

Have Labour Market Reforms at the Turn Of The Millennium Changed Job Durations of the New Entrants?

A comparative study for Germany and Italy

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Abstract

It is often claimed that the labour market reforms 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 economic literature on this topic is rather mixed. This paper aims at contributing to this stream of research. With job search and matching theory in the background, we apply survival analysis and propensity score matching methods to determine the effects of reforms on job durations. The general question is if reforms that in the 90s have created incentives to ease (re)entry, especially of unemployed persons and young people, into the labour market have decreased job durations not only in the first phase of the working career, but also over longer periods of the working life. We use administrative longitudinal data to compare job durations of multiple employment spells of new entrants in the pre- and post-reform periods in Germany and Italy, taken as representative examples of radical and smooth reforms respectively. The policy relevance of the research concerns the issue of the link between employment security and the use of flexible forms of working, and its effects on the process of achieving tenure.

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1 Introduction

Recently, some of the most relevant reforms in Italy and Germany have taken place more or less in the same years at the turn of the millennium. They have shared similar objectives, that is, creating incentives to ease (re-) entry into the labour market, especially of unemployed persons and young people without any work experience. While in Italy the Treu's law (1997) and the following diffusion of temporary work and temporary agency work represented one of the most marked reforms, in Germany the reforms were more oriented towards maintaining the competitiveness of unemployed workers by means of active labour market policies.

This paper focuses on the question if the often-claimed trade-off between job opportunities and tenure has really taken place in the post-reform years, at least for certain groups of people. We investigate the effects of periods of reforms on labour market structures that are intrinsically different, traditionally based on entry from vocational training in Germany, and completely independent from the educational system in Italy. We have a unique opportunity to study these two countries on longitudinal data that have exactly the same administrative source, and, for this reason, an unprecedented degree of comparability.

Is it true that more opportunities have been created especially for disadvantaged groups (women with interrupted work experience, young workers with a low level of qualification, migrant workers) at the expense of job security (the so called "precarious job hypothesis")? To answer our question, we investigate the changes in the distributions of new entrants, asking for example, if more women or immigrant workers have entered the labour market, and then study their job durations, asking, for example, if job durations have decreased, especially in the first phase of the working career.

We shall then investigate subsequent spells of employment. The hypothesis to test is if individual employment spells tend to show an increasing duration over time, that is, if employment durations in the first job tend to have a lasting effect on later employment durations. Moreover, we want to ascertain if this process has shown relevant changes before and after the most important labour market reforms. 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 start by revising the reforms implemented in Germany and Italy and their timing. The analysis of the timing of the reforms allows us to define two groups of workers, the pre-reform group and the post-reform group. We then build job durations of workers' spells of employment, starting from their first entry into employment and describe the differences in the characteristics of the new entrants and the duration of the first spell of employment for the two groups. A decrease in the average duration of the first job does not necessarily support the "precarious job" hypothesis. To investigate this issue, we study the nature and length of the spells following the first one. We

distinguish between subsequent spells of employment within the same firm from subsequent spells in a different firm. In the first case, an increasing duration of the subsequent spells in the same firm would support the hypothesis of the first spell being a sort of “probationary period” to test the productivity of the worker. In the second case, an increasing duration of the subsequent spells in different firms would support the hypothesis of the “accumulation of human capital” of the worker that would increase the probability of longer durations of subsequent spells. Using the characteristics of individuals at their first entry into the labour market (e.g. sex, age, nationality, educational attainment, area of residence) we then use the techniques of Propensity Score Matching to pair the pre and post reform individuals. The pre-reform group would be the control group and the post reform would be the “treated” group (see, e.g., Caliendo and Kopeinig, 2008). Since the comparison involves two different periods we shall have to carefully control for macro trends (e.g. phase of the economic cycle) and background demographic changes (e.g. age composition of the population, immigration). We then use the duration analysis to investigate the effects of the reforms on the matched sample. We plan to use a proportional hazard model of job exit with the baseline hazard specified as a piecewise constant function with annual (or biannual) intervals. Here we can add variables of job related characteristics and wages to the explanatory variables included in the PSM. The effect of reforms will be captured by dummies for the intervals of the durations of the post reform sample (annual or biannual).

This model will be applied to duration of first job and also to duration of the following spells, using methods to treat multiple employment spells. We want to test the hypothesis of lagged duration dependence, in that the length of previous job experience is an important determinant of reemployment probability (see e.g. Trivedi and Alexander, 1989; Bonnal, Fougère and Serandon, 1995).

2. The literature

The issue of flexibility, namely, the growing tendency of labour to lose its permanent features, has recently dominated the scene of labour market changes.. A substantial amount of literature addresses this topic, either starting from the change in the distribution of labour between fixed term and permanent contracts, or from the evidence of a growing number of temporary employees and temporary agency workers.

A labour demand view is generally positive about the effects of the reforms that have relaxed some of the fixed characteristics (see Oi, 1962) acquired by labour during the 70’s and the 80’s. In particular, the “screening device” nature of temporary jobs seems to have supported productivity growth and profitability of firms (see, among the few and very recent papers, Varejão and Portugal, 2003). Among the macro studies, Bentolila and Saint Paul (1992) have analysed the effects of the introduction of flexible labour contracts in a rigid labour market, with a specific reference to Spain.

They suggest that these contracts increase the extent of the employment responses to shocks, with ambiguous effects on the average employment level. The effects of flexible contracts are thus similar to those obtained by a decline in firing costs. A macro paper by Nunziata and Staffolani (2007) finds evidence in support of the hypothesis that, in Italy, fixed term contracts have been effective stepping-stones to permanent jobs during the period under observation. Another macro study for Italy assesses the impact of the 1997 Treu's law which considerably eased the regulation of temporary work and favoured its growth in Italy. They find the Treu Act appears to have improved matching efficiency in the North of the country, particularly for skilled workers, but also to have strengthened competition among skilled and unskilled workers, especially in the South (Destefanis and Fonseca, 2007).

In Germany, the facilitation of fixed term contracts seems to have been rather moderate in its impact. On the micro side, Boockmann and Hagen (2005) 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. Using a statistical matching approach, they find that job exit rates are initially much higher if the employment spell began with an FTC. However, exit rates fall below those of comparable spells spent entirely in permanent employment after a few years time. Rudolph (2000) argues that - with the possible exception of young workers entering the labour market - the greater feasibility of fixed term work has not led to an erosion of the standard working contract.

Other pieces of evidence, drawn mainly from micro studies, are rather mixed (see for example, Booth, Francesconi and Frank, 2000). Some of them support the "stepping stone" or "port of entry" hypothesis (see, for example, Ichino, Mealli and Nannicini, 2007). Berton, Devicienti and Pacelli (2007) use a 1998 - 2004 sample from the Work History Italian Panel (WHIP, see the Data Sources section) in order to study the labour market transitions of young entrants in Italy. After controlling for individual fixed effects in a dynamic multinomial logit framework, they find that heterogeneity partially explains workers' sorting between types of contract. Temporary jobs also represent a port of entry towards permanent employment.

Some other studies are rather negative about the effects for the workers, in particular for those groups to whom the reforms were mainly targeted. According to these negative conclusions, the integration or reintegration of certain groups into employment seems to remain a problem, since the use of temporary jobs to save on labour costs would prevail in the objectives of firms, and precariousness would arise, thus giving support to the "dual" or "segmented" labour market hypothesis. This seems to be the underlying message of Employment in Europe (EIE, 2007, ch. 3).

At variance with most of the cited literature that focuses on the type of contract, the main focus of our analysis is on job duration. We concentrate on the length of an uninterrupted spell of employment. Long employment spells in some cases might be assimilated to permanent jobs even if

they are ruled by fixed term conditions. In some other cases, a long spell of employment might be formed by several subsequent spells of fixed term contracts. However, this is a less probable event than the one of a short employment spell under a fixed term contract. Or, alternatively, a short spell might be ruled by a permanent contract if a worker has been fired or has resigned. Our idea is that the contract type is just one feature but not really the heart of the matter of job security.

3 Data Sources

For *Germany* we use individual administrative data collected at 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. IABS data originate from two different data sources: 1) notifications of employment to social security bodies; 2) data on receipt of unemployment benefits, and unemployment assistance drawn from data of the Federal Employment Agency. 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.

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 as well as non-working spells in which individual received 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.

4 Labour market reforms in Germany and Italy

4.1 Reforms in Labour Market Policy in Germany

The German labour market - at least during the last 15 years or so - has experienced changes in programmes and policies nearly all the time. In what follows, we try to depict the more important changes from the early 1990s to about 2002, the first year of the Hartz reforms. We will argue that it is possible to identify periods of "modest" reforms tackling only certain aspects of the labour

market and being of very limited influence for labour demand and the matching process of workers to jobs.

In the early 1990s, the German reunification and the restructuring process in East Germany had a strong impact on the labour market and on labour market policies. In East Germany, there was a massive engagement in active labour market programmes to cope with the consequences of the breakdown of whole industries (Bielenski u.a. 1997). In West Germany, since the late 80s, long-term unemployment called for new measures. From 1993 to 1996, there were a mixture of reforms directed at financing active labour market programmes, and reforms aimed at saving on unemployment benefits or in-programme allowances. In addition, some steps towards deregulation were made with the abolition of the placement monopoly of the Federal Employment Services in 1994 (Walwei, 1993), the prolongation of regulations and further facilitation of the use of fixed-term contracts and temporary agency work and the change in the employee threshold for small firms to be exempted from the dismissal protection law in 1994 and 1996.

In 1998, the former "Arbeitsförderungsgesetz" (AFG) was replaced by the Social Code III. Along with this legal change there were some new programmes, as well the continuation of "old" programmes under new titles. Potentially more or equally important were changes in the amount of expenditures for active labour market policies together with shifts in programme use from one type of programme to another, which had already been initiated in the preceding years. Examples are the generous and large scale use of a wage subsidy programme for private firms in East Germany (Jaenichen, 2000) or the intensified use of the "bridging allowance", a subsidy to formerly unemployed persons founding their own businesses (Wießner, 1998).

In 1999, under the new government, the first reforms took back some of the attempts to deregulate of the previous years. The dismissal protection law was changed again with respect to the employee threshold, paid sickness leave was re-established on a 100-percent level¹ and a reform of the so called *mini-jobs* introduced obligatory pension contributions also for jobs paying less than 630 DM (Rudolph, 1999). In 2001, the "Beschäftigungsförderungsgesetz" was replaced by the "Gesetz über Teilzeitarbeit und befristete Arbeitsverträge" (law on part-time work and fixed-term contracts). The major aim of this law, however, may be seen in a harmonization of German regulations of part-time and temporary work with the EU law rather than a further liberalization of employment contracts. An exception is the facilitation of fixed-term contracts for workers of age 58 or more.²

¹ While the continued payment had been reduced to 80 percent by law in 1996, this regulation was substituted by collective contracts, which normally set a continued payment of 100 percent.

² The Hartz reforms at the end of 2002 contained a further lowering of this threshold to age 52 or more. In 2005, the EU Court decided the possibility for employers to hire older workers on a fixed-term basis without giving any further reasons to be illegal. However, since 2007, a German law to promote the employment of older workers again allows for fixed-term-contracts up to a duration of 5 years for workers of age 52 or more.

In February 2002, more fundamental changes became necessary after the so-called "Vermittlungsskandal" (placement scandal)³ in the Federal Employment Services. The "Hartz Commission", a panel consisting not only of labour market and government experts, but also of business managers and representatives, proposed a long list of changes in labour market and social policy. This list proposed the introduction of new programmes like the "Personal-Service-Agenturen", a new type of temporary work agencies for unemployed persons.

Most of the proposals of the "Hartz Commission" got realized in the form of the "Gesetze für moderne Dienstleistungen am Arbeitsmarkt" (laws for modern services in the labour market), or in short "Hartz I-IV". Probably the most important and also the most controversial reform Hartz IV came into effect in 2005. This brought about the elimination of the former unemployment assistance for long-term unemployed, common placement organisations for long-term unemployed coming from the unemployment insurance system and those without previous benefit claims on the community level, new programmes (e.g. 1-€jobs) and the pursuit of potentially rather strict "activation" strategies for long-term unemployed persons. Still, while the German labour market is in an upswing since 2006, the contribution of the Hartz reforms will remain subject to controversy.

As an attempt to separate periods with a high density of reforms and/or rapidly changing economic conditions from periods with more stable labour market conditions we set the years from 1998 to 2000 as period of reform in Germany. In contrast, the years 1995 to 1997 and the years 2000 to 2002 are interpreted to be stable "pre-reform" and "post-reform" periods, respectively. While the foregoing discussion eventually suggested that the period 1993-1996 also experienced important reforms, the impact of these reforms may be assessed as a minor one from an ex-post-perspective (see e.g. Bauer, Bender and Bonin, 2007 with respect to dismissal protection, Rudolph, 2000 with respect to fixed term contracts)⁴.

4.2 Reforms in Labour Market Policy in Italy

Since the mid 90's The Italian labour market has undergone radical reforms towards flexibility. The two pillars of the reform are the *Treu's law* (Law 196/1997) that introduced temporary work agencies, and, in 2003, a more comprehensive reform (the Law 30/2003, also called *Biagi's law*". The *Treu's law* also included minor reforms to fixed term contracts and apprenticeship, promoted the discussion of part-time jobs and Contratti di Formazione e Lavoro (CFL, special training and labour contracts) and reintroduced probation contracts. The *Biagi's*

³ The official statistics on the number of "successful placements" turned out to overstate the activities of the employment offices.

⁴ Rudolph argues, that the facilitation of fixed-term contracts has not led to the erosion of the standard working contract. However, he explicitly points out that the possibility of longer contract durations might have had consequences for young persons working on a fixed-term basis.

law has been actually implemented at the end of 2004. Temporary agencies become effective in 1998.

As to the duration of the contract, with Law n. 230 1962, permanent contracts are the rule in Italy.

Permanent contracts can be broken through individual or collective layoffs. Individual layoffs in Italy are in general forbidden unless a just cause exists. In large firms layoffs occur mainly through collective dismissals. The 1962 law also introduces fixed term contracts (FTC), that can be used in very special circumstances. Fixed terms contracts have to be justified, they are not free, and in general they are exceptions to the rule. That is, a fixed term contract has to be motivated. The admissible motivations are very few, for example, seasonal production, like in agriculture, or substitution of absent workers in leave (maternity leaves or sick leave). In 1978 other motivations were introduced like seasonal peaks in production. The d.l.n. 56, 28 of February 1987 introduced a radical innovation. Unions could introduce in collective contracts new motivations for the application of FTC.

The law n. 368 6 September 2001, abrogated the law 230 and substantially liberalized the contract A FCT may be applied for technical, organisational, productive and seasonal reasons. The FTC contracts are, in this way, subject to a quite general clause. A contract might be extended or renewed. The *Biagi's Law*, has started the second phase of the flexibilization process, introducing other tools for easing the hiring process for firms (labour on call, staff leasing, new probation contracts). It is generally thought that its impact has been less significant than that of the *Treu's law*. Therefore, in our analysis, the *Treu's law of 1997 marks the divide between the pre-reform and the post reform period in Italy*.

5 Sample selection

We focus on entry into dependent employment. 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.

5.1 Italy

We define as “*new entrants*” those employees who are recorded for the first time in the archive at year t , never observed from 1985 up to t . We define as workers entering the market in the *pre-reform period* those workers that appear in the archive for the first time between the first of January 1992 and the 31st of December 1994; as workers entering the market in the *post-reform period* those workers that appear in the archive for the first time between the first of January 1998 and the 31st of December 2000. We therefore pool three years of entries, in order to increase the number of observations. We then follow each worker for the following three years. This way, the year 1997 of emanation of the *Treu’s law* falls in between the two periods.

The two periods are quite homogeneous in terms of the business cycle phases at the time of entry: as Figure A1 in the appendix shows, the pre- and post-reform periods include two years in which the real GDP growth declines and one year of recover. The same is not true for the following three-years period, since period 1995-1997 shows one year of recover, while 2001-2003 are three years of continuous decline in GDP growth.

We end up with 39,323 individuals, of which 16,827 entering dependent employment in 1992-1994 and 22,496 in 1998-2000 (Table 1).

Table 1. Italy. Number of individuals 15-39 entering dependent employment

Period	N. observations
1992-1994	16,827
1998-2000	22,496

So, the number of new entrants increases by more than one third, in face of an overall slight decrease of the population aged 15-39 in the same years (see Table A1 in the Appendix).

5.2 Germany

For Germany, we have to take account of the “dual” system, according to which, apprenticeships are part of the formal educational structure and are usually entered into after completion of compulsory education. They involve an employment relationship plus formal schooling – normally one and a half to two days per week – over a period of usually three years. Apprenticeships are liable to social security, so they appear in our data. However, given their formal link with the educational system, we cannot consider them as “true” first entries into the labour market. We therefore distinguish two groups of “new entrants”. The first group (NOVOCTR) is defined as those people who enter the labour market for the first time at the beginning of the period of observation without having vocational training, and appear for the first time in the insurance archive; the second group (VOCTR) is defined as those people who enter for the first time the labour market *after one or more spells of vocational training*, and do not appear in the archive for the first time in absolute terms, but appear for the first time as dependent employees at the starting

date of observation. As we have seen, we have not treated apprenticeships in Italy the same way, since in Italy this contract is independent of the educational system.

We focus on entry into dependent employment. We define as “*new entrants*” those employees who are recorded for the first time in the archive at year t , never observed from 1975 up to t .

As discussed in section 4.1, we define as *pre-reform period* the years 1995 to 1997 and as *post-reform period* the years 2000 to 2002. Given the multiplicity of the reforms, we need to choose only one year of entry. Thanks to the abundant number of observations in the German sample, we do not need to pool the years, and we select as entry pre-reform period the first of January 1995 until the 31st of December 1995 and as entry post-reform period the first of January 2000 until the 31st of December 2000. The periods 1995-1997 and 2000-2002 show an identical average growth in GDP (1.5) even if the acceleration in the GDP growth observed in 2000 exhibits a powerful halt in the following years (see Figure A3 in the Appendix). In terms of the unemployment rate, the two periods seem to be quite stable. After the selection, we ended up with 34,790 individuals distributed as shown in Table 2.

Table 2. Germany. Number of individuals 15-39 entering dependent employment

Period	1995	2000
NOVOCTR	6,873	6,076
VOCTR	11,583	10,303
Total	18,411	16,379

Our calculations on IABS. East and West Germany.

The number of new entrants decreases by about 10% in both groups.

5.3 Distributions of new entrants by age, gender and type of contract. Comparisons between Italy and Germany

In Italy, the age distribution reveals that the growth is to be attributed to young people aged 20 to 29, while the age group 15 to 19 shows a substantial decrease (see Table 3; the Appendix shows that the population in the corresponding age ranges decreases, except for people aged 30 to 39).

Table 3 Italy. Distribution by age group of entrants

Age class	1992-1994	1998-2000
15-19	35.45%	24.73%
20-24	32.55%	36.76%
25-29	16.51%	22.07%
30-34	9.37%	10.10%
35-39	6.12%	6.34%
Total	100%	100%

In Germany, the age distribution reveals that in the post reform period there is a substantial shift from the class 25 to 29 to the class 20-24 (see Table 4).

Table 4 Germany. Distribution by age group of entrants

Age class	1995	2000
15-19	15%	16%
20-24	50%	55%
25-29	20%	16%
30-34	10%	8%
35-39	5%	5%
Total	100%	100%

The comparison between the two countries points to a significant difference in the percentage of entrants in the 15-19 and 20-24 age categories. Presumably, the 15-19 age range differs because we are taking the new entrants after vocational training in Germany, while in Italy apprentices are included in the new entrants.

In Italy, Table 5 shows that the weight of women has increased by three percentage points in the gender distribution of new entrants in the post-reform period.

Table 5 Italy. Distribution by gender of entrants

Gender	1992-1994	1998-2000
Females	38.49%	41.54%
Males	61.51%	58.46%
Total	100.00%	100.00%

In Germany, Table 6 shows that no big change has occurred in the gender distribution of new entrants, except a 1 percentage point increase of females.

Table 6 Germany. Distribution by gender of entrants

Gender	1995	2000
Females	44%	45%
Males	56%	55%
Total	100%	100%

The gap between gender has decreased in Italy, where the big difference with Germany in the '90s as reduced in the post reform period.

As to the type of contract, this information is available only in the WHIP sample.

Our sample for Italy, proves to be representative of the expansion of fixed term contracts and temporary work in Italy after the *Treu's law* reform (see Table 7).

Table 7 Italy. Distribution of entrants by type of contract of entrants

Type of contract	1993-1995	1998-2000
Permanent	58.91%	35.45%
Apprenticeship	25.59%	25.57%
<i>Cfl</i> *	13.96%	8.77%

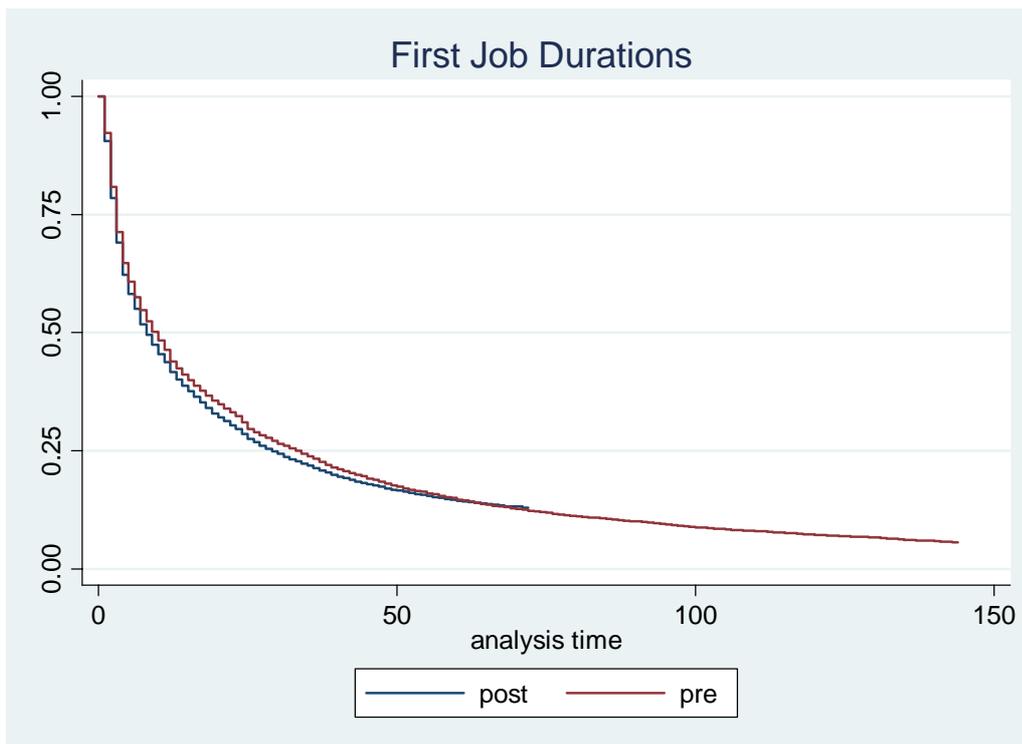
Special clauses	1.55%	8.56%
Fixed Term	0.00%	14.60%
Temporary agency work	0.00%	3.97%
Seasonal	0.00%	3.08%
Total	100.00%	100.00%

**Contratto di Formazione Lavoro*: Special training contract

6. Italy. Pre- and post-reform duration of the first spell of employment

A non-parametric analysis of the duration of the first spell of employment shows that its length has decreased on average. The distribution of survival times (see Table A2) points to a stability of the first quartile (3 months), a reduction of the median duration from 10 to 8 months and from 33 to 29 months in the last quartile. This decrease is also represented in the survival function of Figure 1.

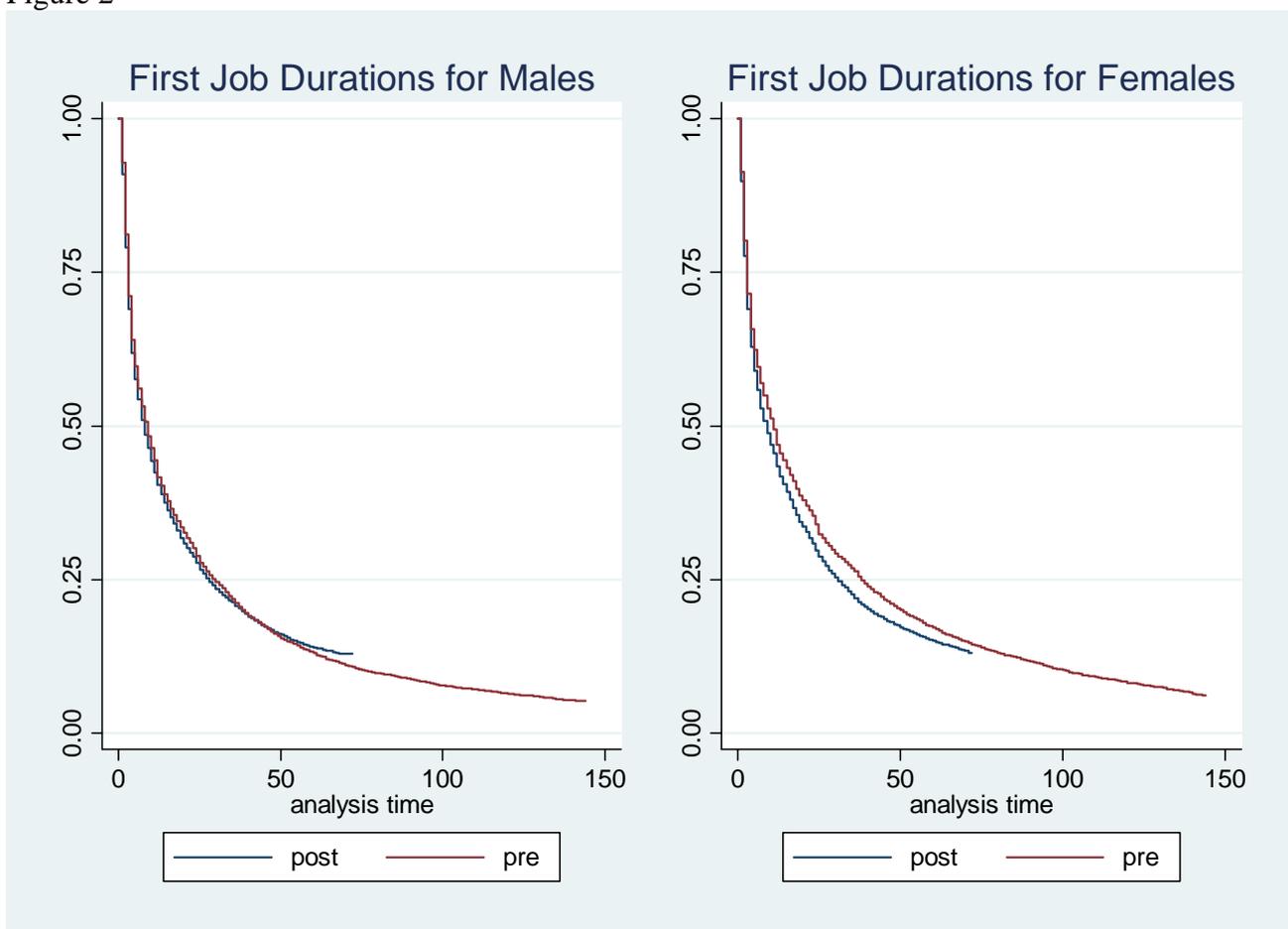
Figure 1



Log-rank test for equality of survivor functions: $\chi^2(1) = 18.97$; $Pr > \chi^2 = 0.0000$

The gender distinction reveals that the drop in the spell length is only significant for females (see Figure 2).

Figure 2



Males: Log-rank test for equality of survivor functions: $\chi^2(1) = 1.14$; $\text{Pr} > \chi^2 = 0.2867$

Females: Log-rank test for equality of survivor functions: $\chi^2(1) = 30.61$; $\text{Pr} > \chi^2 = 0.0000$

As to the age distribution, we find that the decrease in job durations seems to be significant only up to age 24 (see the Appendix, Figure A2).

6.1 What happens next?

In order to see what happens after the first job spell, we have built for each entrant a window of observation of 3 years after the year of entrance (i.e. those entering in 1992 followed up to 1995, those entering in 1999 followed up to 2002, and so on). We consider the following possibilities: 1) the first job spell is censored, that is, it covers the entire four-year period of observation); 2) the first spell ends and, after an interruption, a second spell starts; 3) the first job spell ends within the window of observation and no other spell starts within the same period.

Table 8 What happens after the first job spell. Distribution (%)

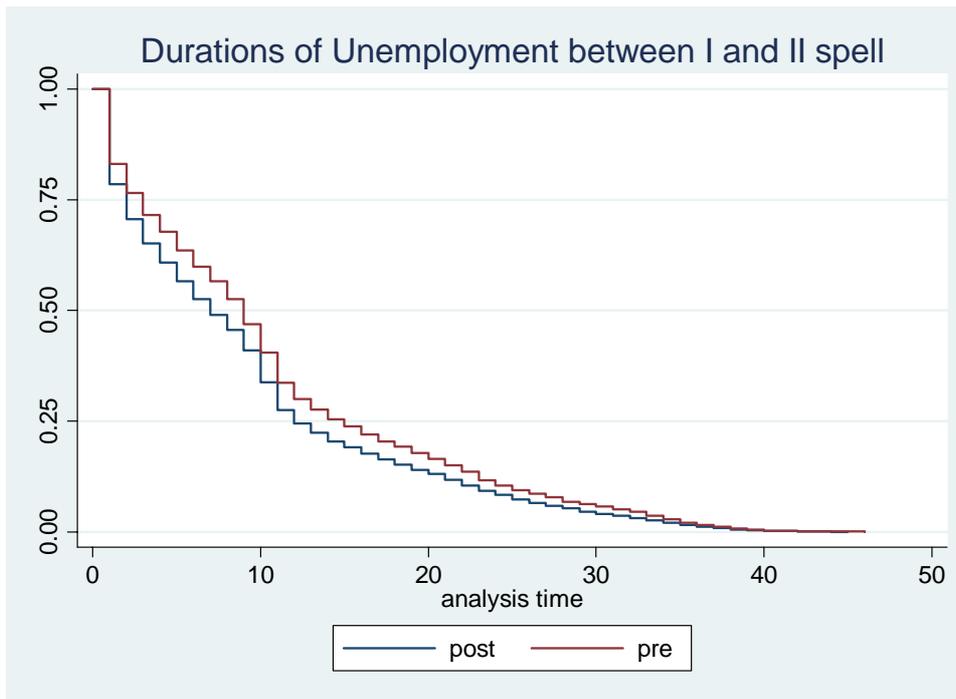
<i>Year of entry</i>	1992-1994	1998-2000
The first job spell is censored	19.66	11.8
A second spell	43.08	55.93
No further employment spell	36.6	31.24

The distribution of Table 8 shows that, in the post-reform period, uninterrupted first job and out of dependent employment spells drop by about 8 and 6 percentage points respectively in favour of a second employment spell.

For those who move from the first job spell to a second one in the window of observation, we can look at the duration of the “unemployment spell” between the two jobs⁵, and the duration of the second spell (within the window of observation to ensure comparability).

Figure 3

⁵ We label exit from the WHIP archive with “exit to unemployment”. A worker’s disappearance (either temporary or permanent) from the WHIP dataset means, in the majority of cases, exit from dependent employment to unregistered unemployment or to undeclared (irregular or illegal) employment, or exit from the labour force. Two other quite rare cases are exit from dependent employment to employment in the public sector or to self-employment as freelancers (lawyers or notaries). In these two last cases and in the case of undeclared employment we overestimate unemployment.

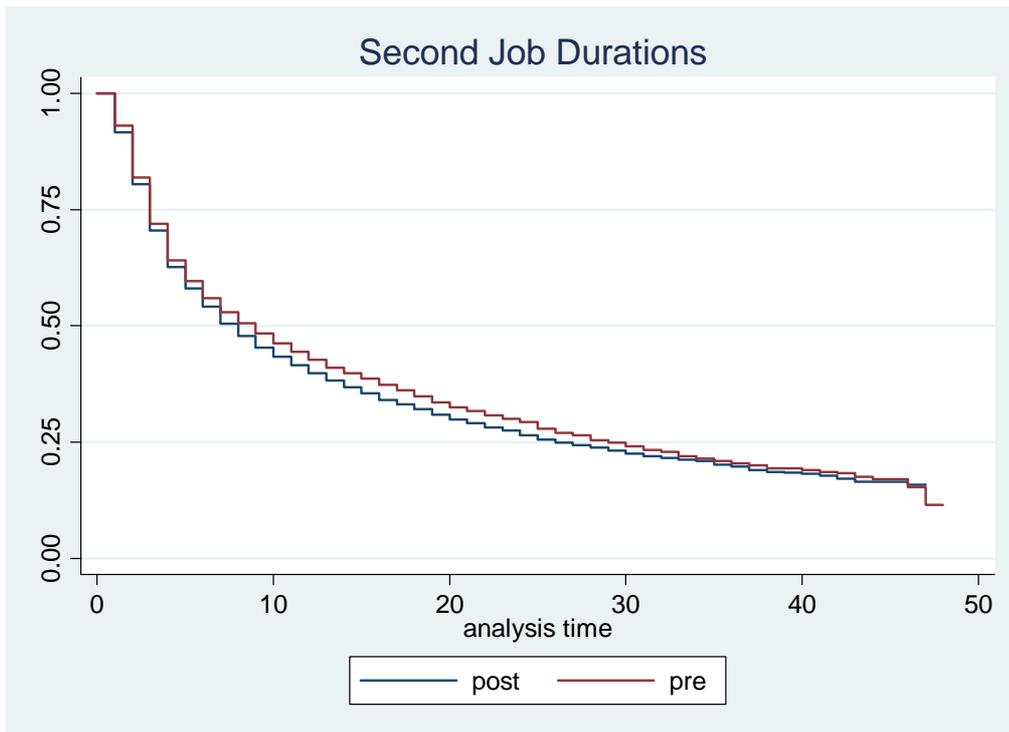


Log-rank test for equality of survivor functions: $\chi^2(1) = 83.63$; $\text{Pr} > \chi^2 = 0.0000$

As Figure 3 shows, we reject equality of pre and post survival functions: the duration of the unemployment period between the first and the second spells of employment has reduced in the post-reform period with respect to the pre-reform period.

As to the second employment spell, Figure 4 shows that also the second employment spell has a shorter duration in the post-reform period.

Figure 4



Log-rank test for equality of survivor functions: $\chi^2(1) = 12.81$; $\Pr > \chi^2 = 0.0003$

6.2 Effects of individual and job characteristics on the first spell survival function

In order to see the effect of individual and job characteristics on the first spell survival function and the effect of period of entrance in the labour market, we use a proportional hazard rate model.

The model assumes that the covariates have a multiplicative effect on the hazard function, given the values of the covariates and the respective survival time (t).

$$h(t_j) = h_0(t)g(x_j)$$

where $h_0()$ is the baseline hazard function, the hazard for the individual when all independent variable values are equal to zero, and $g(x_j)$ is a function of the covariates.

Generally $g(x_j)$ is assumed to be equal to the relative risk $e^{x_j\beta}$.

The model is estimated imposing $h_0(t)$ to be a Weibull distribution.

Our covariates are gender, age, occupation (apprenticeship, blue collar, white collar and manager), sector and geographical areas dummies.

Tab. 9 Results from a Weibull regression – Survival in the first job spell

variable	Haz. Ratio	Std. Err.	z
post_reform	1.178	0.013	14.7
female	0.930	0.011	-6.0
age 15-19	1.583	0.036	20.3
age 20-24	1.127	0.023	5.9
age 25-29	1.001	0.022	0.1
age 35-39	0.887	0.025	-4.3
Apprenticeship	1.056	0.021	2.8
blue collar	1.498	0.023	26.3
manager	0.655	0.160	-1.7
Sector dummies	yes		
geo. Dummies	yes		
/ln_p	-0.296	0.004	-70.7
p	0.744	0.003	
1/p	1.344	0.006	
No. of subjects =	39323		
No. of failures =	34603		
Time at risk =	850992		
LR chi2(34) =	5327.72		
Log likelihood =	-70194.3		
Prob > chi2 =	0		

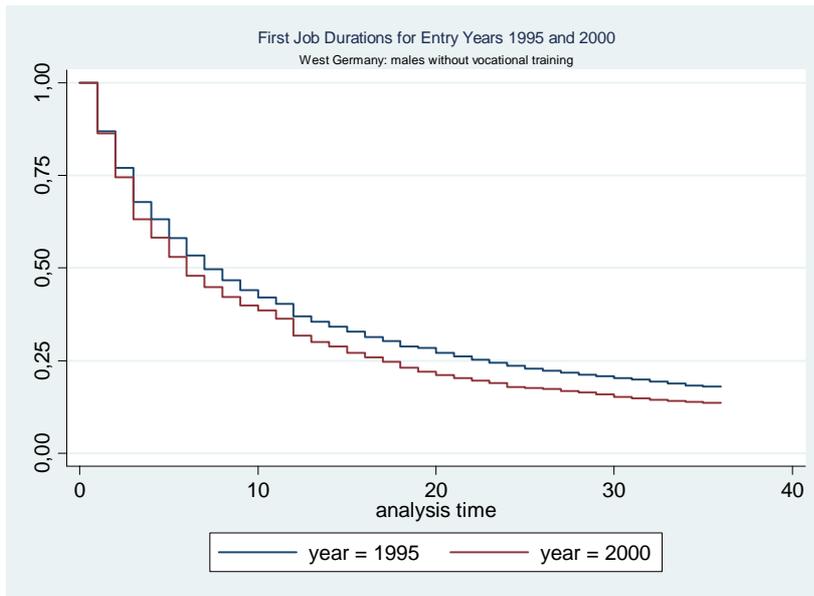
In Table 9, the results from the hazard model show that the hazard of failure decreases in time ($p < 1$), which is consistent with our expectation.

The dummy for the entrance period show that entrance in the post-reform period increases the hazard of failure. Being a female or an older worker reduces the hazard of failure as well as being a white collar or a manager.

7. Germany. Duration of the first spell of employment

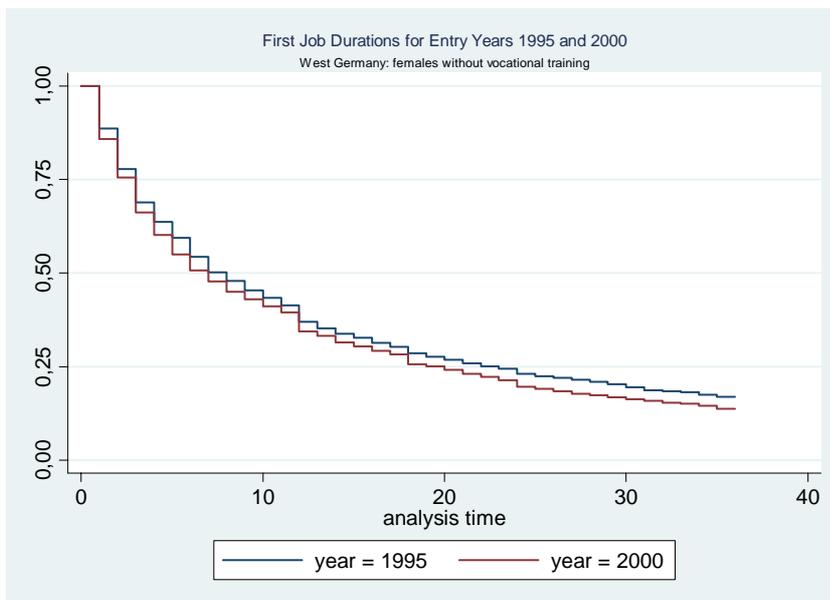
A non-parametric analysis of the duration of the first spell of employment shows that its length has decreased on average. The average duration is of 12 months in 1995, and does not change in 2000 for females, whereas for males it decreases to 11 months. This decrease is represented in the survival functions of some selected groups. For example, first job duration decreases more in East Germany and for males. Figures 5 (NOVOCTR) and 6 (VOCTR) show this result.

Figure 5a



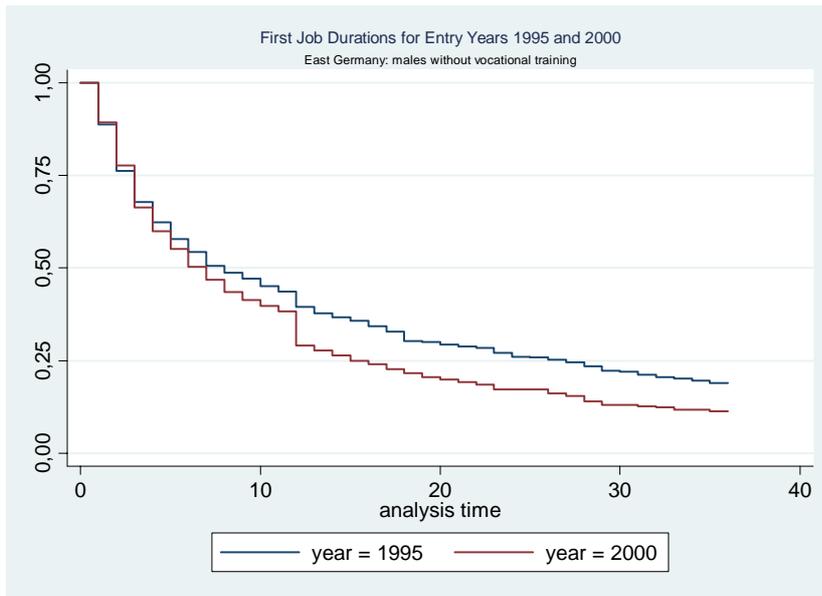
Log-rank test for equality of survivor functions: $\chi^2(1) = 28,88$; $Pr > \chi^2 = 0.0000$

Figure 5b



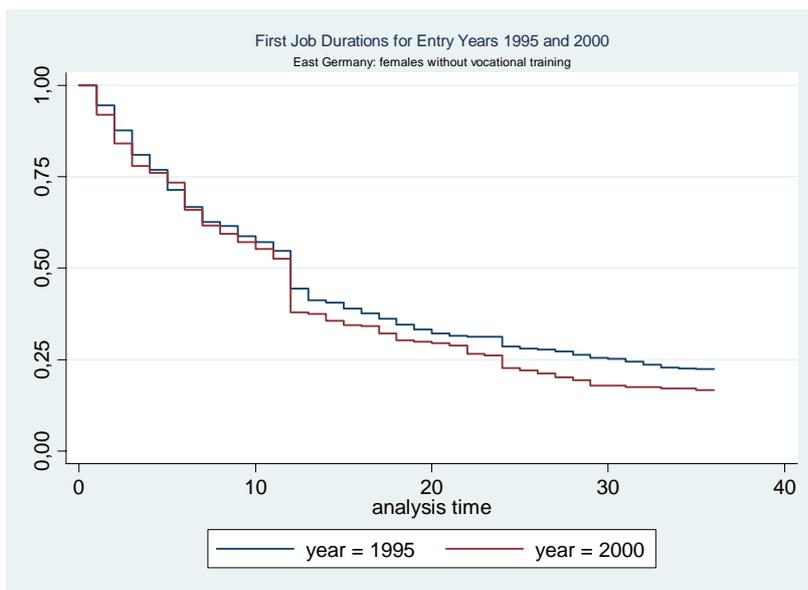
Log-rank test for equality of survivor functions: $\chi^2(1) = 9,15$; $Pr > \chi^2 = 0.0000$

Figure 5 C



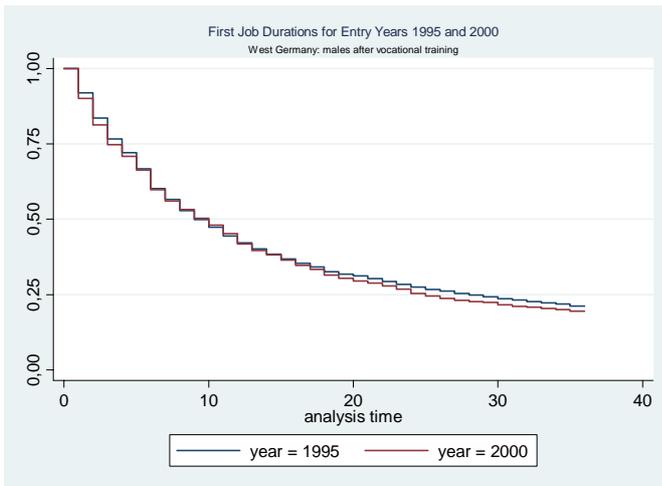
Log-rank test for equality of survivor functions: $\chi^2(1) = 7,21$; $\text{Pr} > \chi^2 = 0,0072$

Figure 5 D



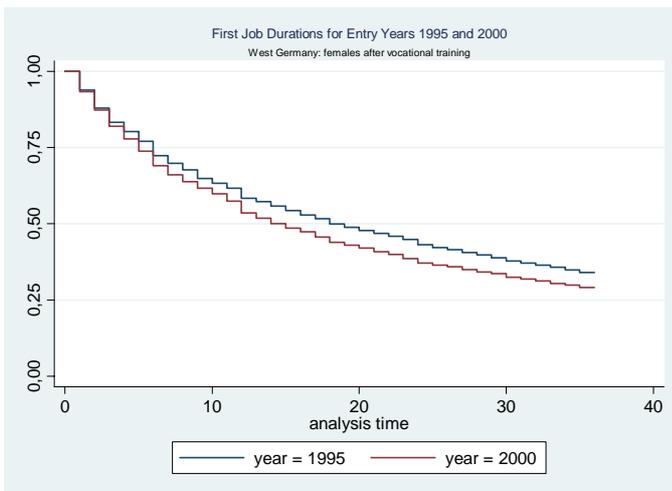
Log-rank test for equality of survivor functions: $\chi^2(1) = 2,44$, $\text{Pr} > \chi^2 = 0,1179$

Figure 6A



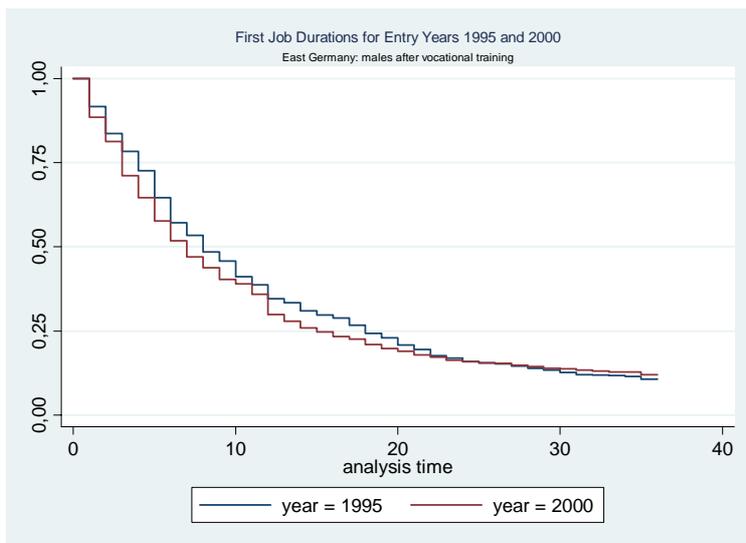
Log-rank test for equality of survivor functions: $\chi^2(1) = 3,47$, $Pr > \chi^2 = 0,0623$

Figure 6B



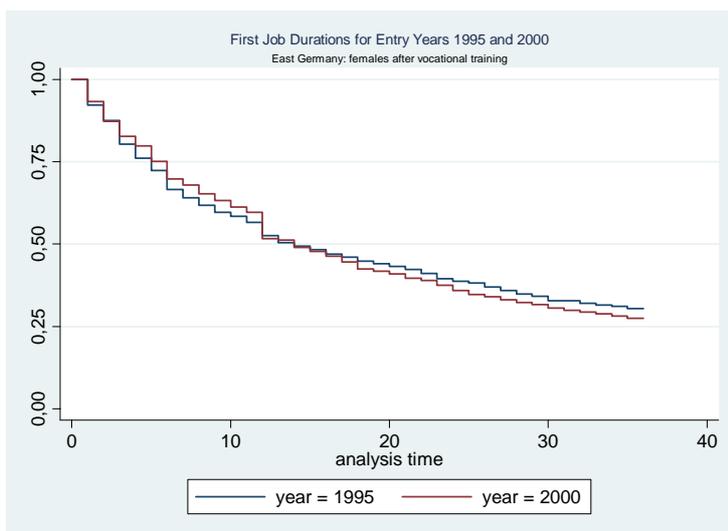
Log-rank test for equality of survivor functions: $\chi^2(1) = 28,98$, $Pr > \chi^2 = 0,000$

Figure 6C



Log-rank test for equality of survivor functions: $\chi^2(1) = 1,86$, $\Pr > \chi^2 = 0,1721$

Figure 6D



Log-rank test for equality of survivor functions: $\chi^2(1) = 0,35$ $\Pr > \chi^2 = 0,5532$

7. Preliminary conclusions on preliminary evidence

New entrants increase in Italy, while in Germany they decrease in the post reform period. The weight of women in the gender distribution of new entrants is still far from a half in both countries. In Germany it is anyway greater than in Italy, but in Italy a bigger increase in the female representation between the two periods has occurred.

As to durations of the first job, first job duration is longer in Germany (12-11 months against 10-8 in Italy). In both countries there is evidence of its reduction. In Germany this reduction seems to be rather contained, and varies according to gender, East and West of the country. In Italy, the reduction is also contained, even if it is rather short also before the reform (its median value dropping from 10 to 8 months). The reduction is significant in the estimated Weibull model for Italy, where we control for covariates. The hazard of exiting the first job increases by 17 percentage points.

Some positive signals for Italy emerge anyway at this stage of the analysis: more young people have entered the labour market, they are relatively young, the weight of women has increased and the duration of unemployment following the first employment spell has decreased.

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APPENDIX

LABOUR MARKET REFORMS IN GERMANY

The years 1998-1999 are classified here as a "reform period" because of the establishment of Social Code III in 1998 which was accompanied by several changes in the availability and use of labour market programmes (to be precise, it should be noted that the introduction of some of the new programmes started in April 1997 - that means we assume a kind of lagged impact). Also, this period is situated at the end of a period of modest growth, thus, there has been some chance for active labour market policies to be effective. The years from 2000-2002 are characterized by stagnation, an economic situation which rather prevents a successful implementation of labour market reforms (see Karr, 2002 with respect to the Job-AQTIV-Gesetz).

Of course, the most important period of labour market policy changes were the years of the Hartz reforms from 2002 to 2005. However, data availability for the "years after Hartz" is still extremely limited. Thus, we hope, that our evaluation of previous reform years will be fruitful for the study of the more recent labour market reforms, in the future.

Reforms in German Labour Market Policy, 1990-2002

1990	Beschäftigungsförderungsgesetz (prolongation of the 1985 law)	fixed-term contracts, temporary work agencies
1993	Gesetz zur Änderung von Fördervoraussetzungen im Arbeitsförderungsgesetz und in anderen Gesetzen (10. AFG-Novelle)	stricter sanctions for unemployment benefit payments, cuts in eligibility conditions and expenditures for various active labour market programmes
1994	Erstes Gesetz zur Umsetzung des Spar-, Konsolidierungs- und Wachstumsprogramms (1. SKWPG; Dec 1993)	longer durations in temporary work agencies admitted, reduction of unemployment benefit payments and other types of financial support
1994	Beschäftigungsförderungsgesetz	abolishment of the placement monopoly of the Federal Employment Services, prolongation of rules for fixed-term contracts and temporary work agencies, prolongation of sanction rules for unemployed benefit receipt, further compensation cuts for persons in public jobs, prolongation of other active measures (wage subsidy for social/environmental work in East Germany, business foundation out of unemployment)
1996	Arbeitsrechtliches	paid sickness leave, fixed-term

	Beschäftigungsförderungsgesetz 1996	contracts
1996	Arbeitsrechtliches Beschäftigungsförderungsgesetz 1996	increase of employee threshold for coverage by dismissal protection law
1998	SGB III substitutes AfG	active and passive labour market policy
1999	Gesetz zu Korrekturen in der Sozialversicherung und zur Sicherung der Arbeitnehmerrechte (Korrekturgesetz)	cancellation of 1996 threshold for coverage by dismissal protection law, changes in criteria for social plans, reestablishment of pre- 1996 conditions for paid sickness leave
1999	630-DM-Gesetz	new regulation and obligatory pension contributions for "Mini- Jobs" (marginal employment)
2001	Gesetz über Teilzeitarbeit und befristete Arbeitsverträge	part-time work, fixed-term contracts
2002	Job-AQTIV-Gesetz	active labour market policy, especially new programmes for further training
2002-2005	Hartz I-IV	active and passive labour market policy; legal and institutional changes

* The table does not show the use of labour market programmes established in AFG/SGB III (massive in some periods and weaker in others). In addition to the permanent programmes in AFG/SGB III, there were some extra/temporary programmes for e.g. young unemployed and long-term unemployed persons.

Table A1

Italy. Population 15-39.

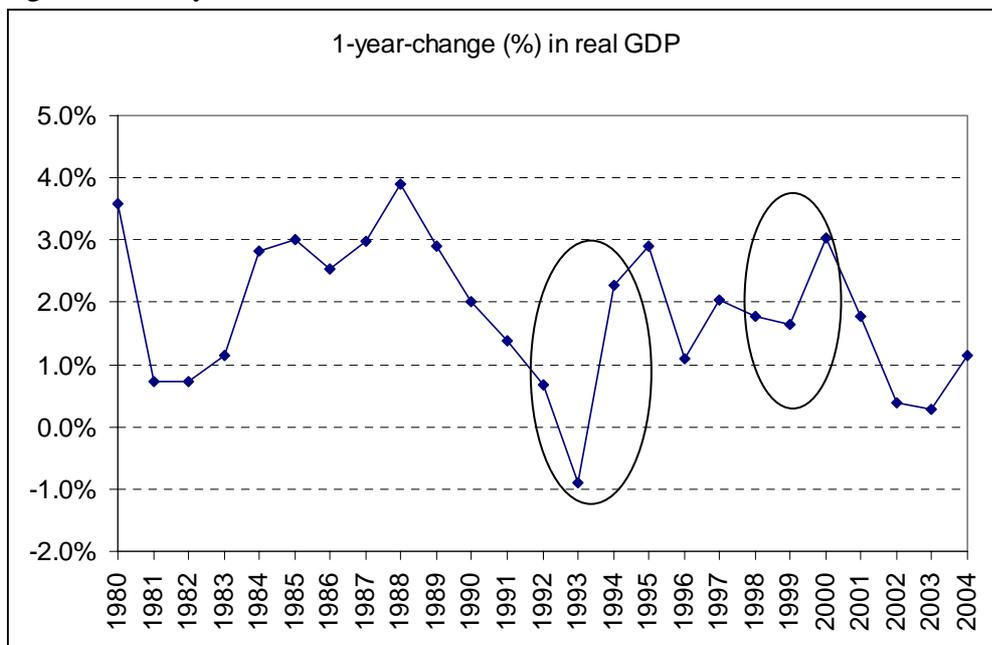
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
15-19	2140091	2058974	1973156	1869178	1776308	1704555	1651215	1603708	1569215	1541928
20-24	2314913	2292592	2267630	2235189	2195522	2129536	2053064	1971950	1876755	1793830
25-29	2355948	2374518	2375551	2349494	2318777	2294876	2275160	2250875	2219732	2186334
30-34	2075333	2118548	2175101	2244527	2297685	2335756	2354379	2354567	2331482	2303287
35-39	1902433	1927640	1952998	1980797	2013221	2056287	2101792	2158969	2227522	2280431

Source: ISTAT, Statistiche demografiche. Proiezioni intercensuarie

Tab A2 Italy. Summary statistics for first spell length

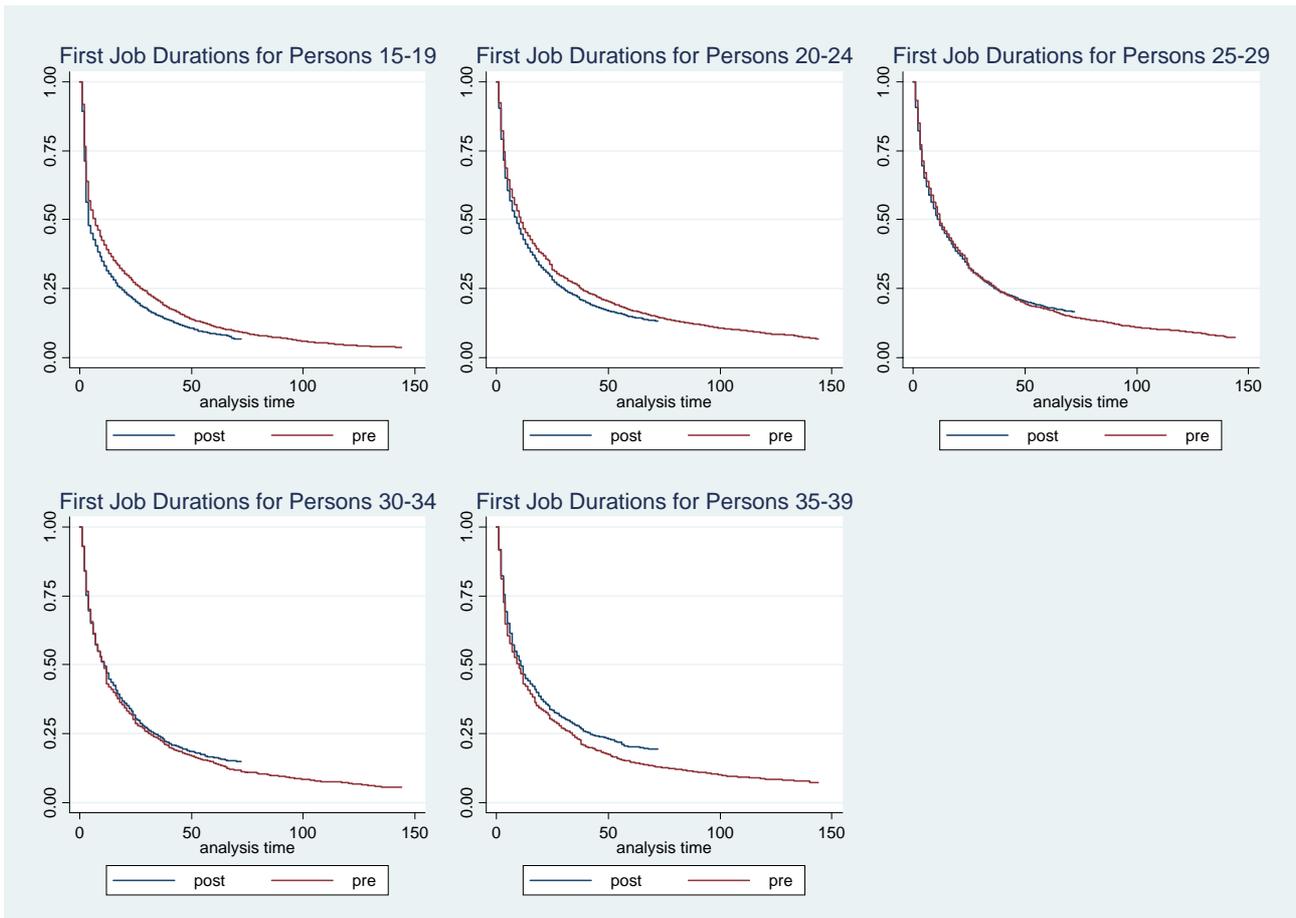
period	time at risk	incidence rate	no. of subjects	Survival time		
				25%	50%	75%
pre	447841	.0350482	16827	3	10	33
post	403151	.0468981	22496	3	8	29
total	850992	.040662	39323	3	9	31

Figure A1- Italy



Source: ISTAT, National Accounts

Figure A2-Italy



<p>Log-rank test age group=15-19</p> <table border="1"> <thead> <tr> <th>period</th> <th>Events observed</th> <th>Events expected</th> </tr> </thead> <tbody> <tr> <td>post</td> <td>5222</td> <td>4780.08</td> </tr> <tr> <td>pre</td> <td>5740</td> <td>6181.92</td> </tr> <tr> <td>Total</td> <td>10962</td> <td>10962.00</td> </tr> </tbody> </table> <p>chi2(1) = 83.61 Pr>chi2 = 0.0000</p> <p>we reject equality of survivor functions</p>	period	Events observed	Events expected	post	5222	4780.08	pre	5740	6181.92	Total	10962	10962.00	<p>Log-rank test age group=20-24</p> <table border="1"> <thead> <tr> <th>period</th> <th>Events observed</th> <th>Events expected</th> </tr> </thead> <tbody> <tr> <td>post</td> <td>6928</td> <td>6629.55</td> </tr> <tr> <td>pre</td> <td>5160</td> <td>5458.45</td> </tr> <tr> <td>Total</td> <td>12088</td> <td>12088.00</td> </tr> </tbody> </table> <p>chi2(1) = 33.40 Pr>chi2 = 0.0000</p> <p>we reject equality of survivor functions</p>	period	Events observed	Events expected	post	6928	6629.55	pre	5160	5458.45	Total	12088	12088.00	<p>Log-rank test for age group 25-29</p> <table border="1"> <thead> <tr> <th>period</th> <th>Events observed</th> <th>Events expected</th> </tr> </thead> <tbody> <tr> <td>post</td> <td>3830</td> <td>3822.04</td> </tr> <tr> <td>pre</td> <td>2464</td> <td>2471.96</td> </tr> <tr> <td>Total</td> <td>6294</td> <td>6294.00</td> </tr> </tbody> </table> <p>chi2(1) = 0.05 Pr>chi2 = 0.8285</p> <p>we cannot reject equality of survivor functions</p>	period	Events observed	Events expected	post	3830	3822.04	pre	2464	2471.96	Total	6294	6294.00
period	Events observed	Events expected																																				
post	5222	4780.08																																				
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Total	6294	6294.00																																				
<p>Log-rank test for age group=30-34</p> <table border="1"> <thead> <tr> <th>period</th> <th>Events observed</th> <th>Events expected</th> </tr> </thead> <tbody> <tr> <td>post</td> <td>1810</td> <td>1847.01</td> </tr> <tr> <td>pre</td> <td>1391</td> <td>1353.99</td> </tr> <tr> <td>Total</td> <td>3201</td> <td>3201.00</td> </tr> </tbody> </table> <p>chi2(1) = 1.94 Pr>chi2 = 0.1638</p> <p>we cannot reject equality of survivor functions</p>	period	Events observed	Events expected	post	1810	1847.01	pre	1391	1353.99	Total	3201	3201.00	<p>Log-rank test for age group=35-39</p> <table border="1"> <thead> <tr> <th>period</th> <th>Events observed</th> <th>Events expected</th> </tr> </thead> <tbody> <tr> <td>post</td> <td>1117</td> <td>1187.69</td> </tr> <tr> <td>pre</td> <td>941</td> <td>870.31</td> </tr> <tr> <td>Total</td> <td>2058</td> <td>2058.00</td> </tr> </tbody> </table> <p>chi2(1) = 10.96 Pr>chi2 = 0.0009</p> <p>we reject equality of survivor functions</p>	period	Events observed	Events expected	post	1117	1187.69	pre	941	870.31	Total	2058	2058.00													
period	Events observed	Events expected																																				
post	1810	1847.01																																				
pre	1391	1353.99																																				
Total	3201	3201.00																																				
period	Events observed	Events expected																																				
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pre	941	870.31																																				
Total	2058	2058.00																																				

Figure A3 Germany

