
Extraction of fuel minerals	sector1	45555	0.00033	0.018	0 1
Extraction of non-fuel minerals	sector2	45555	0.0021	0.046	0 1
Food industrie	sector3	45555	0.039	0.194	0 1
Textile industrie	sector4	45555	0.023	0.150	0 1
Hide and leather industries	sector5	45555	0.018	0.131	0 1
Wood industry	sector6	45555	0.021	0.144	0 1
Paper, printing and publishing	sector7	45555	0.016	0.126	0 1
Coke manufacturing and refineries	sector8	45555	0.001	0.025	0 1
Chemical product manufacturing	sector9	45555	0.010	0.100	0 1
Rubber and plastics	sector10	45555	0.017	0.128	0 1
Processing of non-metallic minerals	sector11	45555	0.019	0.137	0 1
Metal and metallic products	sector12	45555	0.108	0.310	0 1
Manufacturing and repair of machinery	sector13	45555	0.031	0.174	0 1
Manufacturing of electrical machinery	sector14	45555	0.044	0.205	0 1
Vehicle manufacturing	sector15	45555	0.011	0.105	0 1
Other manufacturing industries	sector16	45555	0.028	0.166	0 1
Electrical energy, gas and water	sector17	45555	0.002	0.042	0 1
Construction	sector18	45555	0.195	0.396	0 1
Commerce	sector19	45555	0.137	0.344	0 1
Hotels and restaurants	sector20	45555	0.102	0.302	0 1
Transport and communications	sector21	45555	0.050	0.218	0 1
Financial intermediation	sector22	45555	0.086	0.280	0 1
Business services	sector23	45555	0.017	0.128	0 1
Other community, social and personal serv	sector24	45555	0.024	0.152	0 1
Region					
Piemonte	regio1	45552	0.070	0.255	0 1
V Aosta	regio2	45552	0.003	0.054	0 1
Liguria	regio3	45552	0.024	0.152	0 1
Lombardia	regio4	45552	0.186	0.389	0 1
Trentino A A	regio5	45552	0.022	0.147	0 1
Veneto	regio6	45552	0.098	0.298	0 1
Friuli V G	regio7	45552	0.021	0.143	0 1
E Romagna	regio8	45552	0.086	0.281	0 1
Marche	regio9	45552	0.028	0.164	0 1
Toscana	regio10	45552	0.064	0.244	0 1
Umbria	regio11	45552	0.014	0.118	0 1
Lazio	regio12	45552	0.093	0.290	0 1
Campania	regio13	45552	0.079	0.269	0 1
Abruzzo	regio14	45552	0.024	0.153	0 1
Molise	regio15	45552	0.005	0.067	0 1
Puglia	regio16	45552	0.057	0.232	0 1
Basilicata	regio17	45552	0.009	0.092	0 1
Calabria	regio18	45552	0.023	0.150	0 1
Sicilia	regio19	45552	0.070	0.255	0 1
Sardegna	regio20	45552	0.026	0.158	0 1

Table A.11 –Italy – 1st Job Model
Summary of variables – women

	Variable	Obs	Mean	Std. Dev.	Min	Max
Duration of first job						
1 month	lambda1	29790	0.088	0.284	0	1
2 months	lambda2	29790	0.115	0.319	0	1
3 months	lambda3	29790	0.087	0.281	0	1
4 months	lambda4	29790	0.062	0.241	0	1
5-6 months	lambda5	29790	0.038	0.192	0	1
7-12 months	lambda6	29790	0.134	0.341	0	1
13-18 months	lambda7	29790	0.089	0.284	0	1
19-24 months	lambda8	29790	0.056	0.231	0	1
more than 24 months	lambda9	29790	0.330	0.470	0	1
Year of entry						
1990	y1990	29790	0.110	0.313	0	1
1991	y1991	29790	0.099	0.298	0	1
1992	y1992	29790	0.086	0.281	0	1
1993	y1993	29790	0.064	0.245	0	1
1994	y1994	29790	0.076	0.265	0	1
1995	y1995	29790	0.087	0.281	0	1
1996	y1996	29790	0.087	0.281	0	1
1997	y1997	29790	0.085	0.279	0	1
1998	y1998	29790	0.092	0.289	0	1
1999	y1999	29790	0.103	0.303	0	1
2000	y2000	29790	0.113	0.316	0	1
Month of entry						
January	month1	29790	0.111	0.314	0	1
February	month2	29790	0.071	0.257	0	1
March	month3	29790	0.077	0.267	0	1
April	month4	29790	0.072	0.258	0	1
May	month5	29790	0.076	0.264	0	1
June	month6	29790	0.113	0.316	0	1
July	month7	29790	0.118	0.323	0	1
August	month8	29790	0.054	0.225	0	1
September	month9	29790	0.083	0.276	0	1
October	month10	29790	0.087	0.282	0	1
November	month11	29790	0.081	0.273	0	1
December	month12	29790	0.058	0.233	0	1
Local labour demand						
Regional Unemployment rate	u_t	29785	9.438	6.109	2.71	28.01
regional gdp growth	d_va	29785	0.058	0.037	-0.23	0.40
Occupation						
apprentices	apprentist	29790	0.242	0.428	0	1
blue collar	operaio	29790	0.433	0.496	0	1
ptime	ptime	29790	0.198	0.399	0	1
training and work (cfl)	cfl	29790	0.134	0.340	0	1
agency	agency	29790	0.011	0.103	0	1
Firm size (1st job)						
firm size 1-20	f_size1	29790	0.630	0.483	0	1
firm size 20-199	f_size2	29790	0.228	0.420	0	1
firm size 200-999	f_size3	29790	0.070	0.254	0	1
firm size > 999	f_size4	29790	0.072	0.259	0	1
Foreigner	foreigner	29790	0.064	0.245	0	1
Age						
15-19	age_cl1	29790	0.281	0.449	0	1
20-24	age_cl2	29790	0.389	0.488	0	1
25-29	age_cl3	29790	0.182	0.385	0	1
30-34	age_cl4	29790	0.086	0.281	0	1
35-39	age_cl5	29790	0.062	0.241	0	1
Industry (1st job)						
Food industrie	sector3	29790	0.048	0.214	0	1
Textile industrie	sector4	29790	0.098	0.298	0	1
Hide and leather industries	sector5	29790	0.025	0.156	0	1
Wood industrie	sector6	29790	0.005	0.067	0	1
Paper, printing and publishing	sector7	29790	0.013	0.115	0	1
Coke manufacturing and refineries	sector8	29790	0.000	0.020	0	1
Chemical product manufacturing	sector9	29790	0.009	0.092	0	1
Rubber and plastics	sector10	29790	0.012	0.111	0	1
Processing of non-metallic minerals	sector11	29790	0.008	0.089	0	1
Metal and metallic products	sector12	29790	0.034	0.182	0	1
Manufacturing and repair of machinery	sector13	29790	0.011	0.105	0	1
Manufacturing of electrical machinery	sector14	29790	0.036	0.185	0	1
Vehicle manufacturing	sector15	29790	0.005	0.067	0	1
Other manufacturing industries	sector16	29790	0.026	0.160	0	1
Electrical energy, gas and water	sector17	29790	0.001	0.033	0	1
Construction	sector18	29790	0.020	0.139	0	1
Commerce	sector19	29790	0.205	0.404	0	1
Hotels and restaurants	sector20	29790	0.158	0.365	0	1
Transport and communications	sector21	29790	0.025	0.156	0	1
Financial intermediation	sector22	29790	0.160	0.366	0	1
Business services	sector23	29790	0.030	0.170	0	1
Other community, social and personal serv	sector24	29790	0.070	0.255	0	1
Region						
Piemonte	regio1	29785	0.078	0.269	0	1
V Aosta	regio2	29785	0.004	0.062	0	1
Liguria	regio3	29785	0.025	0.157	0	1
Lombardia	regio4	29785	0.194	0.395	0	1
Trentino A A	regio5	29785	0.026	0.158	0	1
Veneto	regio6	29785	0.100	0.300	0	1
Friuli V G	regio7	29785	0.024	0.152	0	1
E Romagna	regio8	29785	0.097	0.297	0	1
Marche	regio9	29785	0.030	0.171	0	1
Toscana	regio10	29785	0.071	0.257	0	1
Umbria	regio11	29785	0.015	0.120	0	1
Lazio	regio12	29785	0.095	0.294	0	1
Campania	regio13	29785	0.061	0.239	0	1
Abruzzo	regio14	29785	0.022	0.147	0	1
Molise	regio15	29785	0.004	0.063	0	1
Puglia	regio16	29785	0.052	0.221	0	1
Basilicata	regio17	29785	0.008	0.087	0	1
Calabria	regio18	29785	0.018	0.133	0	1
Sicilia	regio19	29785	0.052	0.221	0	1
Sardegna	regio20	29785	0.025	0.155	0	1

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