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Abstract

The 1997 Treu reform introduced more flexibility in the Italian labour market by allowing free hiring of individuals on a temporary basis. We evaluate the short to medium effects of the reform on the labour market careers of new entrants. To assess whether the labour market reform has had any impact, the labour market outcomes of those cohorts entering just before the reform (1993-1995: control group) are compared to the outcomes of those cohorts entering immediately after its implementation (1999-2001: treatment group). The analyses are based on ILFI data (Italian Household Panel Study). To improve the comparability, the treatment and control groups have been matched on a set of individual observable characteristics relevant to individuals' labour market outcomes as well as on some observable local labour market characteristics. Findings show that while the reform had a major positive impact on the probability of being hired on a temporary basis at the first employment spell, the proportion of individuals attaining a stable occupation three years after their entrance into the labour market is only slightly lower after the reform than before it. On the other hand, the reform had a negative effect on the probability of both entering unemployment and leaving the labour force, and on the probability of experiencing an employment spell in the 'black economy'.

Keywords: temporary employment, labour market policy, evaluation of treatment effect

JEL codes: C2, C8, J6

1. *The aim of the study*

Although the so-called ‘Treu Package’ (law no. 196 of 1997, subsequently supplemented by ministerial decree no. 142 of 1998) came into effect over a decade ago, one certainly cannot say that its effects have been subject to much specific investigation.¹ Indeed, only a handful of studies (Barbieri & Scherer 2005, 2007 and 2009; Ichino, et al., 2005; Sciulli 2006) have been conducted, although some others have dealt, at least tangentially, with some of the contractual arrangements envisaged by the law (de Angelini 2005; Berton, et al., 2005), or with other types of employment relationship similar to those arrangements (Gagliarducci 2005). Moreover, most of the analyses, specific or tangential, conducted to date on the Treu Reform have substantially concentrated on a single issue:² the contractual outcomes of individual who began their labour-market careers with temporary employment relationships (apprenticeship contracts, training/work contracts, fixed-term contracts, temporary agency contracts, seasonal contracts, employer-coordinated freelance contracts). In this regard, unanimous conclusions have not been reached. Some authors (Barbieri & Scherer 2005, 2007 and 2009; Sciulli 2006) argue that, far from being starting-points for more fluid occupational careers, these types of employment relationship have proved to be precariousness traps from which, once entered, it is difficult to escape; whereas some other scholars (Ichino, et al., 2005) have argued almost the opposite.³ Other researchers maintain that it is not the temporariness in itself of employment relationships that hinders progress to stable contractual relationships, but rather the duration and frequency of the unemployment episodes experienced between one temporary job and the next (Gagliarducci 2005). Yet others have noted a substantial lack of change, before and after the introduction of law 196/97, in the timing and probability of entry into stable employment by individuals who began their work careers in temporary jobs (de Angelini 2005).

This uncertainty of conclusions suffices in itself to warrant careful re-examination of the matter. But there are further reasons for doing so. The first resides in the design itself of studies on the subject, which, as said, have concentrated almost exclusively on regular dependent employment, at most extending analysis to so-called quasi-subordinate employment. But although the Treu Reform dealt mainly with dependent employment, it

¹ By contrast, the Treu Package (as, for that matter, has happened to many other legislative provisions) has been the subject of fierce ideological debate which has largely omitted rigorous examination of the Package’s real influence on people’s lives, the workings of the Italian market, and society at large.

² Naturally, many of the studies cited have also addressed, by necessity, also the topic of unemployment. But few of them, and only in passing, have dealt with self-employment, and, as we shall see, none of them with irregular work.

³ It is true that Ichino, Nannicini and Mealli (2005) consider only temporary agency work. However, it is also true that they show how attainment of permanent employment is easier when starting from that kind of contract than from unemployment. This is a finding in sharp contrast with the results of Barbieri and Scherer (2005) and Sciulli (2006), who find that individuals who begin their work careers with any form of fixed-term contract do not enjoy a competitive advantage in attaining a permanent job over those who are unemployed.

also sought to flexibilize and regularize the workings of the Italian labour market as a whole, and thereby facilitate entry and permanence within it.⁴ Hence, in order to determine whether it has achieved these objectives as well, it is necessary to consider the active population in its entirety and, moreover, also inactive segments of it. Furthermore, if consideration is not made of the entire range of possible contractual and occupational destinies of the active population, it is impossible to establish with reasonable certainty whether temporary employment contracts produce disadvantages or, conversely, individual and collective advantages.

A second reason for reconsidering the impact of the Treu Law lies in the configuration of the database most frequently used by analyses on the topic: the Work Histories Italian Panel (WHIP).⁵ This has indubitable analytical merits because it furnishes detailed information on the work histories of an extremely large sample of Italians. Moreover, because information derives from the administrative archives of the National Institute of Social Security (INPS), it is not affected, unlike the usual panel studies, by bias due to memory effects. But unfortunately, at least in the versions used in the above-cited studies, WHIP considers only: (i) regular dependent employees of firms and private organizations operating in industry and services; (ii) so-called quasi-subordinate workers, i.e. private-sector employees with contracts for freelance or occasional work; (iii) self-employed workers in industry and services without employees; and (iv) free professionals without a social security fund. Therefore, analyses conducted on this database omit all entrepreneurs in the strict sense, the majority of free professionals, many self-employed workers, all agricultural labourers, all public-sector employees, as well as irregular workers. This is a shortcoming of some magnitude. Whilst it is true that employees in agriculture represent a small minority of Italian workers, it is not the case that entrepreneurs, ‘true’ free professionals, own-account workers with employees, and public-sector workers constitute a negligible subset in the Italian labour market. The same applies to employees in the informal economy.⁶ A further shortcoming of the WHIP is that it contains no information

⁴ It is, of course, difficult to establish what the ‘true’ intentions of the Treu Package were, like those of any other normative provision, and not only Italian. Laws are often the result of complex processes of mediation which not infrequently dilute their original purposes, and, especially in Italy, set inconsistent aims. Nevertheless, it seems possible to put forward reasonable interpretations of such intentions, for otherwise no public policy would be susceptible to evaluation. This is all the more so because legislative provisions may produce unexpected consequences which the researcher must take into account. To return to the Treu Law, the treatment in the main text should therefore be understood as our interpretation of its aims.

⁵ Some scholars who have conducted analyses somehow concerning the Treu Reform – see e.g. de Angelini (2005) – have not used the WHIP, but NetLabor, subsequently converted into the ‘Giove’ database. The latter, however, considers only Veneto and is restricted to regular non-agricultural workers in the private sector. It therefore has information gaps larger than those of the WHIP outlined in the main text. The other database used by studies on the Treu Reform or, at least, on the effects of temporary employment contracts is the one used here: the longitudinal survey on Italian households (ILFI) described in the main text.

⁶ On the basis of ILFI data, it can be estimated that, in 2005, (i) agricultural workers (dependent or self-employed) represented 3.1% of the labour force; (ii) entrepreneurs (with at least 4 employees) in all sectors, managing directors, chief executive officers and board members of joint-stock companies and free professionals constituted 9.1%; (iii) civil servants accounted for 7.3%; (iv) own-account workers in industry and services with 1-3 employees represented 4.2%; and (v) irregular workers amounted to 4.3%. Overall, therefore, the WHIP fails to cover more than one-quarter of Italians in employment. This value is not very

about job-seekers and the inactive population. Finally, it entirely omits the work outcomes of subjects who, initially present in the sample, undergo episodes of contractual and career mobility to positions and sectors not envisaged by it: as, for instance, in the case of a private-sector clerical worker who moves to the civil service, the free professions or entrepreneurship; or in the case of a worker who is unemployed, or who decides to exit the labour force, or enter the informal economy.

A third shortcoming of studies on the effects of the Treu Reform concerns the statistical procedures used for the data analysis. In general, models of event history analysis are employed to study individual transitions among contractual conditions, or also among positions in the labour market. But furnishing a realistic picture of the consequences of the Treu Package requires the study of entire sequences of events, rather than single episodes. In other words, numerous outcomes may ensue from beginning the work career with any type of employment relationship, and they may vary over time. Hence it follows that this sequence of contractual and occupational states (of the same person) constitute the most appropriate object of study. It should also be borne in mind that adequate assessment of the impact of a public policy requires reference to the so-called counterfactual paradigm (Morgan & Winship 2007), so as to obtain rigorous measures of the net effects of the intervention being examined. Large part of the above-cited studies can be hardly – or not at all – related to this paradigm,⁷ with the consequence that it is difficult to interpret their results in causal terms.

Needless to say, in our analysis⁸ of the Treu Reform – of which we present some preliminary and summaries results – we sought to avoid the shortcomings from which, we believe, research to date on the topic has suffered. Put in positive terms, our study: (i) concerns the entire Italian active population, including workers in the informal economy; (ii) analyses entire segments of work careers (rather than single transitions among occupational states); (iii) considers among the possible outcomes of these careers – or anyway among the events that distinguish them – also unemployment and exit from the labour market; and (iv) uses the methods of impact assessment.

The analytical approach now described has been imposed, so to speak, by the main aim of our study: to answer the question of whether or not the Treu Reform has generated a positive trade-off between the diminished stability of employment relationships, on the one

different from the one deducible from the Continuous Labour Force Survey (RCFL) conducted by the ISTAT, even though this does not expressly record employment in the informal economy. The 2007 average of this survey (Istat 2008) indicates, in fact, that the above-listed set of categories (each of which – except for public-sector employment – should comprise a proportion of irregular workers) accounts for 22.8% of the employed.

⁷ An exception is Ichino, Nannicini and Mealli (2006). For this reason, too, the results presented in this work seem more convincing than those that seek to show that fixed-term jobs are always and only precariousness traps.

⁸ The survey was one of the activities undertaken as part of the 2008 research programme of the Research Institute for the Evaluation of Public Policies (IRVAPP).

hand, and the lower incidence of employment in the informal economy, less unemployment, abbreviation of the first-job search, and increased chances of permanence in the active population, on the other.

The paper is organized as follows. The next section describes the methodology used for the survey. The third and fourth sections analyse the evolution over time of the contractual positions of the subjects belonging to our two cohorts. The fifth section gives information on the duration of the first-job search before and after the Treu Reform. The last section summarizes the results of the investigation, briefly discusses their limitations, and indicates ways to overcome them.

2. Data, variables and methodology

Our study on the effects of the Treu Law is based on a comparison between the labour-market careers of a sample of 415 subjects who found their first jobs immediately before the law's enactment, i.e. the three-year period 1993-1995, and those of a sample of 331 individuals who began to work immediately afterwards, i.e. in the three-year period 1999-2001.⁹ The contractual and occupational histories of the members of these two samples have been reconstructed, on a monthly base, for the three years following the date of first-job entry.¹⁰

The information necessary for this purpose have been drawn from data contained in the longitudinal Italian Household Panel Survey (ILFI). This is a prospective panel study, with a first retrospective wave, based on biennial surveys begun in 1997 and concluded in 2005 on a national sample of around 10,000 aged 18 and over.¹¹

The idea behind the comparison between the contractual and occupational careers of the two labour-market entry cohorts described above was that, because of their temporal

⁹ The reasons why the cohort subject to the impact of the Treu Law did not include subjects who had begun working in 1997 and in 1998 were (i) that it came into effect in the last months of 1997, and (ii) that, like every other norm, it took a certain amount of time before producing its first effects. It seemed to us there that one year and a few months from its entry into force was a sufficient time interval for those effects to become appreciably manifest.

¹⁰ By way of example, subjects who started to work in, say, January 1993 were followed, with recording month by month of all contractual and occupational events experienced until January 1996. The same procedure was followed for all the other subjects, so that those last to enter their first jobs, i.e. in December 2001, were studied until December 2004. In light of this explanation and the previous note, it should be clear why we did not study two contiguous cohorts: we did not do so in order to reduce the overlap between the observation window of the last fraction of the 1993-1996 cohort and that of the first fraction of the 1999-2001 cohort.

¹¹ The sample was representative not only of the adult national population living at home but also of the corresponding resident populations in the five large geographical zones into which the ISTAT divides Italy.

proximity, they comprised substantially homogeneous subjects in terms of a broad set of personal and contextual characteristics (described later in this section) usually deemed crucial for the development of labour-market careers. From this it followed that if a systematic difference between their contractual histories emerged from our data, it would be entirely due to the presence of the Treu Reform. We therefore sought to conduct a sort of natural social experiment by comparing the work events experienced by one group of subjects subject to a treatment, i.e. the provisions of the Treu Package, with the corresponding events experienced by a control group consisting of subjects entirely similar to the former except for the fact that they have not been subject to the influence of those provisions.

To ensure the rigorousness of the comparison and the soundness of the conclusions – that is, to ensure that the two labour-market entry cohorts were indeed homogeneous – we used a matching procedure¹² based on the propensity score. More precisely, we specified a logistic regression model whose dependent variable was obviously membership of the 1999-2001 cohort, rather than the 1993-1995 cohort. The covariates introduced into the model – i.e. those in comparison to which the propensity score was calculated – were: (i) sex; (ii) age; (iii) geographical area of residence; (iv) subject's class of origin; (v) the education level of his/her parents; (vi) his/her educational qualification; (vii) his/her age on first-job entry; and (viii) the score of this first job on de Lillo and Schizzerotto's (1985) occupational stratification scale.¹³

None of these variables proved statistically significant, which confirms that the two cohorts were substantially equivalent, at least in respect to these variables.

We have thus far repeatedly used the expression 'contractual career',¹⁴ but without stating what precisely it denotes – or better, without providing an operational definition of it. We may say that the 'contractual career' consists in the set of a person's employment relationships and positions with respect to the labour market and the active population.

¹² As well known, in evaluative contexts, the matching procedure is intended to ensure that to each subject belonging to the group of 'treated' subjects – in our case, the group consisting of the members of the cohort subject to the effects of the Treu Reform – there corresponds at least one other (nearly) identical subject – in terms of combination of the modalities of the variables on which the matching procedure is based – in the control group.

¹³ In order to specify the configuration of the covariates cited in the text, we point out that sex is, obviously, a dichotomous variable, that chronological age like the age on beginning the first job, and the score on the de Lillo and Schizzerotto stratification scale are metric variables. The zone of residence is a categorical variable with five modalities: 1) North-West; 2) North-East; 3) Centre; 4) South; and 5) Islands. The social class of origin is divided into four positions: (i) entrepreneurs (with at least 4 employees), free professionals and executives; (ii) clerical supervisors and staff employees; (iii) self-employed workers in all sectors (with 0-3 employees); and (iv) lower grade white-collar and blue-collar workers. Also the educational qualifications of the parents of the subjects and that of the subjects themselves have four modalities: a) elementary school certificate ; b) lower-secondary certificate; c) upper-secondary diploma; d) university degree or equivalent.

¹⁴ We use synonymously with 'contractual career' expressions such as 'contractual history' 'contractual episodes', 'contractual events', 'contractual patterns', and so on.

Employment relationships are self-employment, dependent employment on a permanent contract, dependent employment on a temporary contract, quasi-subordinate employment (freelance and occasional work) and dependent employment without a contract, i.e. irregular work. What is meant by permanent dependent employment relationships, formal self-employment, and irregular employment should be evident. It may instead be necessary to clarify that the category of self-employment comprises: (i) managing directors, chief executive officers and board members of joint-stock companies; (ii) the owners of firms with at least 4 employees; (iii) free professionals; and (iv) own-account workers with 0-3 employees in agriculture, industry and services. It also appears necessary to specify that fixed-term, or temporary, employment comprises apprenticeship contracts, training/work contracts, temporary agency work, seasonal work, and fixed-term work in the strict sense.

The reason why we included a relatively large number of formally – and in some important respects also substantially¹⁵ – diverse occupational and contractual positions among self-employment and temporary employment relationships is primarily the small size of our sample. But there are other reasons as well.

As regards self-employed workers in particular, we bore in mind that they share significant characteristics, such as control over the means used to produce the goods and services placed by their firms on the market; the absence, in the organization that they own or manage, of subjects hierarchically superior to them; and the (actual or potential) existence of dependent employees. Obviously, none of these features apply to dependent employment.

Regarding the grouping of various forms of contract in the single category of temporary employment, suffice it to point out that, almost by definition, the differences among them in terms of job protection are less substantial than those observable between, on the one hand, and the categories of dependent employees and self-employed workers on the other.

As said, our operational definition of contractual career also covered unemployment as well as (re-)entry into the inactive population. As said in the first section, we took account of these conditions both because they were possible outcomes of the work histories studied, and because the Treu Reform was intended to reduce their magnitude.

To summarize the discussion this far, we may therefore state that the result variable of our analysis consisted in the configuration of the first three years of the contractual career, and we may specify that this, in its turn, foresees the possible coverage, subsequently to the date when first employment began, of one or more of the followings positions: 1) self-employment; 2) dependent employment with a permanent contract; 3) dependent

¹⁵ This applies especially to the occupational positions grouped under the heading ‘self-employment’. In effect, entrepreneurs, free professionals and own-act workers differ profoundly as regards power in the market, income, and social status. Such differences are less marked among the various forms of dependent employment, as will shortly be discussed in the main text.

employment with a temporary contract; 4) quasi-subordinate employment; 5) dependent employment without a contract; 6) unemployment; 7) not in labour force.¹⁶

We now turn to the procedures with which we reconstructed the occupational careers of the cohort of subjects who entered first employment prior to the Treu Reform, and those of the cohort of subjects who instead did so subsequently to the reform. The first of these procedures consisted in simple examination of the composition of each cohort in terms of contractual positions at the beginning of the first job, and one, two and three years after that date. The second procedure consisted in holistic reconstruction of the entire sequence of contractual episodes experienced by the members of each of the two cohorts entering first employment. Used for this purpose was a particular procedure of sequence analysis based on a lexicographic index (Bison 2010). Broadly speaking, this is cluster analysis conducted on longitudinal data which enables the reconstruction of actual career time-profiles. The two procedures just described were finally integrated by a simple descriptive analysis, via survival tables, of the duration of the first job search by subjects belonging to the two cohorts considered.

3. The composition of the two cohorts by contractual position: a cross-section analysis

As said, our analyses began with simple comparison of the variations, observed at pre-established times, in the composition by contractual position of the two cohorts of first labour-market entry previously described. This comparison was made both on the basis of the original ILFI observations (table 1) and on the basis of the data obtained from the matching procedure applied to them (table 2).

Composition, according to the contractual position during entry in the first occupation and after 12, 24 and 36 months from that date, of the subjects that have begun their working history in the inclusive period between 1999 and 2001 (cohort post reforms Treu) and 1993 and 1995 (cohort pre reforms Treu). Values percentages observed and values of the t-test. The first two tables setting out these comparisons show results which only partly match those obtained by previous studies on the Treu Reform. Why this is so we shall now see.

One certainly cannot deny that the subjects who began their working lives after enactment of law 196/97 started from temporary employment relationships much more frequently than did their counterparts who started to work between 1993 and 1996 (table 1). Nor can it be denied that the reverse applies to the probability of having begun one's

¹⁶ To be stressed is that also the employment relationship at first job is part of the contractual career and that it can necessarily only coincide with one of the first four positions that constitute this.

occupational history from permanent dependent employment contracts and from self-employment in the strict sense (table 1). Implementation of the Treu Reform, therefore, has undoubtedly produced negative effects in regard to the stability of the first job entered by dependent employees.

Table 1 *Composition, according to the contractual position on entry into the first job and after 12, 24 and 36 months from that date, of subjects who began their work careers in the period between 1999 and 2001 (post-Treu reform cohort) and 1993 and 1995 pre-Treu reform (cohort). Percentage values and t-test values*

Contractual position	Observation times and cohort of first job entry											
	First job			After 12 months			After 24 months			After 36 months		
	Post	Pre	t	Post	Pre	t	Post	Pre	t	Post	Pre	t
Self-employment	15.1	19.8	-1.67	14.8	19.8	-1.78	14.2	20.3	-2.17	14.8	20.8	-2.11
Permanent contract	25.7	39.6	-4.04	28.4	37.7	-2.68	32.9	39.4	-1.82	35.3	38.6	-0.93
Fixed-term contract	46.5	26.8	5.70	39.3	15.2	7.73	33.8	13.3	6.88	31.1	11.8	6.67
Quasi-subordinate work	10.3	4.1	3.33	8.2	3.6	2.68	6.3	4.1	1.38	6.3	4.1	1.38
No contract	2.4	9.7	-4.04	1.8	7.2	-3.46	1.5	7.0	-3.60	1.2	6.0	-3.41
Unemployment				3.0	6.3	-2.06	4.5	7.2	-1.55	3.9	8.7	-2.62
Non-labour force				4.5	10.1	-2.88	6.6	8.7	-1.04	7.3	9.9	-1.27
N	331	415		331	415		331	415		331	415	

Source: ILFI, waves 1997, 1999, 2001, 2003 and 2005.

However, it should also be stressed that the post-reform cohort has been able, at least partly, to off-set these disadvantages with a drastic reduction in the frequency with which its components have been employed irregularly at the beginning of their work histories (table 1).

But it is in the continuation of contractual careers that the positive impacts of the Treu Reform become more visible. Of course, the cohort which has suffered its effects continue to exhibit – also 12, 24 and 36 months after beginning the first job – incidences of permanent dependent employment and, to a lesser extent, self-employment lower than those of the cohort that began its work history before the Treu Package entered into effect (table 1). And the reverse applies, once again, to fixed-term and quasi-subordinate employment relationships (table 1). However, many of these disparities are considerably attenuated. In particular, three years after entry into first employment, the shares of workers with permanent contracts are very similar in the two cohorts (table 1). And the same applies to quasi-subordinate positions (table 1). Conversely, the post-reform cohort still has substantial advantages in regard to the risk of entering irregular employment (table 1). Moreover, during the evolution of their work histories, the members of this cohort display a further point of superiority: somewhat paradoxically,¹⁷ the lesser frequency with

¹⁷ We say “somewhat paradoxically” because unemployment is the inevitable outcome, so to speak, of all temporary employment relationships. And it seems likely that, also in light of the findings by Gagliarducci (2005), that the accumulation of unemployment episodes generates lack of confidence and, therefore, increases the propensity to exit the labour market. Our data therefore suggest that numerous temporary

which they experience episodes of both unemployment and exit from the active population (table 1).

Repetition of the analysis just presented using the data produced by means of the matching procedure – and therefore able to guarantee full comparability between the two cohorts of first employment entry – yielded results which broadly overlap with those just presented, albeit slightly less clear-cut. Specifically, the post-reform cohort still exhibits a lesser likelihood of beginning the first job with a permanent employment relationship and a greater one of being hired on a temporary or freelance contract (table 2). But also confirmed is that the members of this cohort have been more rarely hired irregularly than those belonging to the control group (i.e. the pre-reform cohort) (table 2). To be noted is that there is no statistically significant difference between the two cohorts as regards entry into the first job from self-employment (in the strict sense). More importantly, however, the estimates obtained by the matching procedure reinforce our previous conclusions concerning the progressive convergence over time of the compositions by contractual position of the two cohorts. Three years after the beginning of the first job, in fact, the incidence of subjects in self-employment, those in permanent dependent employment, and those hired on quasi-subordinate contracts is so similar between the two cohorts (table 2) that the main differences may be attributed to chance and not to systematic effects of the treatment, i.e. the Treu Reform. The same applies to the share of individuals who have quit the labour market (table 2).¹⁸ Only three salient differences remain, therefore, between the ‘treated’ group and the ‘control’ group after three years of work career: the larger amount of subjects with temporary employment contracts recorded by the cohort subject to the effects of law 196 of 1997 and the much smaller proportion, in this cohort compared with the other, of individuals hired irregularly and those without employment (table 2).

At least two important consequences ensue from the foregoing discussion. Firstly, it is not possible to argue that the flexibilization of the labour market produced by the Treu package has had only negative consequences. There is no doubt, in fact, that temporary employment contracts furnish better legal protection and higher economic returns than do work without a contract and unemployment. Secondly, it is debatable that temporary employment relationships obstruct transition to permanent jobs. In the cohort that began work before the Treu Reform, the share of subjects in such circumstances remained largely unchanged over the three years in which it was observed. Conversely, the corresponding proportion among subjects ‘treated’ with law 196 of 1997 increased in the same time

employment relationships – when they are not converted into permanent ones – follows each other uninterruptedly, or at least with intervals of less than a month, and are therefore not recorded by ILFI. However, it should also be pointed out that the information being discussed does not rule out that the reduction of the risks of unemployment and of exiting the labour force of the cohort which began its work history after the Treu Reform has not been due to improvements in the general economic situation, regardless of the reform itself. We shall return to this point in the conclusions.

¹⁸ This statement concerning exit to inactivity does not contradict the content of the previous note. If, in fact, claims that temporary work is a precariousness trap were correct, rates of re-entry into the non-labour force would be higher in the ‘treated’ cohort than in the ‘control’ cohort.

period by around 10 percentage points, thus reaching levels very close to those recorded by the subjects belonging to the ‘control’ group.¹⁹

Table 2 *Composition, according to the contractual position on entry into the first job and after 12, 24 and 36 months from that date, of subjects who began their work careers in the period between 1999 and 2001 (post-Treu reform cohort) and 1993 and 1995 pre-Treu reform (cohort). Percentage values and t-test values based on the matching procedure*

Contractual position	Observation times and cohort of first job entry											
	First job			After 12 months			After 24 months			After 36 months		
	Post	Pre	t	Post	Pre	t	Post	Pre	t	Post	Pre	t
Self-employment	14.8	17.8	-0.82	14.5	18.4	-1.09	13.9	19.3	-1.49	14.5	19.1	-1.26
Permanent contract	25.8	40.6	-3.36	28.5	37.5	-2.04	33.0	40.6	-1.68	35.5	40.3	-1.08
Fixed-term contract	46.7	28.1	4.27	39.4	17.5	5.72	33.9	15.0	5.17	31.2	12.1	5.42
Quasi-subordinate work	10.3	4.8	2.43	8.2	4.3	1.88	6.4	4.8	0.79	6.4	5.6	0.36
No contract	2.4	8.6	-2.59	1.8	7.2	-3.46	1.5	5.7	-2.07	1.2	5.0	-2.00
Unemployment				3.0	6.2	-1.55	4.5	6.4	-0.81	3.9	8.6	-1.96
Non-labour force				4.5	9.6	-1.99	6.7	8.2	-0.62	7.3	9.3	-0.74
N	330	415		330	415		330	415		330	415	

Source: ILFI, waves 1997, 1999, 2001, 2003 and 2005.

4. Comparison between the contractual careers of the two cohorts: a longitudinal analysis

As indicated by the heading, the analyses presented in the previous section were cross-sectional in nature. Yet, as has been repeatedly stressed, the contractual careers of people, at least potentially, constantly evolve over time. Consequently, in order to grasp the impacts of the Treu Reform more fully, it is necessary to consider contractual careers in their entirety, and to observe the inter-individual variability of the sequences of events of which they are composed.

However, translating this requirement into practical terms encounters a difficulty: the risk of over-emphasising the weight of individual interpersonal variations and thereby reaching the banal conclusion that every individual, or almost, has a career profile different from those of all other individuals. To obviate this danger – but without going to the other extreme of considering profoundly different contractual histories as entirely equivalent – we used an advanced version of sequence analysis (Abbott & Hrycak 1990; Abbott 1995; Halpin & Chan 1998) consisting of a lexicographic index (Bison 2010). The latter is as a measure of the distance, in the Euclidean sense, among individual contractual patterns. The position in space of such patterns is jointly defined by the sequence (observed on a

¹⁹ In regard to the non-obviousness of this result, and contrary to the claim that only a minimum amount of subjects accomplish the transition from temporary to permanent contracts, see the discussion in the next section and in note 20.

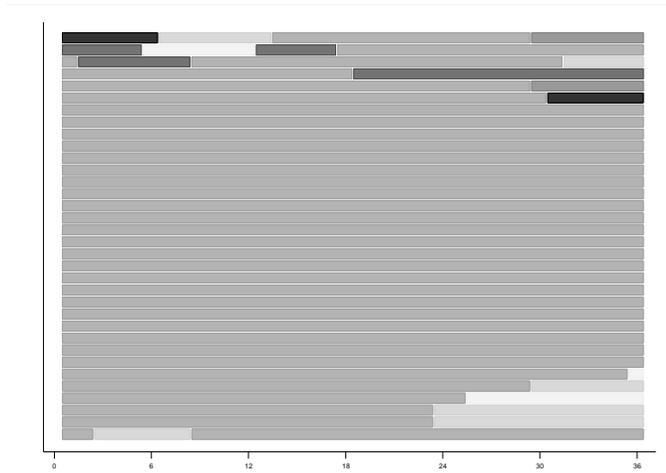
monthly base) of the contractual positions covered by individuals (beginning from entry into first employment) and the duration of the time spent in each of them. The lexicographic index then assumes these distances as estimates of the degree of resemblance among the single contractual patterns. On the basis of this resemblance, the latter are finally located within a large number of distinct sets. In our case, the lexicographic index led to identification of eight clearly different contractual career profiles, but which are reasonably homogeneous to their interior.

These profiles are depicted by the graphs in figure 1. Each graph also indicates the overall number of the subjects in both cohorts who belong in the profile that it depicts (fig. 1).

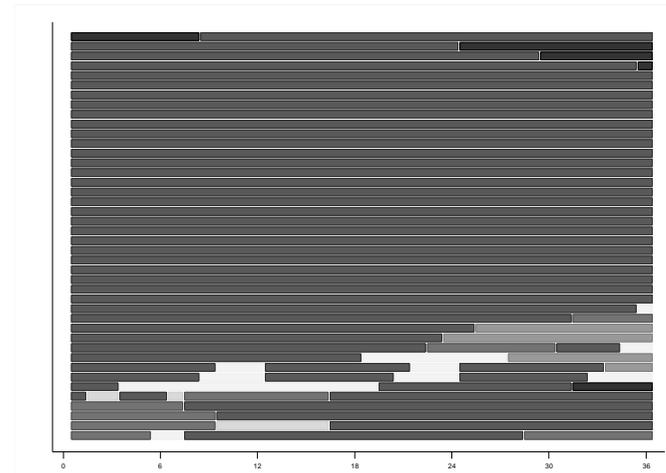
Reading the graphs should be straightforward. Each is composed of as many lines as the subjects with the pertinent contractual career profile. Every line consists of 36 points, one for each month of observation. The colour (white, black, or various shades of grey) of each point indicates in which of the seven different contractual positions, described in the second section, the subject concerned was found in the various months considered. When the line expressing an interviewee's work history constantly remains the same colour, this means that the interviewee has never changed position. For instance, this is the case of the seventh (from the top) of the forty-four subjects whose contractual careers are depicted in graph 1 of figure 1. Specifically, the unbroken line, of a clear grey shade, means that the subject concerned spent the entire period of observation working in the informal economy. Now considering the set of all the contractual histories represented by the graph, it is evident that this latter is characterized by the massive presence of persons who, like the subject taken as an example, have always worked irregularly. The profile in question, however, also comprises individuals who have not had the same experience. The first interviewee in graph 1, for instance, has spent 6 months in self-employment, 7 months in unemployment, 16 months in irregular employment, and 7 in permanent employment. The lexicographic index has nevertheless made it possible to establish that this subject's contractual career is much more similar to that of persons constantly observed in irregular employment than to that of interviewees located in other profiles. The same, *mutatis mutandis*, applies to interviewees whose contractual careers are represented by the four lines following the first one, and by the last five in the graph.

We can synthesise these last observations by saying that the technique of analysis used to reconstruct contractual careers leads to identification of fuzzy sets in each of which, besides the dominant path, there are few others very similar, yet not identical, to them. By way of a summary description of the individual contractual career profiles, or models, we reiterate that the first of them refers to subjects who have spent all the 36 initial months of their work histories (or large part of them) in dependent employment without a contract (figure 1). The second profile refers to interviewees who remained permanently, or almost, in Quasi-subordinate work employment relationships (freelance and occasional work) (figure 1).

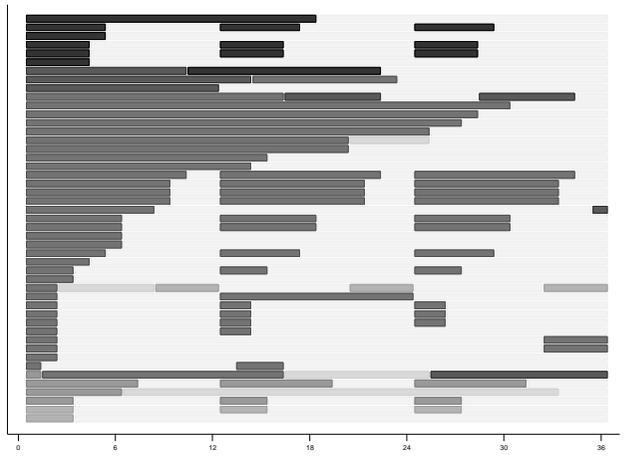
Figure 1 Graphic representation of the eight contractual career profiles between entry into first employment and the following 36 months (Graphs 1-4)



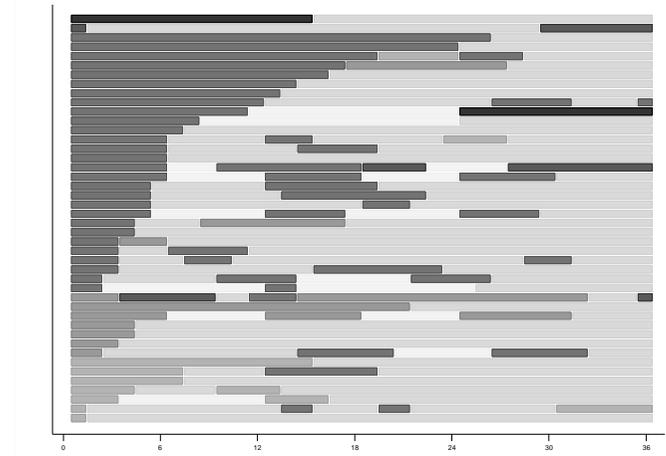
1. Stability in employment relationships without a contract (N. 34)



2. Stability in quasi-subordinate employment (N. 42)



3. Transition from temporary employment relationships to inactivity (N. 47)



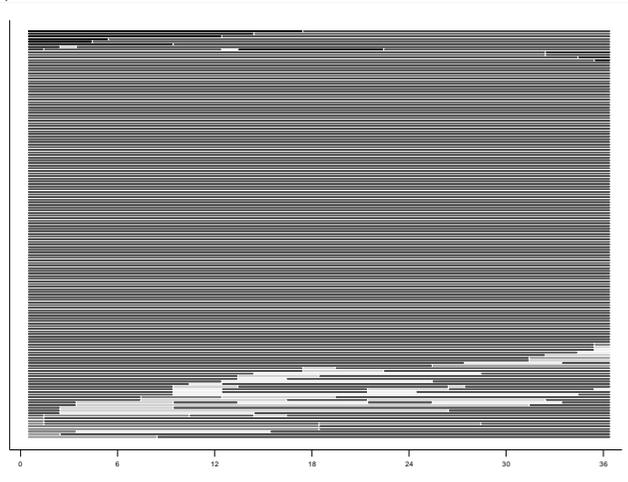
4. Transition from temporary employment relationships to unemployment (N. 44)

Legend:

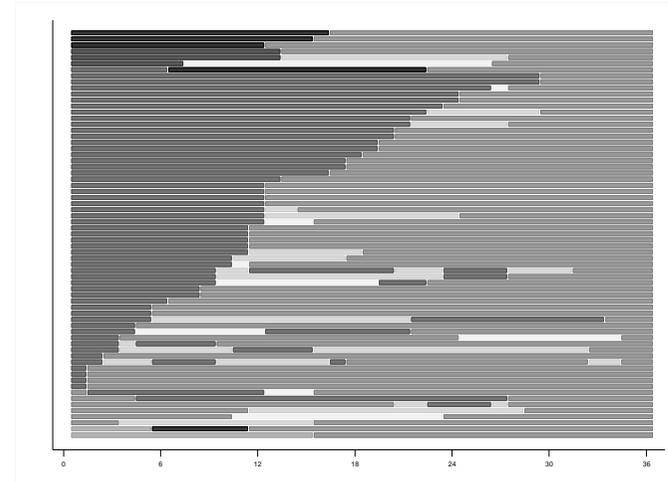
- Self-employed
- Workers without contract

- Formally self-emp
- Fixed-term contract
- Protect workers
- Unemployed
- Not in labour forces

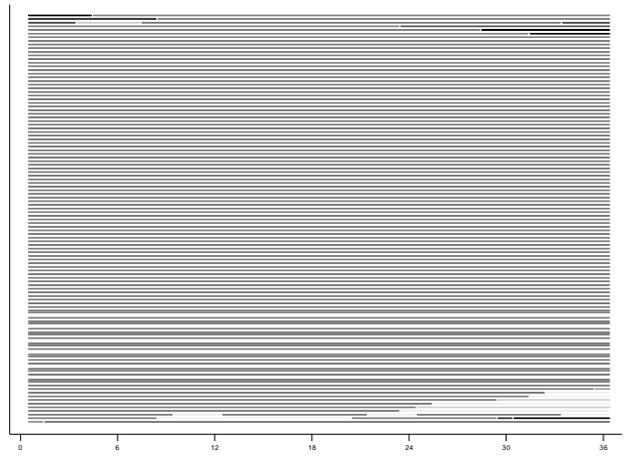
Figure 1 (continue) Graphic representation of the eight contractual career profiles between entry into first employment and the following 36 months (Graphs 5-8)



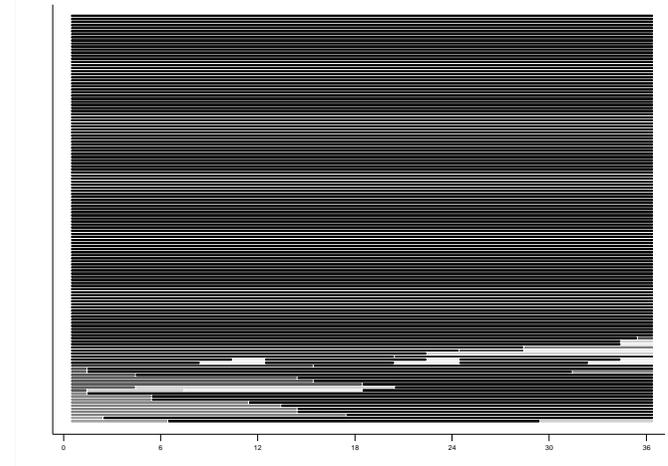
5. Stability in temporary employment relationships (N. 155)



6. Transition from temporary employment relationships to permanent ones (N. 67)



7. Stability in permanent employment relationships (N. 224)



8. Stability in self-employment (N. 133)

- Legend:
- Self-employed
 - Formally self-emp
 - Fixed-term contract
 - Protect workers
 - Workers without contract
 - Unemployed
 - Not in labour forces

The third pattern of development of contractual histories is constituted by persons who alternate periods of work on temporary contracts, often seasonal, with periods of exit, of varying durations, from the labour market or, sometimes, also to permanent (with respect to our observation window) re-entries into inactivity (figure 1). The fourth profile is formed of persons who largely transit from temporary employment relationships to episodes (of varying duration) of unemployment, without it being possible to observe their subsequent re-entry into employment (figure 1). The fifth career pattern is exhibited by interviewees who have remained constantly in temporary employment relationships (figure 1). The sixth type of work history is represented by those who transit from fixed-term contracts to permanent ones (figure 1). The seventh and eighth career paths are constituted by subjects who have always remained, respectively, in permanent dependent employment relationships and in self-employment (figure 1).

The next step in identifying patterns of contractual mobility, or immobility, obviously consisted in determining its incidence within each of the two labour-market entry cohorts. As previously, in this case too we conducted two series of comparisons: one on the observed data, and the other on the estimates deriving from the matching procedure. We start with the former.

As to be expected, stability in permanent employment relationships, for the entire 36 months of the observation window, is much more frequent among subjects who began their first jobs prior to the Treu Reform than it is among their counterparts who did so after the reform (table 3). Exactly the reverse applies – and again unsurprisingly – to permanence in temporary employment relationships and in quasi-subordination ones (table 3). It would therefore seem that the holistic analysis of the contractual careers gives good grounds for the criticisms made against law 196/97.

Table 3 *Variations in the incidence of eight contractual career profiles between entry into first employment and the following 36 months among subjects that began their work histories in the period 1999-2001 (post-Treu reform cohort) and in the period 1993-1995 (pre-Treu reform cohort). Observed percentages and estimates based on the matching procedure, and values of the t-statistic.*

Career profile	Observed data			Matched data		
	Post	Pre	t	Post	Pre	t
1. Stability in employment relationships without a contract	1.8	6.8	-3.24	1.8	5.8	-1.97
2. Stability in quasi-subordinate employment relationships	7.6	4.1	2.03	7.6	4.7	1.37
3. Transition from temporary employment relationships to inactivity	4.8	7.5	-1.48	4.8	8.2	-1.46
4. Transition from temporary employment relationships to	4.5	7.0	-1.30	4.5	6.0	-0.62
5. Stability in temporary employment relationships	31.1	12.6	6.36	31.2	13.0	5.08
6. Transition from temporary employment relationships to permanent	12.4	6.3	2.91	12.4	7.3	1.97
7. Stability in permanent employment relationships	23.0	35.7	-3.81	23.0	35.8	-2.96
8. Stability in self-employment	14.8	20.0	-1.95	14.5	19.2	-1.28
N	331	415		331	415	

Source: ILFI, waves 1997, 1999, 2001, 2003 and 2005.

However, these good reasons weaken considerably when one considers the probability of moving from temporary to permanent employment. This probability is almost twice as high in the ‘treated’ group as in the ‘control’ group (table 3). Of course, it can be objected that this is a trivial result, given the much larger proportion of the former who began their work histories on fixed-term contracts (tables 1 and 2). The fact is that this differential (1.67) is less than that (1.97) regarding the chances of transition to a permanent contract. Hence, in light of these findings, it becomes difficult to claim that temporary contracts are solely precariousness traps.

Two further results support the thesis that the Treu Package has produced some individual and collective advantages. Firstly, among subjects whose work histories began after enactment of law 196/97, the share of those constantly employed in the informal economy is four times smaller than the corresponding proportion in the cohort of interviewees whose first jobs began before that date (table 3). Secondly, exit from the labour market due to the loss of confidence generated by repeated episodes of fixed-term employment is appreciably less frequent in the ‘treated’ cohort than in the ‘control’ one (table 3).²⁰

Of course, these results can be criticised on the grounds that they are based on data which do not guarantee the full comparability of the cohort that began its occupational histories before law 196/97 with the one that did so subsequently to it. However, the shift from the observed values to those obtained by means of the matching procedure does not give rise to radical changes in the results of the analyses (table 3). It therefore seems superfluous to dwell on them.

Rather, it should be stressed that the observations set out in this section do not contradict the previous finding of the lower incidence of the unemployed in the cohort of subjects who entered employment after the Treu Reform, and the equal amount, in both the cohorts, of subjects who exited the labour market to return to inactivity. Fortunately for individuals and society, these outcomes are insufficient to give rise to distinct contractual profiles. But this does not signify that those differences and similarities do not exist. The fact that they have not been found when studying the career profiles simply shows that different phenomena require different methods if they are to emerge. After all, if this were not so, subjecting our data to two separate analyses would have been pointless, and reading their results would be tedious.

²⁰ This result is further evidence that, after the Treu Reform, unemployment spells between one temporary job and the next diminished in duration.

Also to be noted is that there are only minor differences between our two cohorts of interviewees in the incidence of the contractual career profile characterized by stability in self-employment. For this reason they are not discussed in the main text.

5. The duration of the first-job search

We have left the question of the possible effects of law 196/1997 on the duration of the first-job search until last. We have done so for the good reason that, although the ILFI furnishes adequate information on a substantial proportion (79.3%) of the interviewees belonging to the ‘control’ cohort, it does so for only around three-fifths (58.6%) of the already small cohort of ‘treated’ subjects.²¹ By ‘adequate information’ we refer to the start date of the active first-job search. Of course, proxies for this date, such as the month when full-time education concluded, can be identified and used.²² The problem is that this device fails to take account of latency phenomena: that is, the fact that after attainment of the educational qualification (or conclusion of full-time education), and before beginning the first-job search, many young Italians devote periods of varying duration to holidays and leisure, training and specialization courses, voluntary work, and so on. The use of such proxies would therefore lead to the over-estimation – at times by a number of years – of the real duration of the first-job search (Schizzerotto 2002).

Table 4 Survival function for the first-job search of subjects who began their work histories in the period 1999-2001 (post-Treu reform cohort) and in the period 1993-1995 (pre-Treu reform cohort). Observed values

Period elapsed since the search began (in months)	Proportion of subjects still searching	
	Post Treu-reform cohort	Pre-Treu reform cohort
1	0.31	0.42
2	0.24	0.35
3	0.20	0.29
6	0.15	0.23
12	0.10	0.12
18	0.05	0.10
24	0.02	0.08
N	194	329

Source: ILFI, waves 1997, 1999, 2001, 2003 and 2005.

The contingency just described seemed worse than having estimates of the period of first-job search affected by a non-negligible degree of uncertainty due to the small number of observations on the actual start date of the episode. Put otherwise: we believed that using proxies would produce distortions in the estimation of the duration of the job search,

²¹ This loss of information is due to an error in the construction of the questionnaire, in the 1999, 2001, 2003 and 2005 waves, to the subjects interviewed for the first time in the waves immediately prior to each of them, and those who in that wave were still students and therefore part of the inactive population.

²² Of course, the information on the date of conclusion of full-time education was available for all members in the two cohorts.

and in the relative individual variability, greater than those produced by the use of adequate information, though limited to a few cases.

We accordingly compared the survival function for the first-job search of the cohort of subjects who entered employment after enactment of the Treu Law with that of the cohort of interviewees who began their first jobs prior to that date.²³

The results of this comparison show a slight positive effect of law 196/1997 on the duration of the first-job search. In fact, whilst over half of the ‘treated’ group and of the ‘control’ group found their first jobs in less than one month, it is also true that in the medium and long period the survival function of the former has values systematically lower than those recorded by the corresponding function of the latter.

In particular, the share of interviewees subject to the effect of the Treu Reform who had not found first employment after 6 months of searching was 8 points less than the corresponding proportion of individuals not subject to the reform’s influence (table 4). Likewise, the incidence of subjects still in search of their first jobs 12, 18 and 24 months after the beginning of the process is higher among those who started their work careers before law 196 came into effect (table 4).

6. *Some (cautious) conclusions*

The analyses and comparisons presented in this study suggest that affirmative answers may be given to almost all the questions formulated in the first section. In particular, it has been shown that, at aggregate level, the disadvantages due to the increased probability of beginning the contractual career with temporary employment relationships are partially off-set by a marked decrease in the subjects hired, again on first employment, without a contract. It has then been shown that contractual careers begun with fixed-term jobs do not give rise solely to permanent precariousness. After three years of the work career, almost one quarter of the subjects affected by law 196 of 1997 who had begun their occupational histories with a temporary contract, or with a quasi-subordinate employment relationship, managed to obtain a permanent job. The objection that the great majority of the subjects who started in fixed-term employment in the period between 1999 and 2001 remained trapped in it for at least three years can be met with five contrary considerations. Firstly, the share of subjects with permanent employment relationships three years after the

²³ To prevent misunderstandings, we point out that interviewees whose duration of first-job search was analysed were only those for whom it was possible to observe the contractual history for the 36 months following first job entry. In other words, these were parts of the two groups used for all the analyses described.

beginning of the first job is almost the same in the cohort who began their employment careers prior to enactment of the Treu Reform and in the cohort that did so after it. Secondly, the duration of many fixed-term contracts is, in fact, for three years. Thirdly, the transition from these contracts to inactivity (of varying duration) is more frequent in the cohort of subjects who entered their first jobs before the Treu Package came into effect. Fourthly, the incidence of unemployment (observed at various moments in the first three years of the career) is always lower among interviewees who started work after enactment of law 196 of 1997, despite the much higher incidence among them of subjects hired for their first jobs with temporary employment relationships and quasi-subordinate work contracts. Fifthly, the duration of the first-job search is on average slightly briefer in the cohort subject to the effects of law 196.

In sum, as said at the outset, our analyses have yielded substantial evidence of the capacity of the Treu Reform to produce a virtuous trade-off between the greater instability of employment relationships and the reduction of the dysfunctionalities (irregular work, unemployment rates, duration of the first-job search) which have long characterized the Italian labour market.

These are rather significant findings, and they are at odds with those of many previous studies on the impact of law 196 of 1997. And they have been obtained using an analytical approach more appropriate than that adopted by most previous studies on the subject.

Although the results derive from a rigorous evaluative procedure, they should be treated with a certain amount of caution. The main reason for this caveat is the small numerical size of the two cohorts compared. The second one is that none of the variables used to calculate the propensity score, and in the consequent matching between the subjects belonging to the two cohorts, seems able to control for the effect of the economic conjuncture. Whence derives the impossibility of furnishing incontestable proof that solely the Treu Reform has been responsible for the reduced risks of unemployment and labour-market exit, as well as the abbreviation of first-job searches, observed on moving from the 'control' cohort to the 'treated' one.

To remedy this second shortcoming we intend to repeat the matching procedure in the near future, including, among the covariates of the regression model specified to estimate the propensity score, (i) the average annual (from 1993 to 2004) unemployment rates of men aged between 35 and 55²⁴ and resident in the five large geographical zones of the country; and (ii) the annual (again in the period 1993-2005) values of regional GDPs.

²⁴ There are two reasons why we use the unemployment rates of adult males as the control variable of the effects of the economic situation. Firstly, they tend to change only in the presence of real changes in the economic situation. Secondly, to avoid the risks of circularity that would arise if, as some researchers have done (Barbieri & Scherer 2005 and 2007), we inserted the average annual rate of juvenile unemployment in the model.

To reduce the possible consequences of the small size of our sample, we also plan to re-estimate some of the magnitudes deduced from it (unemployment rates, durations of first-job searches, rates of transition to permanent employment relationships), drawing both on surveys conducted on larger samples like the RCFL and the European Community Household Panel (ECHP) and on information obtained from administrative archives like the already-mentioned Giove database. We are, obviously, confident that these further analyses will confirm the goodness of the results provisionally presented here.

In order to forestall misunderstandings on the significance of the conclusions, present and future, of our research, we would stress that it has concerned, and will concern, contractual relationships alone. Consequently, we have nothing to say about the possible effects of the Treu Reform on the quality of the jobs performed by persons who began their work histories after the law came into effect, their remuneration, or their chances of career advancement. But even if law 196 of 1997 should prove to have had entirely negative impacts on all these aspects, this will have no bearing on the topic addressed in this paper.

It seems that the main problem currently facing Italy is not just the growth of the fixed-term employment relationships and a possible worsening of the wage and career prospects of young people, but rather the absence – made even more palpable by the deep economic crisis currently in progress, of a system of social protections which dampens the effects of contractual and economic precariousness on people's general living conditions.

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