What do we learn from two evaluation studies
of an Italian program for dismissed workers?

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Abstract: In the early nineties, Italy created a new unemployment insurance program ("*Liste di Mobilità*") to support, for a predefined period of time, workers permanently separated from their employers due to firm restructuring or plant closing. The program has two main components: a "passive" one that provides monetary benefits with a high replacement rate, for a period of time that varies with the age of the worker; an "active" one, that provides firms that hire these workers with a substantial reduction in social security contributions for up to two years. This paper compares the results obtained by two evaluation studies, which looked at the effect of the length of the eligibility period on the probability of reemployment. These studies were conducted separately for two quite different labour markets: the tight labour market of two provinces of the Veneto region, Vicenza and Treviso, and the more slack labour market of the province around Torino, classified by the European Union as an area of declining industrial employment. In addition to comparing the results of the two previous studies, we present a model that explores the relationship between the effect of the extended eligibility and the features of the labour market. WORK IN PROGRESS

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1. Introduction

In the early nineties, the Italian central government created a new unemployment insurance program, called "*Liste di Mobilità*" (LM) – literally "Mobility Lists" — designed to support, for a predefined period of time, workers permanently separated from their employers due to firm restructuring or plant closing. The design of this program is quite complex – and it has been slowly evolving over time — first because it differentiates eligibility and benefits according to the age of the worker at dismissal and the size of the dismissing firm, but mainly because it includes both a "passive" component and an "active" component.

The first component provides *monetary benefits* with a high replacement rate, but only to workers with at least 12 months of covered employment who have been collectively dismissed by a firm employing more than 15 employees.[1] The second component provides firms that hire any dismissed worker – either with a permanent or a temporary contract – with a *hiring subsidy*, consisting of a substantial reduction in social security contributions (SSCs) for that worker, for up to two years. In addition, firms that hire – with a permanent contract in this case – workers eligible for monetary benefits are entitled to receive up to 50% of the residual benefits they would have received had they remained unemployed: the last feature of the programme is close to the benefit transfer scheme proposed by Snower (1994).

The worker stays on the LM program until s/he is hired with a permanent contract or until the end of the eligibility period, whichever comes first. Crucial to our analysis, the *length of the eligibility period* for both the active and the passive components depends on the age of the worker at the time of dismissal: it is *one year* for workers younger than 40, while it doubles to *two years* for those 40 to 49 years old. Workers older than 49 maintain their eligibility status for *three years*, and for even longer when they are getting close to being eligible for retirement benefits. The latter is the so called "*mobilità lunga*", designed to bridge unemployment and early retirement for older workers.[2]

The main research question we address in this study regards *the effect,* on the probability of being employed in each of the 36 months after dismissal, *of extending the eligibility for benefits from one year (for workers less than 40) to two years (for workers in their forties).* We do not deal

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[1] The size threshold of 15 employees has a long history in the Italian unemployment insurance and labour protection systems At this threshold there are several discontinuities in labour market regulations, the main being the provisions against unjust dismissals of permanent employees, who benefit of much stronger protection if employed by larger firms.

[2] The length of the eligibility period is also differentiated on a geographical basis, in the sense that it is further extended by one year, for any age group, for workers residing in southern Italy. This feature has no bearing on our analysis, because our data refer only to two areas of northern Italy.

with the effect of extending eligibility to three years for workers 50 or older, because of the confounding role of the early retirement provision.

The rationale for extending eligibility from one to two years rests on the claim that older workers are *ceteris paribus* less attractive to employers and thus face more difficulties in finding a new job once permanently separated from their previous one (in the parlance of search models, they would face a lower rate of arrival of job offers). The empirical basis upon which this claim rests is not clear. On the other hand, the LM program does not differentiate eligibility on the basis of gender, while there exists ample evidence – which we confirm – that female workers have a lower reemployment probability than their male counterparts, at any age. Thus a better understanding of the relationship between age, gender and the extended eligibility for the LM program would be useful for a possible redesign of the program itself.

This paper compares and discusses the results obtained by two separate evaluation studies, which attempt to estimate the differential effect on the employment probability from the extension of the eligibility period from one to two years on the basis of age. These studies were conducted using the same type of data and methodology, but on two quite different labour markets: two provinces of the Veneto region, Vicenza and Treviso, and the province around Torino – but excluding the city of Torino itself – in the Piedmont region. The provinces of Vicenza and Treviso were characterized in the late nineties by a rather tight labour market. In 1998, they belonged to the upper decile of the distribution of provincial employment rates, while their unemployment rate – 3,3 and 3,4%, respectively – placed them in the left tail of the distribution of provincial unemployment rates. On the other hand, the province of Torino was already considered an area of declining industrial employment: the European Union included it among the Objective 2 regions, eligible for EU structural funds. In 1998, its unemployment rate was 10,7%, close to the national average.

The paper is organized as follows. Section 2 discusses the effect that are likely to arise from the mixture of provisions of the LM program: in so doing, we illustrate some additional features of the program. Section 3 briefly describes the available data and presents the results obtained in the two labour markets: we focus on the effect of the additional year of eligibility on the monthly probability of being employed after dismissal. Section 4 describes the model used to explain the relationship between the estimated effects and the features of the labour markets. WORK IN PROGRESS

2.   The expected effects of the additional year of eligibility

The main features of the LM program described in the previous section suggests that there are in fact two separate sub-programs, aimed at two non-overlapping populations. The first sub-program applies to workers who have been *collectively*[3] dismissed by *medium and large firms* (above the threshold of 15 employees, which is raised to 50 in the retail sector.) Upon dismissal and subsequent enrolment in the LM program, these workers benefit from three different provisions: monetary benefits for themselves and, for the firm that intends to hire them, a SSCs reduction for up to two years and the benefit transfer. The mix of the active and passive components applies to this sub-program only: workers dismissed collectively or *even individually* by *small firms* benefit only from the SSCs reduction.

In common the two sub-programs have the duration of eligibility: it lasts for two years if they are in their forties at the time of dismissal, up from one year for workers younger than 40. This common rule motivates looking at both sub-programs in the same analysis: however, the net effect one should expect from these different provisions might well vary across sub-programs.

Before examining in detail these expected effects, we illustrate some additional features of the program that are useful to clarify the evaluation question we are trying to address.[4]

Enrolment in the "Lists"

Workers dismissed by medium and large firms are *automatically* enrolled in a special register − from this the name *Lista di mobilità* − maintained by a regional authority. Workers dismissed by small firms may also register in the Lists, but for them registration is *voluntary*. Informed evidence indicates that most eligible workers dismissed by small firms do register in the Lists. Thus this difference in the rules governing the two sub-programs should not be a source of significant heterogeneity between the two groups of beneficiaries. There remains, however, another crucial source of heterogeneity: workers attracted by small firms may be different in many unobservable ways from workers employed by larger firms. The difficulty in controlling for such heterogeneity makes it difficult to address another interesting – and classical – evaluation question: "*what is the effect of receiving the monetary benefits on the probability of reemployment?*".[5]

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[3] Those firms should have "collective redundancies", that is at least five redundancies within a period of four months.

[4] The LM programme is regulated mainly by laws 233/91 and 236/93. Some provisions vary according to industry, worker's occupation, geographic area, *etc*. and underwent some modifications over time. We just outline the main provisions relevant to our areas and period of analysis. For more details, see Anastasia *et al*. (2004) and Caruso and Pisauro (2005) and references therein.

[5] For a discussion see Paggiaro, Rettore and Trivellato (2005).

Replacement rates

The replacement rate is equal to 80% of the previous gross wage during the first year, and drops to 64% during the second year, with a ceiling that varies over time: in 1998 it was set at 725€ for the first year, which corresponds to a previous monthly gross wage of 906 €. However, the rate for social security contributions paid by a LM beneficiary on gross monetary benefits is much lower than the one paid by a regular worker on gross wage[6], and these contributions are fully removed after the first year. Thus, for a worker in the LM for whom the ceiling is not binding, the take-home benefits are more than 83% of the prior take-home pay during the first year, and remain higher than 70% in the second year.

Over the period covered by our analyses, workers dismissed by small firms can receive standard UI benefits, as long as they meet its eligibility requirement – that is, having been previously employed for at least 24 (non necessarily uninterrupted) months with social security contributions.[7] The replacement rate of regular UI benefits is 30%, and they last a maximum of six months.

Temporary employment while on the program

During the time they are enrolled in the LM, workers are allowed to engage in temporary employment, while maintaining their LM status. The clock measuring time since enrolment in the LM stops as they start a temporary employment spell, and restarts as they complete it re-entering unemployment. The duration of a single temporary employment spell cannot be longer than one year, and the total duration of temporary employment spells experienced by a LM worker cannot be longer than the maximum duration in the LM s/he is in principle allowed − *i.e.*, s/he may double her/his stay in the program. Most importantly, during the temporary employment spell, workers entitled to monetary benefits do not receive them.

Reduction in social security contributions

As for the active component of the programme, firms hiring any worker from the LM program with a *permanent contract* enjoy an 18-month long substantial reduction in social security contributions, whose size does *not* depend on the amount of time already spent by the worker in the LM nor on his/her age: SSCs paid by the employer drop from the standard rate − in 1998 around 35% − to the fixed amount due for apprentices, about 3% of the standard one. Firms can also hire workers from the LM on a temporary (up to) one-year basis, this way enjoying an (up to) one-year

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[6] The SSC rate is 5,54% *vs*. 9,19%.

[7] As our empirical analyses will focus on workers aged 30 to 49, it is reasonable to assume that this requirement is generally met.

reduction in SSCs. Lastly, firms can cumulate these rebates by hiring workers on a temporary one-year contract and then switching to a permanent one as the former expires: this way the rebate can last a full two years. Empirically, we see a large share of firms taking advantage of this opportunity, combining temporary and permanents contracts in hiring workers on the LM program.

The benefit transfer

The firms that hire, on a permanent contract, workers eligible for monetary benefits are entitled to receive up to 50% of the residual benefits the worker would have received had s/he remained unemployed. The benefit transfer has a *ceiling of one year*, which is imposed also on the two-year eligible. Therefore, at the very beginning of their time on the program, both type of eligible workers bring the same amount of benefits to the employer who hires them. After that, workers eligible for two years maintain *almost* [8] the full value of the benefit transfer for a whole year after entering the program, while those eligible for one year on the LM start "eating" the value of the benefit transfer right away. This "asymmetry" produces the peculiar pattern of the overall differential benefit to the hiring firm over time, which we clarify below.

(No) obligations while on the program

Workers in the LM should in principle fulfil some obligations with respect to training and job offers. Again in principle, an LM worker who refuses an appropriate job offer by the local public labour exchange is dropped from the program.[9] However, the enforcement of these eligibility rules is largely absent. Thus, *in practice* the worker willingness to accept a job offer is not tested and a worker enrolled in the LM can refuse any job offer s/he receives, keeping his/her package of benefits unchanged up to the end of the maximum allowed period in the program.

Incentives for fraud

Incentives for the hiring firm are substantial and may induce some firms to fraudulently dismiss workers and enrol them in the LM in order to re-hire them, directly or by affiliates or by newly created firms, only to draw benefits. This possibility has been restricted by Law 451/94, which was enacted also to prevent these frauds. Re-hiring was formally prohibited during the first six months of enrolment in the LM, and the social security agency has been active in order to

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[8] Two-year eligible do not maintain intact the *full* value of the benefit transfer because their monetary benefits are lower during the second year. For example, if they are hired at the end of the forth month of their first year on the program, they bring to the employer 50% of (8*first year monthly benefits + 4*second year monthly benefits), which is slightly lower than what they would have brought had they been hired even a month earlier.
[9] The appropriateness of a job offer is defined in terms of distance from residence and closeness to previous job/wage.

contrast any practices aimed at evading the law. However, some frauds still appear to occur: for example by firing workers from firm A that claims to be going out of business, and having them all re-hired shortly thereafter by a newly created firm B, that replaces, in all but name, the old firm A.[10] To avoid confusing the outcome of genuine job search activity with the outcome of fraudulent re-hires, we exclude from our analysis the bulk of dubious cases, as explained later.

The expected effects of extended eligibility

How do we expect the agents involved to react to the mix of incentives created by the LM program? We address the question by focusing on the specific problem of the differential effect of being eligible for two years of benefits instead of just one. Broadly speaking, the issue can be formulated as follows: *ceteris paribus*, in which direction does allowing workers aged 40 to 49 to stay on the program for two years affect their chance of re-employment relative to what would have happened with one year of benefits?

With the standard job search model as background (Mortensen and Pissarides, 1999), it is natural to think that there are two contrasting incentives of the LM program: (i) the incentive to firms, which benefit from the rebate on SSCs (and in some cases from the benefit transfer), to provide workers in the LM with more job offers than they would otherwise receive; (ii) the incentive to workers, particularly those drawing monetary benefits from the LM program, to refuse the job offers they might receive, at least over a large fraction of their eligibility period. The effect we do observe is the net result of these incentives and might vary over time. In comparative terms, both these incentives tend to be higher for older workers, because of their extended eligibility.

We try to elucidate the issue with a highly simplified example. We assume no heterogeneity among enrolled workers − apart from age and entitlement to monetary benefits − nor among firms. For the sake of simplicity, we take also that the pre-dismissal gross wage is the same for workers younger and older than 40. To illustrate the point, we build up on the example summarized in Figure 1: the benchmark is given by an employee hired on a permanent basis from the market, whose annual gross wage is approximately 13,000 Euros.[11] This is the modal gross wage for a blue collar worker about 40 years old, in a sector such as textile, in 1998.

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[10] Additionally, there is still room for what might not be fraudulent behaviour but simply improper use of the program: as argued by Caruso and Pisauro (2005) the rules of the program are still opaque and might leave room for some confusion between dismissals and temporary lay-offs. In the latter case workers are dismissed and then simply recalled to their old job, a practice which should be out of the scope of the program, aimed at workers permanently separated from a job.

[11] Gross of SSCs paid by the worker and personal income taxes.

From the potential employer's point of view

Let us look at the issue from the potential employer's point of view. Adding to the annual gross wage the SSCs paid by the employer, this representative workers *over two years* costs approximately 34,250 Euros (Figure 1, first bar on the left). To this benchmark, we compare the cost the employer incurs by hiring from the LM either a worker aged either 40 to 49 or a comparable worker aged less than 40 − receiving and not receiving monetary benefits, respectively − under four different hiring strategies, that result from combining the type of hiring contract (a permanent as opposed to a first temporary-then permanent contract) and the timing of the hire with respect to the time the worker entered the LM (immediately after the worker's registration as opposed to one year later.)

Figure 1 about here

No matter for the worker's age, for his/her eligibility for monetary benefits and for the time s/he already spent in the LM, *the best strategy for the employer is to hire a worker from the LM on a temporary one-year contract and then to switch it to a permanent one*. This strategy provides a saving on the two years labour cost worth approximately 8,000 Euros (23% of the total labour cost; Figure 1, third bar from the left).

In our example, the employer saves 4,350 additional Euros (13% of the labour cost) by hiring a worker eligible for monetary benefits on his/her first day in the LM, irrespective of his/her age[12] (Figure 1, fifth bar from the left)[13]. Note that if the worker is not eligible for monetary benefits, the employer savings on labour cost do not vary with worker's age nor with the time s/he already spent in the LM. Note, further, that if the worker is eligible for monetary benefits, the employer savings on labour cost do not vary with worker's age *if the hiring takes place the very first day s/he enters the LM,* because of the common ceiling of one year of refundable benefits.

As seen from the point of view of an employer who is considering to hire from the LM a worker eligible for monetary benefits, the difference between hiring a worker 40 to 49 years old and

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[12] We have already restricted to workers under age 50.

[13] Note that the relative weight of the benefits transfer − with respect to total savings from hiring a worker from the LM − varies when the ceiling to monetary benefits is binding, *i.e.* when it is lower than the 80% replacement rate. Clearly, the greater the difference between the 80% replacement rate and monetary benefits (otherwise stated, the higher the worker's previous gross wage), the lower will be the relative importance of the bonus transfer. In our example monthly gross wage was set at 1,000 Euros, slightly higher than the threshold corresponding to the ceiling to monetary benefits, which is therefore effective (though marginally: 725 Euros *vs.* the hypothetical 800 Euros implied by the replacement rate rule).

a comparable worker aged 39 or less becomes relevant as time spent in the LM goes by. The effect is to rise savings on labour cost:

- during the first year by an amount equal to $3{,}479 \cdot (t/365)$, $t = 1$, 365, where t is the number of days the worker has been enrolled in the LM at the time the hiring takes place. Thus it is zero the first day in the LM, then increases linearly up to a peak of 3,479 Euros at the end of the year[14];

- during the second year by an amount equal to $\{7{,}968 + 3{,}479 \cdot [(1 - (t - 365)/365]\}$, $t = 366$, 730, as for workers younger than 40 the eligibility period expired.

Still with reference to our example, Figure 2a presents the savings *over two years* from hiring a worker from the LM as function of elapsed time from his/her enrolment for the best hiring strategy − first temporary-then permanent contract – for workers entitled to monetary benefits above and below the 40 years threshold, respectively. The time paths of the savings have clear patterns; as a result, the additional advantage from hiring a worker holding a two-year eligibility period presents a peculiar time profile, with marked kinks. An employer willing to hire from the LM will prefer workers older than 40 to comparable workers below 40, as long as they already spent some time in the LM: their additional advantage has a substantial jump immediately after one year of stay (see Figure 2b).[15]

Figure 2 about here

From Figures 1 and 2 it is also apparent that the bulk of savings from hiring an LM worker is represented by the massive rebate on SSCs. In the case of the best hiring strategy just considered, it goes from 65% to 70% of total savings (when hiring a worker the first day s/he enters the LM or a worker aged 40 to 49 after one year, respectively). Besides, it coincides with total savings − by the way still substantial: 23% of the two years labour cost − in all circumstances when there is no benefits transfer, and specifically at the end of the second year for workers 40 to 49 years old.

One implication of these facts is that it might not be all that crucial *to a potential employer* whether the LM worker to be hired is entitled or not to monetary benefits, and whether s/he is older

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[14] In relative terms, the fraction of savings is as large as $[3{,}479 \cdot (t/365)]/[7{,}968 + 3{,}480 \cdot (t/365)]$, $t = 1$, 365, and reaches a peak of 30% at the end of the first year.

[15] Obviously, the employer should also prefer workers eligible for monetary benefits to comparable workers ineligible to it (for them, the saving will consist of the SSCs rebate only, and will stay constant along the eligibility period). In the case of the best hiring strategy and for an hiring taking place the first day the worker enters the Lists, the relative

or younger than 40, because in all cases the employer receives the same rebate on SSCs, *as long as the worker is eligible.* The important difference for the employer is that workers younger than 40 must be hired during the first year in the LM to carry the SSCs rebate with them, while older workers have an additional year to be hired with the rebate.

From the worker's point of view

Let us now consider the issue from the unemployed worker's point of view. How does the economic problem s/he has to solve change if his/her eligibility period switches from one to two years?

Let us look, first, at the case of a *worker with no monetary benefits.* With the standard UI benefits not varying with age, for a worker 40 to 49 the additional year of eligibility essentially doubles the length of the period over which his/her chance of getting job offers is enhanced by the LM: the additional year should not affect the rate of arrival of job offers during the eligibility period, unless the duration of stay in the LM is perceived by the potential employer as a signal of poor "employability". Other things being equal, the longer period s/he has available for job search under the favourable conditions provided by the LM should result in a higher reservation wage during the first year spent in the LM: conceivably just a bit higher, because s/he too will be severely constrained by the poor resources the standard UI provides to live on. On the other hand, during the second year s/he will benefit from a positive difference in the rate of arrival of job offers with respect to a comparable worker younger than 40, who will no longer carry any subsidy in favour of potential employers. *Summing up, the expected pattern of the effect of the additional year of eligibility on the re-employment probabilities is not decreasing over time: possibly negative or nil during the first year, but positive after the first year.*

In the case of a *worker with monetary benefits*, increasing his/her eligibility period from one to two years: (i) doubles the period over which s/he benefits from higher chances of getting job offers; (ii) increases the differential benefit s/he provides potential employers in a highly non-linear way as function of the time already spent in the LM, as suggested by the pattern of differential savings to the hiring firm shown in Figure 2b; and, mainly (iii) doubles the period over which s/he has resources to live on while searching for a new job (though they decline by some 15% during the second year).

The differential benefit to the hiring firm − which should translate into an increased number of job offers the worker entitled to a two-year eligibility is expected to receive − is only marginally

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advantage is 35%.

positive during the first year, particularly when time spent in the LM is still short[16]. By contrast, it will become remarkably higher during the second year, as a comparable worker entitled to the one-year regime will carry no subsidy at all to the hiring firm. Thus – under the assumptions that duration of stay in the LM is not perceived by the potential employer as a stigma and that the reduction in monetary benefits during the second year is perceived by the worker as negligible – during the second year in the LM a worker aged 40 to 49 can do almost as well as a worker aged up to 39 during his first year.

Summing up, the two-year eligibility period will likely result in lower employment probabilities during the first year for older workers, because these workers can wait the second year to start behaving the way they would have behaved in the absence of the additional year of eligibility. As for *the employment probabilities during the second year, in principle the sign of the differential effect is dubious,* because of the just-mentioned contrasting advantages: on reservation wage (higher, since in the counterfactual world the worker would have not received any monetary benefits) and on the flow of job offers (higher too, since in the counterfactual world the worker would have not carried any hiring subsidy to the potential employer). If we are willing to admit a prevailing role of monetary benefits, as the longer period of search made possible by the additional year of eligibility *with monetary benefits* in the end might result in better jobs, employment probabilities will also be lower during the second year. This prediction, however, should be taken as tentative and has to be corroborated (or denied) by empirical evidence, because of the concomitant higher flow of job offers during the second year induced by the subsidy for the potential employer.

Of course, the size and even the sign of the differential effects of the of the two-year *vs.* one-year eligibility for LM become blurred if we relax the two simplifying assumptions just made: *i.e.*, if we admit that (i) the duration of enrolment in the Lists might be perceived by potential employers as a signal of poor "employability", and that (ii) the reduction in take-home monetary benefits might severely constraint the worker's living conditions.

Thus, issues about the differential impact of the longer eligibility period must be addressed empirically.

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[16] Indeed, differences in the rate of arrival of job offers will remain modest during the entire first year in the LM, because of the dominant role played by the SSCs rebate in the savings for the hiring firm (see again Figure 2b).

3.   The design and the main results of the two evaluations

The econometric problem one need to solve in order to answer the question on the effect of the additional year of eligibility is that, since the duration of the eligibility period varies across workers depending on their age at the time of dismissal, the effect of the second year of eligibility might be obscured by the *different composition with respect to age* of the groups receiving the alternative packages of benefits.

Differently from all previous studies, Paggiaro, Rettore and Trivellato (2005) – hereafter PRT – adopt a fully non-parametric strategy, that relies upon a conditional independence restriction. Further, they show that the discontinuity arising from the design of the programme provides some overidentifying restrictions they exploit to test the conditional independence one. The reader is referred to their paper for more details on the identification and estimation strategies.

Martini and Mo Costabella (2005) – hereafter MMC – adopted the estimation methodology of PRT and applied it to data from a different area, the province of Torino. There are some differences in the way the data were generated in the latter study as compared to the first. While PRT use data from two linked sources – the administrative archive used for the LM program operations and the *Netlabor* archive from public labour exchanges – MMC use only the *Netlabor* archive, in which they find the crucial information on LM status for each workers.[17] In other words, while PRT used the administrative archive to identify the workers on LM and the kind of benefits to which they are entitled, MMC do so using directly the *Netlabor* archives.   While this might results in the loss of some LM recipients for the Torino area, we are confident it does not lead to significant bias in the comparison of the results across areas.

The *Netlabor* archives used by both studies provide fairly reliable information on workers' demographics and on each employment spell experienced by them prior to, during and after the eligibility period. It is in the form of an employer-employee panel data archive, and specifically records: (i) type of contract (permanent *vs*. temporary, part-time *vs*. full-time, apprenticeship), (ii) occupation, (iii) industry of the hiring firm; (iv) beginning and end of each employment spell.

Descriptive evidence

Both studies carry out the analysis on the population of workers (aged less than 50) enrolled in the LM in the years 1997 and 1998. The reason for restricting to these two years is that only for workers who entered the LM in 1997-98 the archives available in both areas contain two full years

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[17] Previous studies on the LM effects (Brunello and Miniaci, 1997, Caruso, 2001, and Paggiaro and Trivellato, 2002, among others) have used only administrative data resulting from LM program operations. These data provide poor information on employment spells during the eligibility period as well as after its completion.

of labour market history prior to enrolment in the LM and three full years after they entered the LM. The following tables show, for the two samples, the breakdown of workers enrolled in the LM by gender, age group and entitlement to monetary benefits. [18] Table 1 is for the Veneto sample and Table 2 for the Torino sample. From a comparison of the two tables we note the following.

- Women are the majority of LM workers in both areas, but more so in Veneto than in Torino (72% vs. 60%).

- Workers entitled to monetary benefits are a slight minority in both areas, about 45%.

- Women are much less likely to be eligible for monetary benefits than men in both areas.

- As far as age is concerned, the LM workers in Torino are older, with 34% in their forties in Torino vs. 24% in Veneto (excluding from the denominator workers 50 or older);

- The joint distribution of age, gender and beneficiary status shows broadly the following pattern: younger workers prevail among non-beneficiaries (and more so among women), while the reverse is true among beneficiaries (and more so among men). This pattern is more extreme in Torino than in Veneto.

Tables 1 and 2 about here

The outcome variable used in the two studies is the month-by-month employment rate, where being employed coincides with being an employee in the private sector, with either a temporary or permanent contract. Self-employment, public sector employment and informal jobs are not registered in the *Netlabor* archives. In other words, we count as employed only those who return to the same broad sector of the labour market from which they were fired. This limitation must be kept in mind while interpreting the results.

Figures 3 and 4 present raw employment rates from 24 months before to 36 months after enrolment in the LM, comparing workers eligible for two years (aged 40 to 49) and workers eligible for one year (less than 40). Figure 3 shows the estimates for workers entitled to monetary benefits (by gender and area), while Figure 4 does the same for workers without monetary benefits.

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[18] A moderate number of workers for whom there is evidence of potential recalls or frauds were dropped from the analysis (9,7% in Veneto and 8,2% in Torino). The procedure to identify potential recalls/frauds in based on the criterion of "collective hires" (Brunello and Miniaci, 1997, p. 334), that is to say "groups of workers who have been dismissed by a firm and hired as a group by another firm". It has been implemented in a fairly conservative way – workers are considered as a group, then dropped from the analysis, is they are at least 50% of the total enrolled in the Lists by the dismissing firm *and* of the total recruited from the Lists by the hiring firm, with the additional condition that hiring took place within 90 days from dismissal (for details, see Anastasia *et al*., 2004, pp. 26-29 and Appendix 4).

Figure 3 and 4 about here

The main evidence is as follows.

- As expected, employment rates are lower among women than among men, lower in Torino than in Veneto, and lower among recipients of monetary benefits than among non recipients.

- Employment rates in the 24 months prior to dismissal get closer and closer to 100% as the time of dismissal approaches, but they do so more sharply for workers entitled to monetary benefits (since 12 months of prior employment is a prerequisite for eligibility) and for older workers, a sign of their stronger labour market attachment.

- A substantial fraction of workers bounces back to employment very quickly, more so in Veneto than in Torino, and more among men than among women: within 3-4 months, 60% of male workers in Veneto and 40% in Torino are back in a private sector job, either temporary or permanent.

- The paths to re-employment become highly diversified across groups as time goes by. Employment rates tend to differ between the two age groups, in particular among workers entitled to monetary benefits. *Whether this is a genuine causal effect of the longer eligibility or is rather due to a simple age effect, will be the issue we deal with below*.

- Among workers entitled to monetary benefits, there is a noticeable difference between Torino and Veneto: while in Veneto the difference between two-year eligible and one-year eligible is broadly similar for men and women, the opposite is true in Torino, with a much more marked difference for women.

- Another puzzling difference across the two areas concerns the behaviour of male workers not entitled to monetary benefits: in Veneto the two-year eligible have significantly *higher* employment rates than the one-year eligible after the first year, while in Torino this "reversal" does not take place.

The main objective of the subsequent analysis is thus to disentangle the age effect (which is supposed to reduce the employment chances of older workers) from the effect of the extended LM eligibility (which might go in the same direction). Descriptive evidence on the age effect as well as on the LM effect is in Figures 5 and 6, which report employment rates – 12 months and 36 months after enrolment – by age, separately by entitlement to monetary benefits, and then by gender and area.

Figure 5 and 6 about here

The evidence of Figures 5 and 6 shows the following patterns of employment by age for workers on the LM program.

- The overall patterns are not substantially different between the two points in time, 12 months and 36 months after enrolment. This is not surprising given the almost flat time-employment profiles after the first year shown in Figures 3 and 4.

- Young women have a steeper age-employment profile than young men, but their profile flattens after age 30. Thus for women the age effect is stronger in their twenties, and picks up again after age 45.

- In Torino age-employment profiles are always *flatter and higher* for workers without monetary benefits than for those with benefits. For men without benefits, there seems to be no age effect at all, at least judging for this descriptive evidence.

- The situation is more complex in the Veneto provinces, with remarkably different patterns between men and women. Among men, age-employment profiles are flatter while among women are steeply declining at both younger and older ages.

This evidence can also be interpreted in the logic of the Regression Discontinuity Design (RDD), looking for the presence of a discontinuity in the employment rates at the 40-year threshold, which should identify the effect of eligibility for an additional year on workers in the proximity of that age. Here too the picture looks different between the two areas.

- In Torino, there are no sharp discontinuities around age 40, apart for men without monetary benefits and to a lesser extent among women with benefits.

- In Veneto, for men there is a peculiar pattern of discontinuities, which implies a *negative* effect of the additional year for workers entitled to monetary benefits, while the effect is *positive* for workers without monetary benefits. Among women, there is always a *positive* effect of the additional year, but the size of the impact is comparatively smaller.

Since the effects identified by these discontinuities are valid only in the proximity of the threshold, in the subsequent analysis we attempt to eliminate the age effect via matching techniques, to be able to generalise the results to a larger group.

The matching estimate of the effect of the additional year of eligibility

Both studies use the non-parametric approach of PRT to estimate the mean effect of the additional year of eligibility in the program. The comparison group is obtained by matching to each worker eligible for two years in the LM a worker eligible for just one year. One-to-one matching (without replacement) on the *p*-score is used, allowing for at most a .01 difference in the *p*-scores[19]. The *p*-scores are estimated by logistic regression, including as covariates education, occupation, industry of the dismissing firm and month-by-month labour force state over the two years prior to enrolment.

As the age effect on employment rates appears to be weaker among workers older than 30 (Figure 5 and 6), we select the matched comparison group from the pool of workers eligible for just one year *but* 30-39 years old, discarding all workers younger than 30. Table 3 shows the outcome of the matching procedure using only workers 30 to 39 years old as the comparison group. Given the strictness of the matching procedure used, the proportion of treatments getting their match is satisfactory: in the worst case, women with monetary benefits in Torino, it is only 43%, but is as high as 91% in Veneto.[20]

Table 3 about here

Figure 7 and 8 graphically represent the estimates of the effect of the additional year of eligibility on the treatments (who got a match; see Table 3). The dotted line shown in each graph represent the difference between the employment rate of the treatment minus the controls, thus the estimated effect of the additional year. The solid lines represent 95% confidence intervals, based on bootstrapped standard errors.

The tables are organised by entitlement to monetary benefits and then by gender and area. We discuss the results in this order, stressing the differences between the two areas and between men and women.

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[19] This method is known as caliper matching, *i.e.* nearest neighbour estimator together with a preset radius. It is particularly suited to force a common support. Removing the upper limit of .01 would yield the classic nearest neighbour estimator, which in principle would feature a smaller sampling variance – since more matches would be used to evaluate the mean impact – at the price of a larger bias – since the quality of the additional matches would be lower.
[20] Specification tests were performed to check whether the matching estimator is able to eliminate the bias due to the age effect. The sample of workers in their thirties was split in half and workers 30-34 were statistically matched to workers 35-39. Any difference in employment between these two groups *cannot* be attributed to the treatment, which is identical for both groups. The same test was performed comparing 40-44 to 45-49 years old. The results suggest that the age effect is eliminated by matching among men, while there remains some bias for women.

Figures 7 and 8 about here

Workers with monetary benefits

Starting with men in the upper part of Figure 7, the additional year of eligibility enjoyed by male workers in the 40-49 age group results in a 10 to 20 percentage points negative net effect on their employment rates during the first three years after enrolment. *This is clear evidence that the passive component of the program prevails on the active one.* The estimated net effect is lower in absolute terms in Torino, but less so in relative terms, because of the lower level of employment among LM workers in Torino.

In terms of timing, the effect shows up more slowly but is more persistent in the Veneto provinces, lasting to the end of the third year. By contrast, in Torino the effect shows up earlier but it tends to disappear after the 24th month. The timing of the effect observed in Torino is more consistent with the prediction made in the Section 2, because it shows up immediately but tends to vanish together with the advantage enjoyed by the two-year eligible. The persistence in the effect for Veneto (but not its delayed start) could be explained by a more widespread use of short employment contracts, which stop the clock of eligibility extending its expiration date further into the future.

For women, shown in the lower part of Figure 7, the differences between the two areas are even more pronounced.   In Veneto the negative effect of the additional year is slightly smaller for women than for men, and it shows up as statistically significant only in the second year after enrolment, while disappearing by the end of the third year.   By contrast, in Torino the effect for women is more negative than for men: moreover, it shows up immediately in the first year and then deepens in the second year, reaching 20 percentage points in absolute terms – which in relative terms is almost double that, since employment rate among the controls is about 50%. In Torino, the effect for women does not disappears entirely in the third year, as it does in Veneto and in Torino for men.

The larger negative effect obtained in Torino for women is consistent with the notion that women labor supply decisions respond more to monetary incentives than men's. Why this does not hold for the two provinces in Veneto is difficult to rationalise.

Finally, the fact that a negative effect of the additional year shows up also in a slack labour market like Torino's – with a 10% unemployment rate – eliminates one possible explanation of the results first obtained by PRT for the Veneto region (*i.e.,* the idea that the negative effect of the

additional year could be due to tightness of the Veneto labour market, in which older workers could afford not seeking work for as long as their benefits lasted, in anticipation of plentiful job opportunities.) There is clearly more at play than the tightness of the labour market to explain workers' behaviour.

Workers without monetary benefits

The differences between the two areas are more pronounced (and less interpretable) for workers not entitled to monetary benefits (Figure 8). *The major difference is that in Veneto the sign of the effect of the longer eligibility is reversed, while in Torino is not.* In Veneto, starting from the beginning of the second year, employment rates for two-year eligible men are *higher* than those for matched controls by 10 to 20 percentage points. For women, the pattern is much less pronounced and not statistically significant, but it is still noticeable in the second year.

This evidence for Veneto (i) implies a positive effect of the active component of the programme; and (ii) it squares with the prediction made in the previous section – *i.e.* that during the second year, workers eligible for an additional year will benefit from a positive difference in the rate of arrival of job offers with respect to comparable workers younger than 40, who will no longer carry any subsidy in favour of potential employers.

In Torino, the overall shape of the pattern is similar, but shifted downward. For men, the effect of the additional year of eligibility is mildly negative during the first year and basically disappears afterward. For women, is negative during the second year. What is missing is any trace of the positive effect predicted by theory for the second year after LM enrolment.

4. Exploring the interaction between the effect of extended eligibility and the labour market WORK IN PROGRESS

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Table 1: Workers enrolled in LM by gender, age group, eligibility to monetary benefits. Provinces of Treviso and Vicenza, 1997 and 1998.

Age group	Men with monetary benefits		Women with monetary benefits		Men without monetary benefits		Women without monetary benefits		Total	
	N	%	N	%	N	%	N	%	N	%
<30	169	23.4	425	32.9	150	30.7	775	44.8	1,519	35.9
30-39	276	38.3	497	38.5	197	40.4	712	41.2	1,682	39.8
40-49	276	38.3	369	28.6	141	28.9	243	14.0	1,029	24.3
Total	721	17.1	1,291	30.5	488	11.5	1,730	40.9	4,230	100.0

Table 2: Workers enrolled in LM by gender, age group, eligibility to monetary benefits. Province of Torino, 1997 and 1998.

Age group	Men with monetary benefits		Women with monetary benefits		Men without monetary benefits		Women without monetary benefits		Total	
	N	%	N	%	N	%	N	%	N	%
<30	152	18.9	224	22.2	314	36.8	641	43.8	1,331	32.2
30-39	263	32.7	317	31.4	297	34.8	532	36.4	1,409	34.1
40-49	389	48.4	470	46.5	243	28.5	290	19.8	1,392	33.7
Total	804	19.5	1,011	24.5	854	20.7	1,463	35.4	4,132	100.0

Table 3:   Outcomes from matching workers aged 30 to 39 to workers aged 40 to 49

|		Men with monetary benefits		Women with monetary benefits		Men without monetary benefits		Women without monetary benefits		Total	
		N	%	N	%	N	%	N	%	N	%
Veneto	Treatments (age 40-49)	276		369		141		243		1,029	
	Controls (age 30-39)	276		497		197		712		1,682	
	Matched treatments	188	68.1	337	91.3	94	66.7	221	90.1	840	81.6
		N	%	N	%	N	%	N	%	N	%
Torino	Treatments (age 40-49)	389		470		243		290		1,392	
	Controls (age 30-39)	263		317		297		532		1,409	
	Matched treatments	203	52,2	203	43,2	187	77,0	244	84,1	837	60,1

Figure 1: Total labour cost and savings over two years for an employer, under alternative strategies for hiring a LM worker [a]
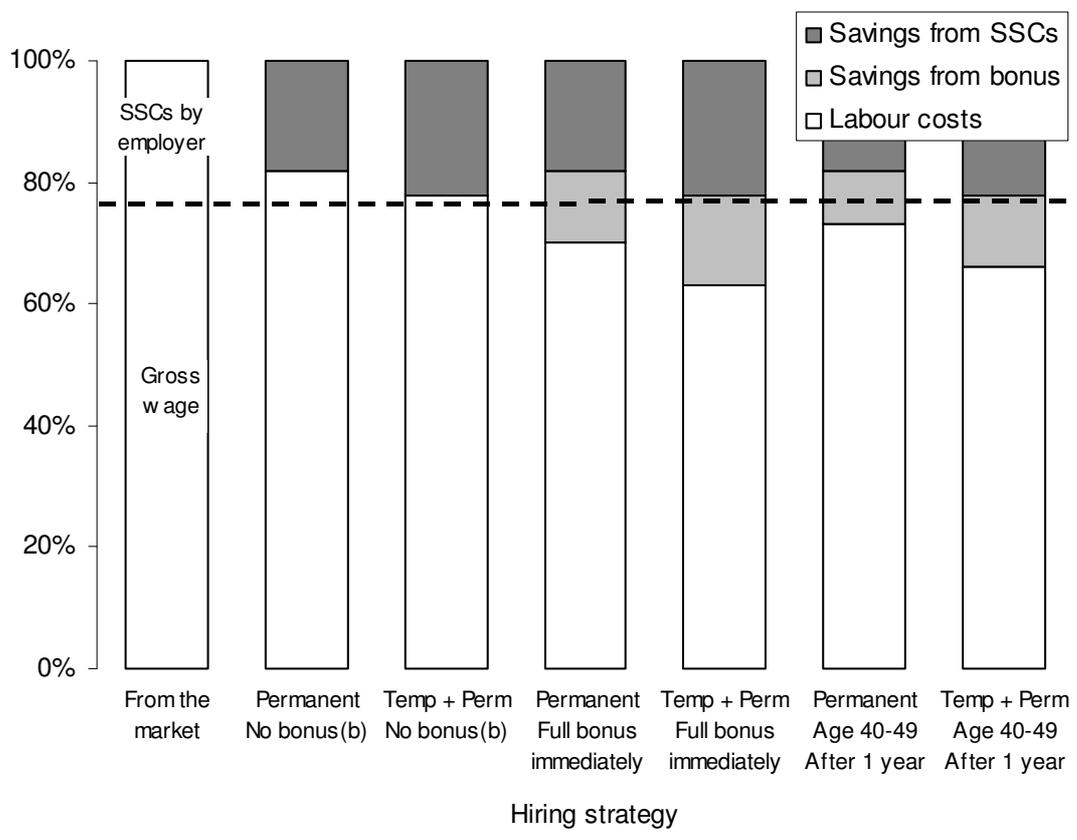
[a] Working assumptions: annual gross wage 13,000 Euros; SSCs rates and monetary benefits ceiling effective in 1998.

[b] Benefits when hiring (i) a worker without monetary benefits or (ii) a worker aged less then 40 with monetary benefits the last day of the first year or (iii) a worker aged 40 to 49 with monetary benefits the last day of the second year.

Figure 2: Savings over two years for an employer as function of the time elapsed since LM, under the hiring strategy 'first temporary-then permanent contract' of a worker entitled to monetary benefits, aged 40 to 49 or less than 40, respectively [a]

a. Total savings by hiring strategy

b. Differential savings
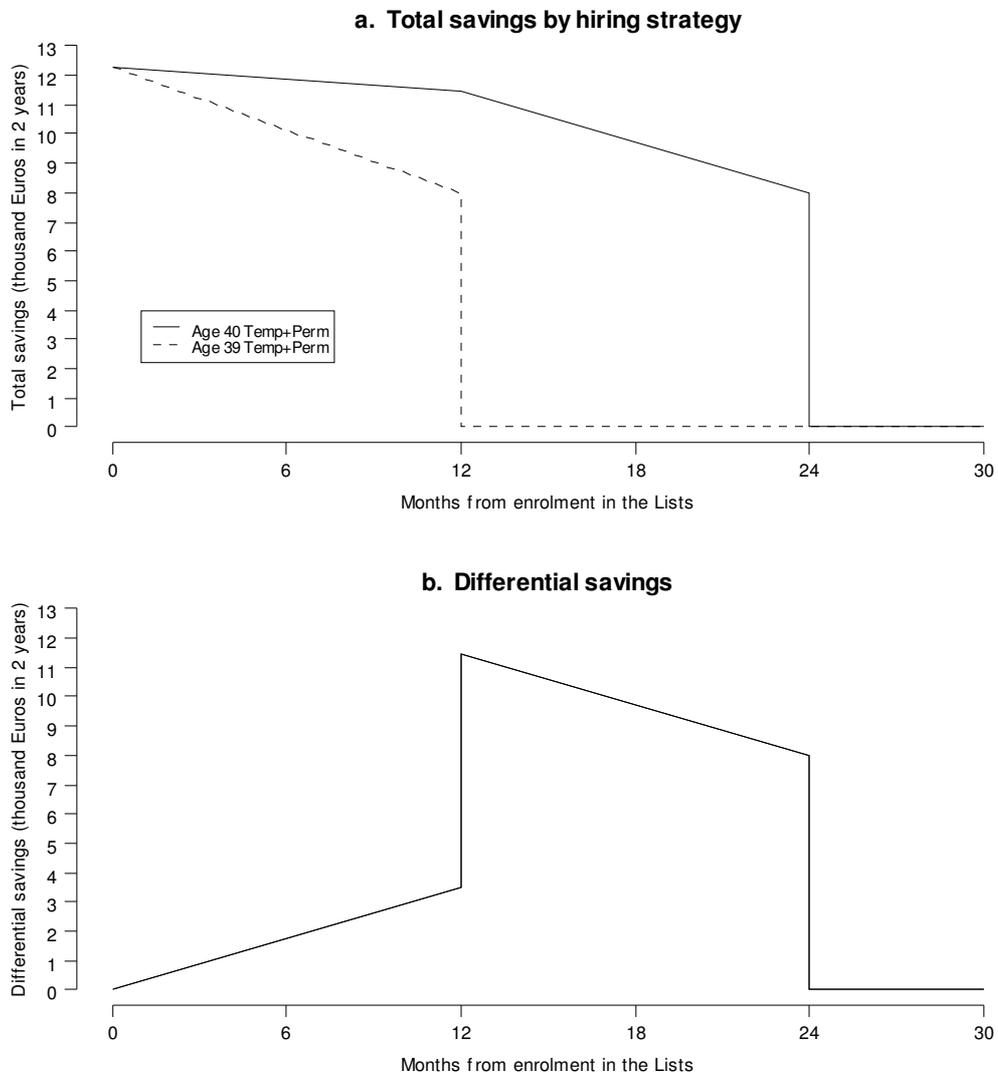
[a] Working assumptions as in Figure 1.

Figure 3: Employment rates from 24 months before to 36 months after LM enrolment (1997 and 1998 cohorts) by age group, area and gender, for workers entitled to monetary benefits (with 95% confidence intervals)
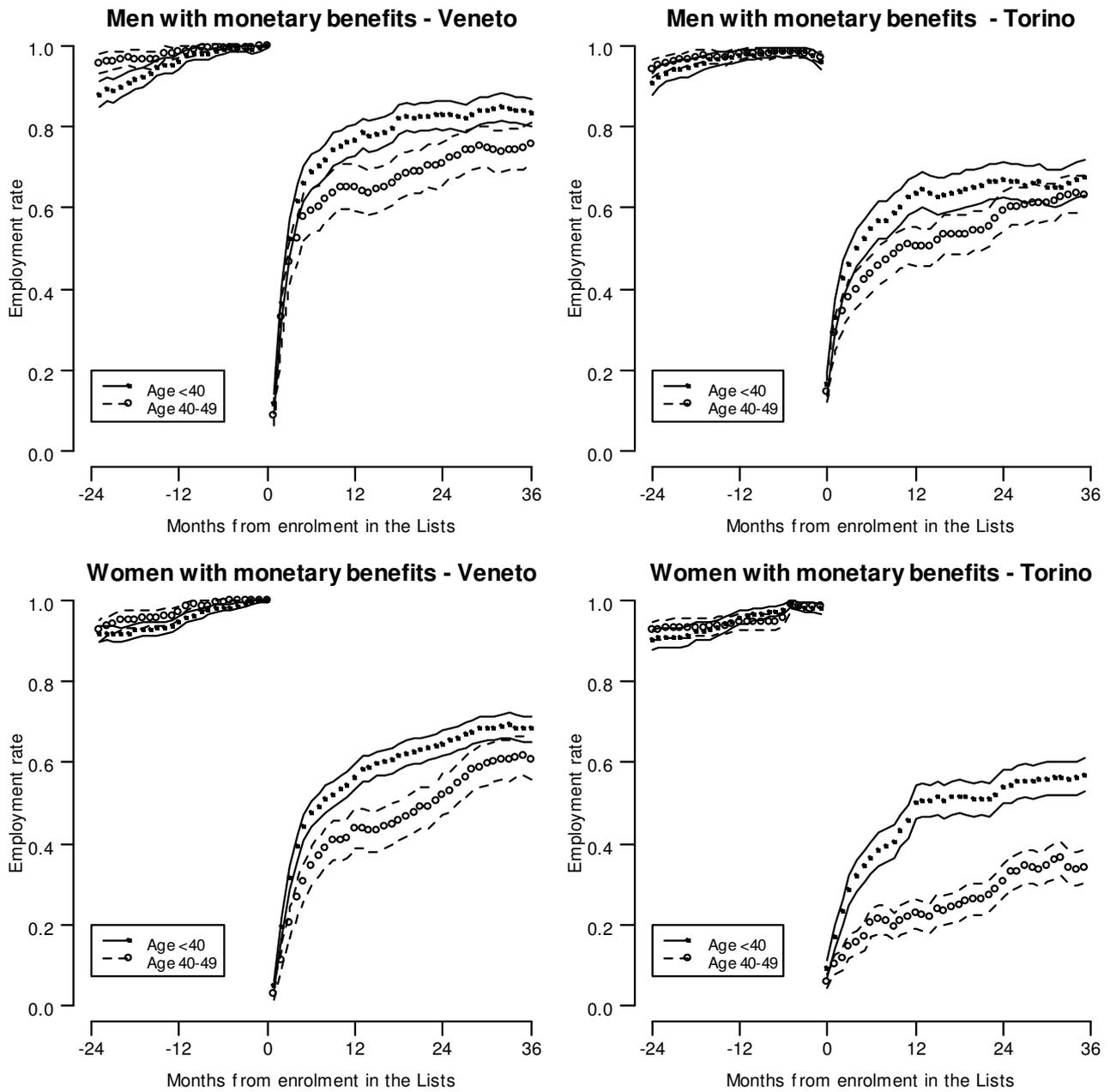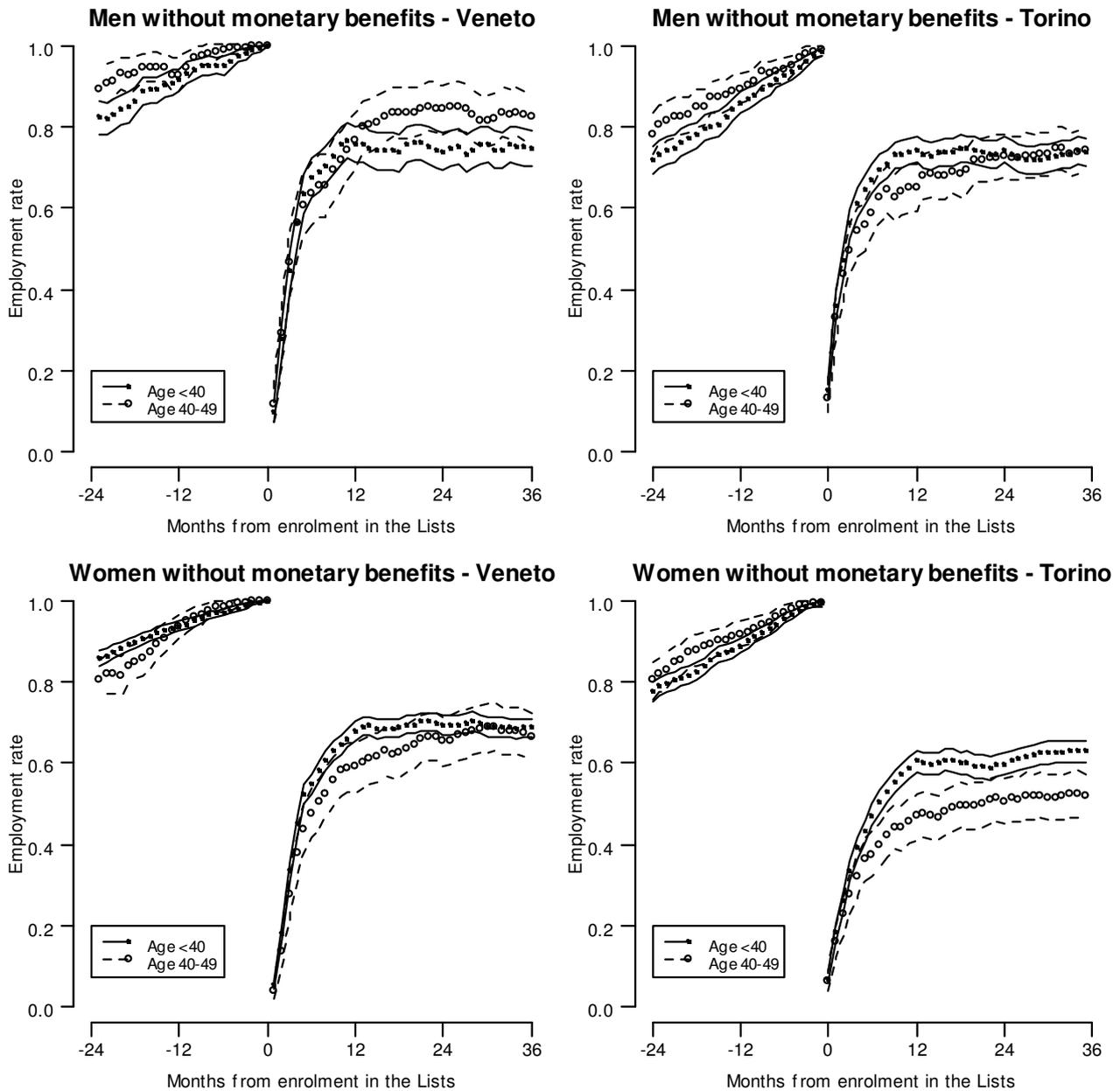
Figure 4: Employment rates from 24 months before to 36 months after LM enrolment (1997 and 1998 cohorts) by age, area and gender, for workers not entitled to monetary benefits (with 95% confidence intervals)

Figure 5: Employment rates 12 months after enrolment in the LM (1997 and 1998 cohorts) by age, gender, area and entitlement to monetary benefits
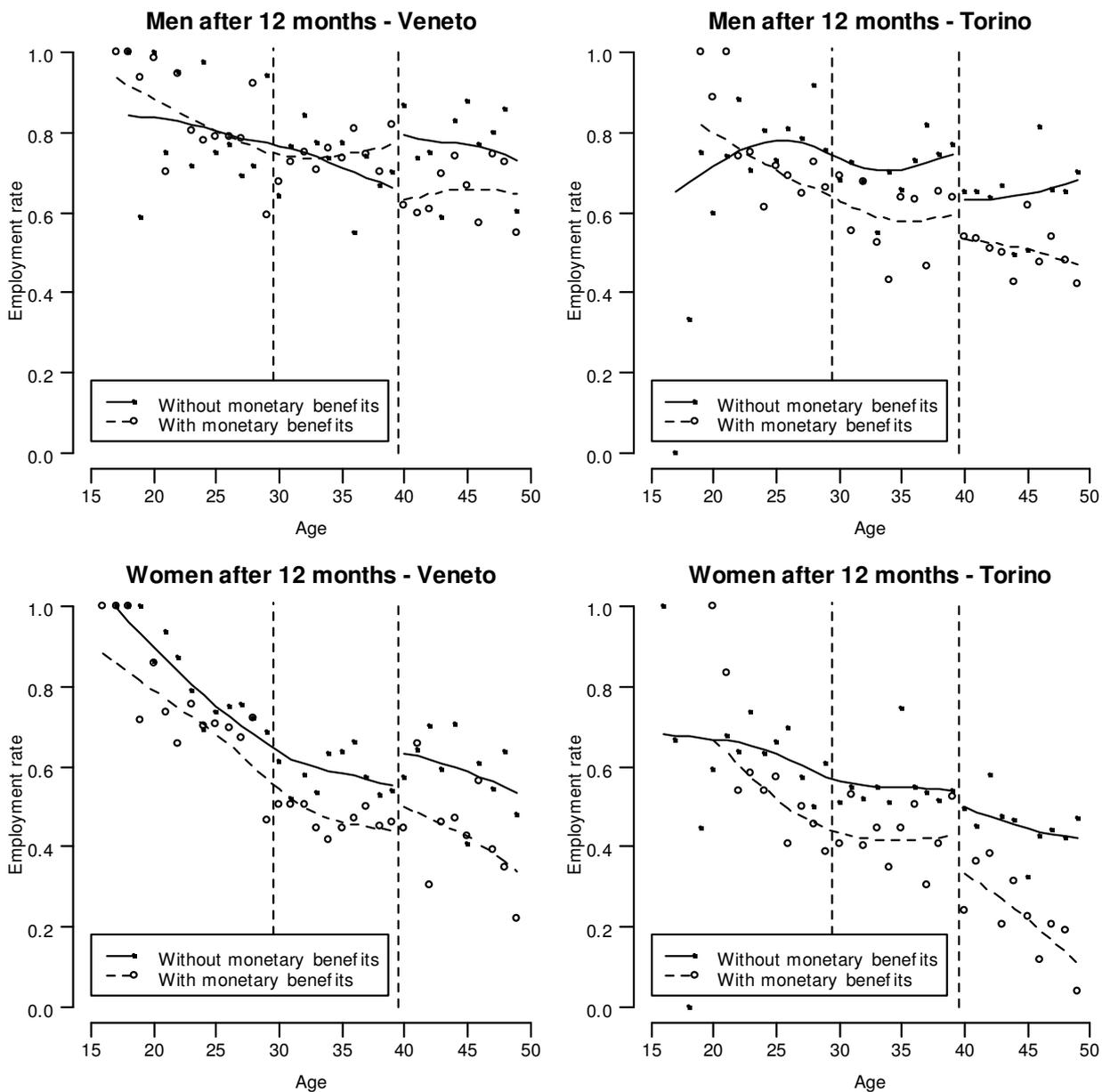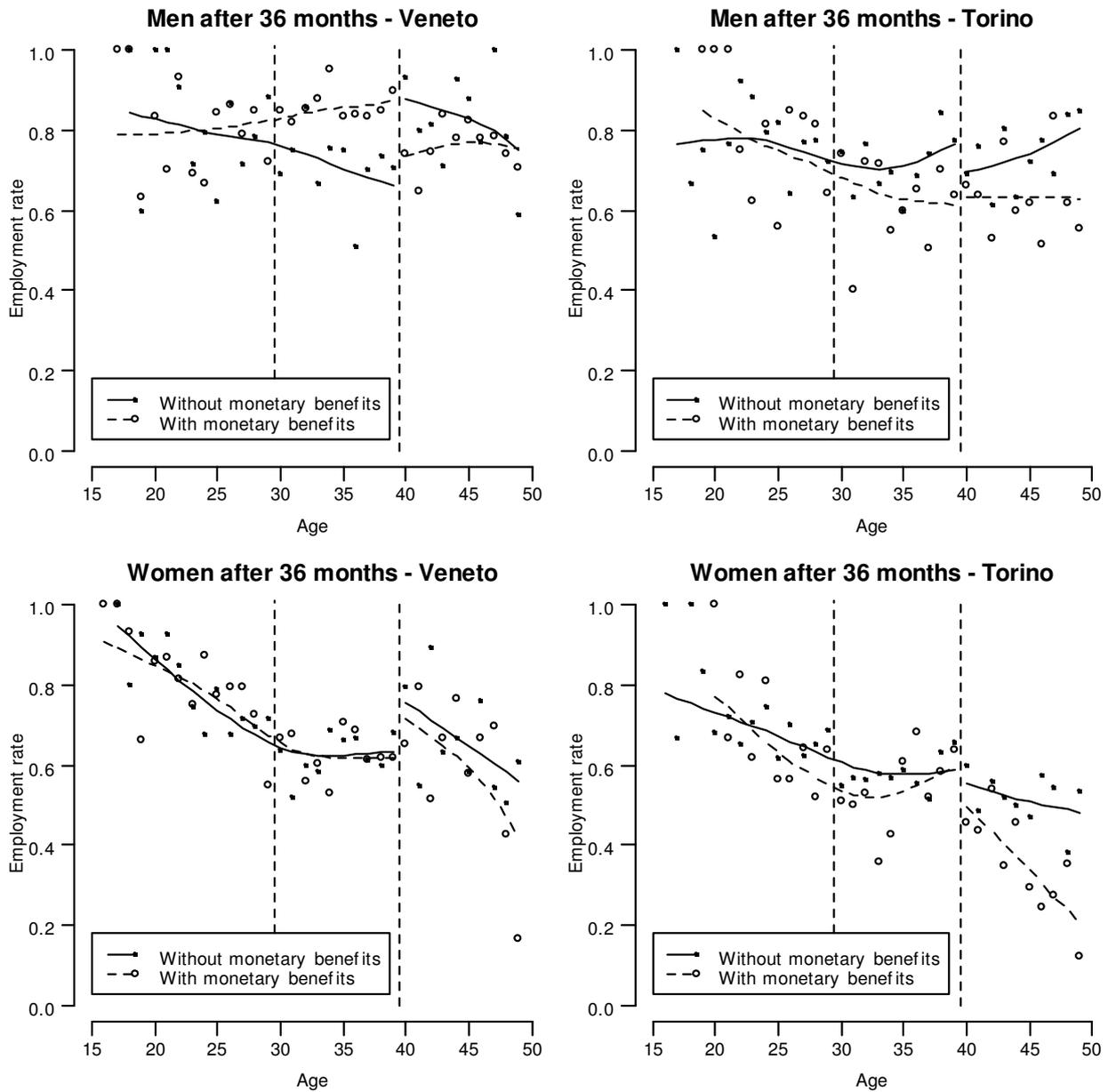(point estimates and polynomial splines)

Figure 6: Employment rates 36 months after enrolment in the LM (1997 and 1998 cohorts) by age, gender, area and entitlement to monetary benefits (point estimates and polynomial splines)

Figure 7: Estimates of the effect of the additional year of eligibility (differences between employment rates of two-year eligible and one-year eligible, matched on *p-score*) by gender and area, for workers entitled to monetary benefits (1997 and 1998 cohorts) (with 95% confidence intervals)
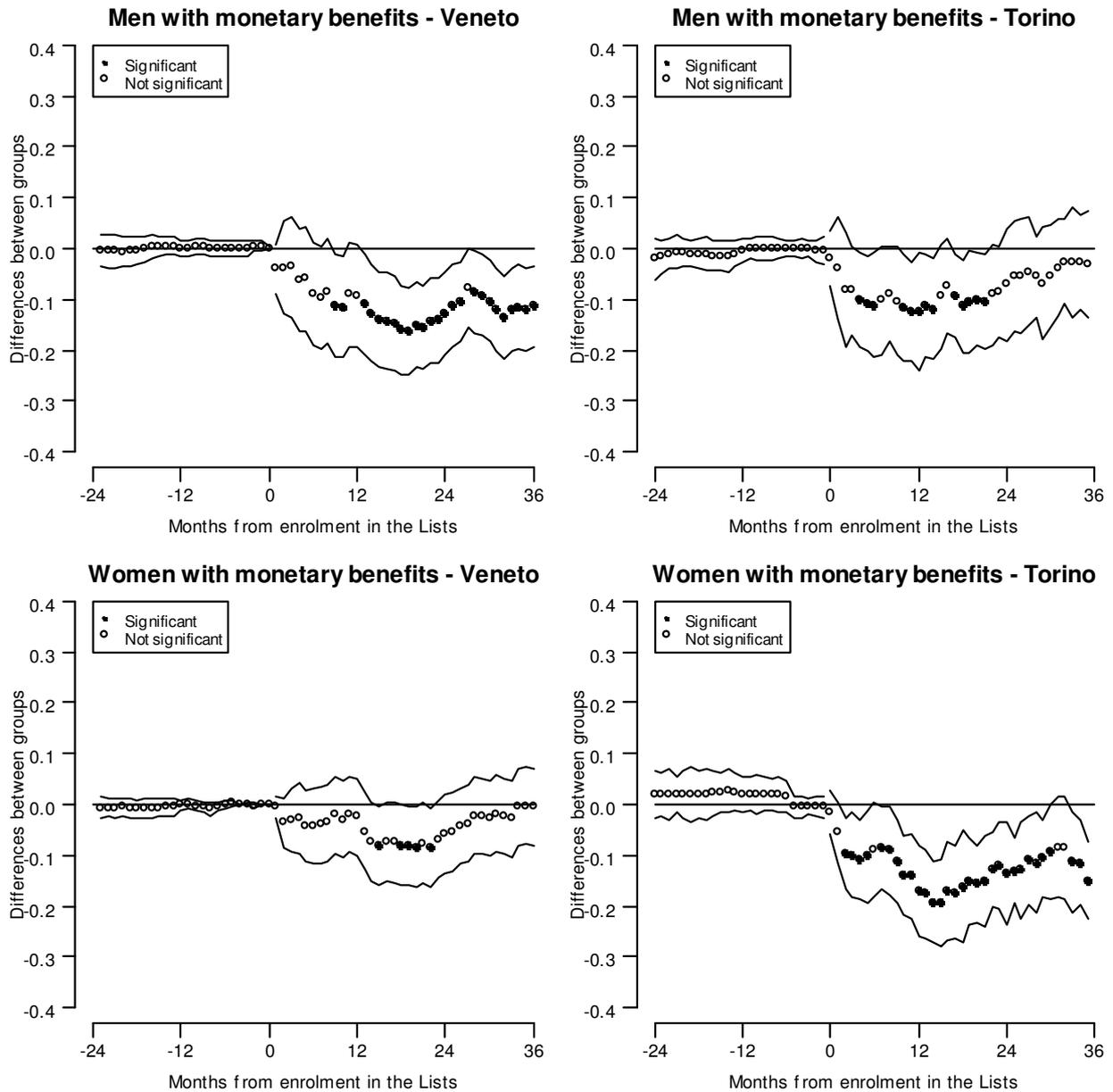
Figure 8: Estimates of the effect of the additional year of eligibility (differences between employment rates of two-year eligible and one-year eligible, matched on *p-score*) by gender and area, for workers not entitled to monetary benefits (1997 and 1998 cohorts) (with 95% confidence intervals)