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Tesi di Laurea in

Liste di mobilità: impact of benefits on unemployment duration

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Chapter 1

Introduction

Work is a fundamental value of the Italian Constitution: the first article says "Italy is a democratic republic founded on labour".

The workers losing their job, have to face a very difficult situation in particular when the labour market is depressed. For this reason the welfare system introduces employment protection legislation and unemployment benefits in order to protect the individuals against uninsurable labour market risk. The first makes the dismissal of the workers more difficult for the employer, while the latter acts as replacement income for the worker experiencing unemployment spell when he looses his job.

In this thesis we will focus on re-employment policies. Re-employment policies could have both a passive component when they support workers in their first period of unemployment and an active component for their relocation in the labour market. These policies sometimes are very expensive and not very effective on transitions from unemployment to work. Therefore this field in the last thirty years became subject of many experiments and studies, focused on understanding their impact on re-employment according to different incentives. All these programmes are different in length, amount and type of incentives. Incentives could be bonuses re-employment or benefit sanctions, like reduction of benefits level for workers who do not respect the programme rules. In this thesis we deal only with bonus re-employment. In particular we focus on an Italian labour programme, called Liste di mobilitá (LM).

This programme, introduced in the Nineties, is a particular welfare tool that provides incentives both for workers and for employers who hire workers enrolled in LM. LM were introduced mainly to face situations of collective dismissals caused by reduction, transformation or cessation of the activity of a firm. This programme combines both active and passive components and has different features depending on the dismissing firm's size and worker's age

at dismissal. The active component is applied for all workers enrolled in LM, while the passive component is applied only to workers collectively dismissed by large firms. The aim of this programme is to facilitate the re-entering in the labour market, but its effects evaluation is difficult because there is no control group. Therefore analyses evaluating the impact differences on workers submitted to different treatments or with different characteristics are carried out.

Previous studies show that benefits do not always work in the right direction; sometimes the income support has a negative effect on the probability of finding a job. Re-employment is more difficult for older workers, even if this programme tries to give them more incentives. Women too are more discriminated in the labour market.

In this thesis we want to study how incentives for workers and firms influence the unemployment duration. We want to analyse if the bonuses, supporting worker's income during the unemployment period, have a negative effect on the re-employment probability. This negative effect could be due to two reasons: workers may take more time for looking for a better job or, with an opportunistic behaviour, they may see bonuses like an income and so a reason for remaining unemployed. It could be that this negative effect is hold down by the active component of the programme which transfers the benefit from worker to the hiring firm. Concerning employers, we want to understand which type of workers they, considering their incentives, prefer to hire and with which type of contract. In particular we will focus on hirings with permanent contract. We are mostly interested on the effect of the monetary benefits on unemployment duration, which could be considered both an active and a passive component. In order to understand the effect of the additional year of older workers on re-employment, we restrict our sample to workers aged between 38 and 41 years old. In this way we eliminate possible effects caused by age and we can take in account of the differences between workers below or above the threshold of 40 years old, caused by the different length of the programme. Finally we carry out some exploratory analyses in order to observe if the programme affects the quality of job, in terms of wage increase or reduction, compared to the wage of the job which causes the entrance in LM. In other words we want to study how the length of the search for a new job is related to a better or worse job and if the final results is influenced by the different features of the programme.

For this study we use data from Giove, a database coming from *Centri per l'impiego* of the Veneto region and from VMH, a database from INPS archive. The linkage between the two datasets permit us to have richer data on workers as social demographic characteristics (gender, age, education); working history of the previous job (salary, qualification, size of the firm)

and eventually of the subsequent job (type of contract, date of hiring and for a smaller sample also the wage after three years).

We analyse only workers younger than 49, because for workers above this threshold the situation is more complex. Sometimes they exploit an adding programme called *Mobilitá lunga*, that can be considered as a bridge to the retirement.

The frame of this thesis is as follows. Chapter 2 describes labour market policies and their possible effects on the probability of re-employment. Chapter 3 is an overview of the previous studies in the United States and in Netherlands. Chapter 4 describes the Italian labour market programme, Liste di mobilitá, first explaining the main features of the programme and then with a short summary of previous studies. Chapter 5 describes the data and provides some summary statistics. In chapter 6 some exploratory analyses are reported. Chapter 7 presents empirical analyses and chapter 8 presents the conclusions.

Chapter 2

Labour market policies

Labour market policies can be divided in active and passive policies. They are classified by Eurostat into nine categories:

1. Public employment services and administration
2. Training
3. Job rotation and job sharing
4. Employment incentives
5. Supported employment and rehabilitation
6. Direct job creation
7. Start-up incentives
8. Out-of-work income maintenance and support
9. Early retirement

The first seven categories are active policies, the last two are passive policies. In this thesis we are interested in unemployment policies, thus we start looking at the general effects of these policies by paying attention to benefit system which in Italy is the biggest component of passive policies in Italy. Then we will describe unemployment policies in Italy and we will conclude with a comparison between Italian and European expenditure for these policies.

2.1 Unemployment policies

Let us examine the aim of unemployment policies, which can be both active and passive [Sestito, 2001]. Aim of active policies is to assist people to come back in the labour market. The purpose of these policies is not only to increase the number of employed people, but also to provide unemployed people with training in order to improve their qualification and let them find a better job in terms of qualification and wage.

The aim of passive policies is to decrease the uneasiness caused by unemployment; their purpose is not to increase employment but to protect helpless workers. Passive policies act in a double way: they have an insurance function which provides a support to fired workers in term of income and a distribution function which prevents the level of income of some individuals from falling below a minimum level essential in their entire life cycle. These policies should improve the quality of employment; in fact with a temporary support workers could perform a more careful and aware search of a new job. In this way there will be a better matching between supply and demand.

However there is also a negative effect; in fact incentives reduce the active search of a new job. An unemployed will accept a new job offer if the wage is above his reservation wage.

The reservation wage is:

$$W_R = \{\Pr(W > W_R)E(W|W > W_R)\} + b \tag{2.1}$$

where b is the benefit, W is the wage, Pr() and E() are respectively the probability and the expected value of the function [Sestito, 2001].

Therefore they will accept a new job if the offered wage is at least equal to the monetary benefits plus the advantage given by continuing the search. This advantage is the possibility to find a job with a bigger wage than the offered one and it is calculated multiplying the expected value of bigger wages by the probability to find them.

From equation 2.1 we notice that the reservation wage is a positive function of the monetary benefit (the only sure benefit which workers renounce if they accept the job offer). Moreover there is a positive relationship between unemployment and the reservation wage, because if the reservation wage is higher, the probability to accept a new job offer (with a wage bigger than the reservation wage) will be smaller. By the way it does not imply that more qualified workers will stay longer unemployed, because they will probably receive better offers. Actually the equation 2.1 consider the average wage level available in the labour market (according with worker qualification), that represent a realistic level that the worker could achieve continuing the

search. Finally we can conclude that there is a positive correlation between monetary benefit and the probability to stay unemployed.

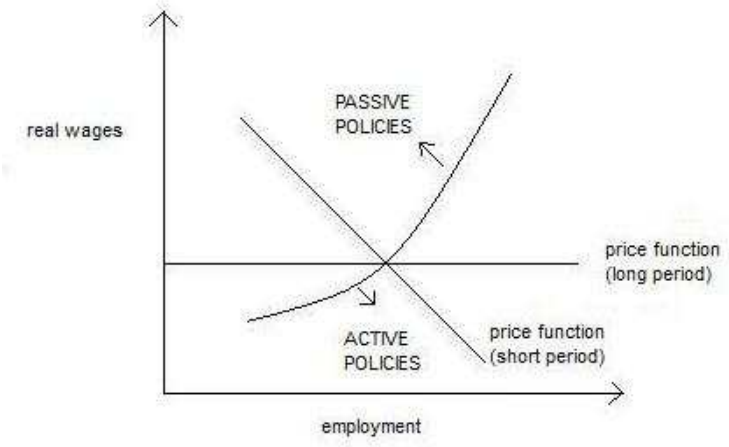

Fig. 2.1: Active and passive policies effects [Sestito, 2001]

The effect of active and passive policies can be showed to act on unemployment and real wages as represented in figure 2.1 [Sestito, 2001]. Passive policies increase the real wage in the short period, but they reduce employment both in the long and short period. Instead active policies work in the opposite way, raising the level of employment. The problem of policy maker could be seen as a trade-off between insurance and employment purposes. In this thesis we focus on benefit system "*Liste di mobilità*", which is mostly a passive policy, but mixed with an active component.

2.1.1 Benefit system

Among labour policies it is worth to study the benefit system. The first unemployment benefit system was introduced in the United Kingdom in 1911, but many people did not like that persons not working could receive money by the State. Nowadays all the OECD countries and an increasing number of countries in the world, even middle-income countries with serious fiscal constraints, have or are introducing unemployment benefit systems. They try to provide more protection against income fluctuation due to job loss via unemployment benefit system rather than via employment protection legislation. These schemes are very popular among workers, but they also increase welfare of society, because they improve the allocation of human

capital and so economic growth. By the way these benefits should not be too generous in order to not discourage the job search.

These benefit systems are different in features among countries. They differ in eligibility (the norms determining access to the benefit) and entitlement (the rules concerning the duration and the level of payment). Usually job losers with short unemployment duration receive benefits that are proportional to their past contributions. Another component of unemployment benefit system is the unemployment assistance, typically offered at a flat rate (independent of the previous wage). Unemployment assistance can also be integrated with general social assistance, which is offered for unlimited duration to unemployed individuals who have incomes and family assets lower than a given poverty threshold [Boeri and van Ours, 2008].

2.2 Unemployment policies in Italy

In Italy unemployed workers can take advantage both of active and passive policies. First of all we shortly look at active policies and then we see more in detail passive policies, which are mostly directed to fired workers. The main active policies in Italy are [Sestito, 2001]:

- particular kinds of contract, as apprenticeship (*apprendistato, contratti di formazione-lavoro*)
- training and work experiences, as internship and qualifying period
- advantages for hiring firms as cut in social security contributions. This is a component of the programme Liste di mobilità.
- direct job creation

Beyond these policies, fired workers can be involved in different passive programmes in order to support their income during unemployment. These programmes have different requirements for participation. Depending on the programme [Anastasia et al., 2011], workers will receive different amount of benefits.

2.2.1 Indennità ordinaria di disoccupazione con requisiti pieni

The *indennità ordinaria di disoccupazione con requisiti pieni* (ordinary unemployment benefits with full requirements) programme was introduced in

1919 as insurance against involuntary unemployment. Fired workers can enjoy up to 8 months (12 for workers older than 50 years). The amount of benefits is a percentage of the previous wage and it was equal to the 30% in 1996, 40% in 2001 and in 2008 it arrived at 60% of the previous wage [Anastasia et al., 2011]. Recipients are all fired workers (not self-employed workers) who paid at least 52 weeks of contributions in the last two years and with at least two years of compulsory insurance against unemployment. Accessibility to this programme also depends on the kind of contract, for example workers with an apprenticeship contract are excluded.

2.2.2 Indennità di disoccupazione agricola ed edile

The *Indennità di disoccupazione agricola* (unemployment benefits for farmers) programme was introduced in the middle of the Fifties and it is an insurance against farmer unemployment. This programme was an important intervention to help needy families. Recipients were farmers who worked at least 51 days during the year and they could enjoy 40% of their wage during the period they were enrolled in suitable lists.

In 1970 was also introduced the *Indennità di disoccupazione edile* (unemployment builder's labourer benefits), in order to support their income. The maximum length of this programme is up to 90 days with a maximum amount of 579 €.

2.2.3 Indennità ordinaria di disoccupazione a requisiti ridotti

The *Indennità ordinaria di disoccupazione a requisiti ridotti* (ordinary unemployment benefits with restricted requirements) programme was introduced in 1980 in order to support income of temporary and seasonal workers excluded by previous programmes. Fired workers can receive 35 % of the previous wage during the first four months and then during the fifth and the sixth month the bonus increase to 40 %. Sometimes workers could enjoy both this programme and the one with full requirements. In this case they have to decide between these two programme; the advantage of the first one (full requirements) is that workers could enjoy a bigger bonus, instead the advantage of the second one is that there is no interval between the dismissal and the beginning of the bonus.

2.2.4 Cassa integrazione guadagni

A special public fund *Cassa Integrazione Guadagni* CIG (wages guarantee fund) used to protect workers' income, financed by companies and the state was established since 1945. The CIG provides the pay of workers affected by lay-offs or short-time working, up to 80% of the lost pay. In industry, the Fund operates through two forms of intervention (ordinary and special), governed by a series of laws. Payments under ordinary intervention are granted to workers who have been suspended by work because of immediate circumstances which cannot be blamed either on the employer or on the employees, or because of temporary market situations. Payments under special intervention are granted to workers who have been fired because of company reorganization, restructuring or conversion, or a company's economic difficulties that are of particular social importance as regards local employment. In this programme the relationship between the employer and the employee is maintained with hope of a future upturn in work. Originally it was introduced as means of temporary income protection for employees, in the expectation that the company and its employees would soon resume normal activity. Afterwards it has gradually been extended even to cases in which there is no prospect of a return to the normal production and work pattern, so that it has in fact become a welfare instrument for the management of labour surpluses.

2.2.5 Liste di mobilità

The Liste di mobilità LM (mobility list) programme was introduced in 1991. It is the most profitable unemployment programme in term of duration and amount of benefits. Workers can receive the benefits if they worked at least for one year with a permanent contract and they are fired because of reduction or cessation of their firm activity. We will see more in detail the features of this programme in chapter 4.

2.2.6 Recent regional programmes in order to extend the amount of recipients.

During last years (2009-2011) in order to face the difficult situation caused by the crisis, some new programmes have been introduced to extend the access to unemployment benefits. These programmes are experimental and they try to assist apprentices and *lavoratori a progetto* (temporary workers). Apprentices who worked at least three months could enjoy 60 % of the previous wage (sometimes also 80 %) at maximum for 90 days; *lavoratori a progetto* who

satisfy some particular requirements could enjoy 30 % of the previous wage of the last year, up to 4000 €.

Moreover regions, according to the amount of available resources, introduced others programmes devoted to fired workers. The aim of these new programmes is to help workers excluded by the previous ones.

2.3 Unemployment expenditure in Europe

In this section we want to compare unemployment expenditure in Europe with the Italian one. Figure 2.2 shows the amount of social expenditure

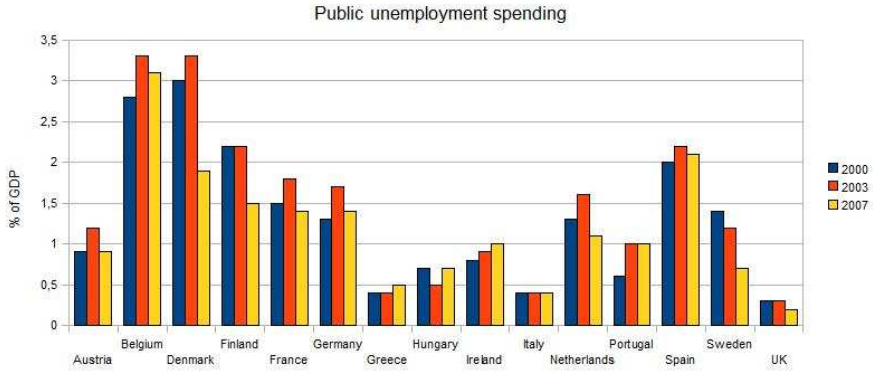

Fig. 2.2: Public unemployment spending as % of GDP [Oecd, 2010]

for unemployment policies during years 2000, 2003 and 2007. The source of these statistics is an OECD database and in this table we report data of some OECD European Countries [Oecd, 2010].

During the three years the level of Italian expenditure on unemployment policies was constant. It is 0,4 % of GDP and it is one of the lowest level of expenditure in Europe. We have a similar level in Estonia, Greece, UK, Hungary and Czech Republic. In Belgium and Denmark we have the highest level of public social expenditure, around 3 % of GDP. By the way in Denmark in 2007 the level is decreased at 1,9 % of GDP.

These statistics have to be compared with the level of unemployment in European countries in those years reported in figure 2.3. Also relating the unemployment expenditure with unemployment rate we can conclude that the expenditure level for unemployment in Italy is lower than the mean of European OECD countries.

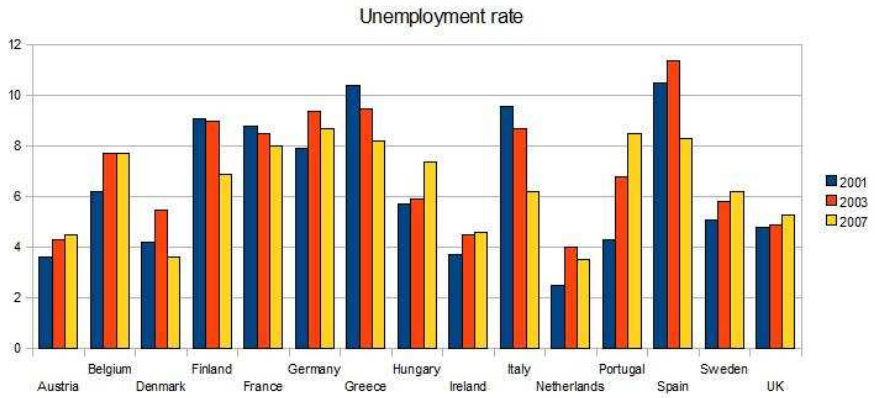

Fig. 2.3: Unemployment rate [Oecd, 2010]

Chapter 3

Previous studies on unemployment benefits

As we saw in the previous chapter, unemployment policies and in particular unemployment benefits are a very common tool used by welfare systems in order to sustain income of unemployed and to help fired workers for their relocation in the labour market. By the way these policies sometimes are very expensive and not very effective on transitions from unemployment to work. Therefore in the last thirty years, this field became subject of many experiments and studies, focusing on understanding their impact on re-employment, according to different incentives. In this chapter we examine the results obtained by these experiments, in the Unites States and in Netherlands.

3.1 American studies

In the United States, in order to assist involuntary unemployed, there is the unemployment insurance (UI) which provides short-term monetary assistance. It provides unemployment benefits to eligible workers who are unemployed, but not by their fault. Eligibility, benefit amounts and duration are determined by the Federal law. Usually benefits are based on a percentage of an individual's earnings over a recent 52-week period; in most States can be paid for a maximum of 26 weeks. Additional weeks of benefits may be available during periods of high unemployment. A frequent criticism of this system has been that the unemployment insurance benefit acts as disincentive for job seekers and prolongs the duration of unemployment insurance spells. During the 1980's some experiments of alternative compensation scheme for UI have been tested in the US.

During 1984-1985 two experiments [Woodbury and Spiegelman, 1987] were

conducted in Illinois. In the first experiment a random sample of new UI claimants were informed that they would qualify for a bonus of $500, if they found a job of 30 hours or more per week within 11 weeks of filing the claim. They could enjoy this bonus if they retrained the new job for at least 4 months. In the second experiment a random sample of new claimants was told that their next employer would be entitled to a bonus of $500 if the claimants were able to find a job and keep it under the same conditions of the previous experiment. The two treatments were tested against a control group of claimants who followed the usual rules of the Illinois UI system. The authors found that in the first experiment the re-employment bonus reduced unemployment duration by approximately one week and reduced paid state regular benefits by an average of $158. The second experiment had a much smaller effect. The post-unemployment earnings of members of the treatment group didn't differ from the earnings of members of the control group. Since the Illinois experiment was successful in reducing UI payments, the US Department of Labour sponsored others experiments to further investigate the use of a re-employment bonus in the UI system.

During 1986-1987 a re-employment bonus experiment was conducted in New Jersey [Anderson, 1992]. In this experiment UI claimants were randomly assigned to one of three treatment groups or to a control group. All UI claimants in treatment groups were assigned to job-search assistance activities. One treatment group was offered a cash bonus for finding a new job. During the first two weeks the bonus was equal to one half of the remaining UI entitlement for a claimant; after that the bonus amount declined by 10% of the original amount each week, falling to zero in the eleventh week of unemployment after the initial offer. A second group was offered assistance in getting into a job-training programme, or in relocation, but no cash bonus. A third group was offered nothing after the job-search assistance activities. The authors found out that the effect of a bonus on the job finding rate is significantly positive at the beginning of the offer period when the bonus was larger.

Both the New Jersey and Illinois experiments offered re-employment bonuses to UI claimants, but one important difference is that the Illinois bonus was constant over time, in contrast the New Jersey bonus declined over time, so that the bonus received was greater the earlier that re-employment occurred. The declining bonus creates a direct incentive for claimants to shorten unemployment spells to less than the full duration of the bonus qualification period [Decker, 1994].

During 1988-1989 bonus experiments were conducted also in Pennsylvania and Washington to test other type of re-employment bonus offers [Decker and O'Leary, 1995]. Pennsylvania and Washington tested some dif-

ferent experiments, which differed by the amount of the bonus offer and the period which an individual was qualified to receive the bonus. Pennsylvania tested four different bonus offers based on two alternative bonus amounts and two alternative qualification period, instead Washington compared six different experiments based on three alternative bonus amount and two alternative qualification period. The authors find that more generous bonus offers generated larger impacts than did less generous offers; in particular the treatment with a higher bonus offer and a longer qualification period reduced unemployment duration of 0,76 weeks. All these experiments have similar impact on average UI receipt and earnings among eligible claimants. The impacts on UI receipt were statistically significant but relatively modest. The average impact of the bonus offers on earnings was extremely small and not statistically significant. Findings of these experiments are contrary to findings in the Illinois experiment. These experiments suggest that the re-employment bonus is not a cost-effective method of speeding the re-employment of UI claimants.

Following studies on Illinois experiments suggest that the difference between the treatment and the control exit rates is positive during the period of bonus eligibility and rise just before the end of the eligibility period. One weakness of that programme is that the absence of an effect of the bonus on re-employment earnings. It suggests a greater role for changes in search intensity than changes in reservation wages.

3.2 Dutch studies

In the Netherlands there are welfare benefits in order to support unemployed workers who are not entitled to any other social insurance benefits. Unemployment insurance pays 70 per cent of the last earned wage for a period of time dependent on age and on their work history, which varies between 3 and 38 months. Welfare benefits recipients are often long-term unemployed with poor labour market prospects and benefits are related to the family situation, but not limited in duration.

Since 1997, to increase their transition from welfare to work, benefit recipients in the municipality of Rotterdam were exposed to various financial incentives. The effects of this programme is studied over the period 2000-2003 in [van der Klaauw and van Ours, 2010].

During this period, the re-employment rules changed frequently. The rules were related to accepting regular jobs in the years 2001, 2002 and 2003. If they found a job during 2001 they were entitled to a maximum of 1800€, to be paid in four equal amounts of 450€, each six months after the start of

the job and only if they remained employed. If they found a job during 2002, they were entitled to a re-employment tax rebate of maximum 2269€over a period of three years. If they found a job after January 2003, they did not receive re-employment bonuses.

The authors find that re-employment bonuses do not seem have a significant effect on the job finding rate and there is a low take-up rate of the bonuses (not due to the lack of information). Might be that people assign a lower value to benefits because of the delay in payment.

3.3 Conclusions

The main difference between US experiments and the Rotterdam programme is that in the US bonuses were paid to workers who find job quickly; instead in Rotterdam welfare recipients become entitled for a re-employment bonus after being unemployed for at least one year. Aim of the Dutch strategy is to avoid giving bonus to workers who would have found a job anyway. Bonus experiments in Rotterdam do not seem have a significant effect on the probability to find a job, probably for the delay in payment. Furthermore they support only workers who do not find a job during the first year, so they try to help only workers with a more difficult situation. Actually with this programme we can see better effectiveness of the policy, because it excludes workers that would have found a job anyway. However the results between Netherlands and America are quite similar: the effectiveness of all these programmes are often positive but, in magnitude, the effect is low. From these studies we learnt that declining bonuses are more effective than constant bonuses, because they incentive more workers to not remain unemployed.

American experiments include also control groups, so it is easier to evaluate the impact with respect to the Italian programme we are going to study. The American programme, most similar to the LM, is the experiment in New Jersey, where workers were entitled to income support during unemployment (passive component) and they enjoy some assistance in looking for a job (active component). In New Jersey bonuses were decreasing and thus an incentive to reduce unemployment spell was created. Also in Italy bonuses are decreasing, but they change every year and not every month.

Chapter 4

Liste di mobilità

4.1 Set-up of Liste di mobilità

In 1991 the Italian Parliament promulgated the law 223, which introduced new regulation for the labour market. One important innovation introduced by this law is the reintegration of collective dismissals. Collective dismissals can be applied by firms with more than 15 employees that, due to a reduction, a transformation or the cessation of the activity, want to dismiss at least 5 workers in 120 days. This law introduced a new safety valve, called *Liste di mobilità* (LM), in order to assist collectively dismissed workers.

This programme includes both a passive and an active component. The passive component is an income support that the worker receives if he/she is registered in the LM. The important innovation of this labour programme is the active component, like reductions in labour costs, which includes advantages for the firms who hire dismissed.

In 1993 the law 236 extended the participation to the programme also to workers individually dismissed by small firms. They could participate on voluntary basis, but they do not receive the income support.

This programme is an important innovation compared to the previous *Cassa integrazioni guadagni* (see section 2.2) where workers received only the passive component. With the previous programme workers were not motivated to look for a new job also because that they felt attached to the previous firm. In fact workers entered in the programme they were not definitively fired. Hence many workers receiving an income support did not look for a new job, hoping in a re-employment in the previous firm. With the LM, workers are finally fired and so they are induced to start searching a new job.

4.1.1 Condition for enrolment and eligibility duration

The LM programme establishes that firms with more than 15 employees may dismiss redundant workers and automatically register them in a special register maintained by a regional authority. The programme helps firms to face situation of crises, allowing them to reduce the personnel with collective dismissal. Workers dismissed by small firms, with up to 15 employees, may enter in the list but on voluntary basis.

In order to be eligible for the list, workers must have been hired with a permanent contract with the dismissing firm at least 1 year before and with at least six months of effective work in the firm (including holidays, accidents, etc).

The eligibility period varies with the worker age at time of dismissal; it lasts:

- 1 year for workers younger than 40 years old
- 2 years for workers between 40 and 49 years old
- 3 years for workers older than 49, or even longer when workers are getting close to being eligible for retirement benefits.

In south Italy, the periods last respectively 2, 3 and 4 years.

Workers in the LM should carry out some obligations with respect to training and job offers. If a worker refuses an appropriate job offer (considering the position and the wage of the previous work) by the local public labour exchange, he is dropped from the programme. Anyway these rules are not often applied, thus workers can refuse job offers. Workers enrolled in the LM could work for short time (up to 12 months on temporary contract) without compromise their maximum duration of stay in list. Indeed income support and LM duration are temporary frozen up to the end of the contract with the return in list.

4.1.2 The active and the passive component of the programme

As we saw at the beginning of this chapter the LM programme is composed by an active and a passive component.

The passive component is enjoyed only by workers dismissed by large firms. During the stay in LM they are entitled to income support. These benefits are interrupted if the worker is hired and last up to the maximum stay in list. They vary according with the worker's age.

year	benchmark		net pay	gross wage
1997	below	2,994,924£	1,300,730£	1,384,344£
	above		1,563,351£	1,663,847£
1998	below	3,036,374£	1,325,749£	1,403,503£
	above		1,593,422£	1,686,875£
1999	below	3,080,098£	1,344,839£	1,423,713£
	above		1,616,367£	1,711,166£
2000	below	3,119,030£	1,361,838£	1,441,709£
	above		1,636,798£	1,732,795£
2001	below	3,182,908£	1,389,729£	1,471,235£
	above		1,670,320£	1,768,283£
2002	below	1,679.07€	733.12€	776.12€
	above		881.14€	932.82€
2003	below	1,711.70€	747.38€	791.21€
	above		898.27€	950.95€

Table 4.1: Summary table of ceilings during 1997-2003 [Inps, 2011].

Workers younger than 40 years old enjoy one year of income support, instead workers between 40 and 49 years old enjoy two years of benefit. Income support is equal to 80% of the previous pay during the first year and is reduced to 64% during the second and the third year (figure 4.1), with a ceiling that varies over time. In fact the amount of benefit can not exceed a ceiling fixed every year. Ceilings are divided in two ranges depending on the previous wage. In table 4.1 we can see the two ceilings from 1997 to 2003, depending on a benchmark fixed every year. For example if a worker in 2003 entered in LM because fired from a job where he earned a wage larger than 1,711.70€, then he will earn 80% of the previous wage. Nevertheless if this amount exceeds the ceiling (950.95€), he will receive just 950.95€. While, if the worker's previous wage was below 1,711.70€, then the ceiling will be 791.21€.

Looking at the ceilings we observe that workers with high wage receive a benefit definitely smaller than the 80% of the previous wage.

On the other side, as we saw in chapter 2, workers dismissed by small firms could receive just the standard UI, that is 30% or 40% of their last wage up to 6 months.

The active component of the programme consists in benefits given to employers who hire enrolled workers from the LM. It consists in a reduction of social security contribution (SSC) and in an amount of the remaining bonus of the worker (if the worker enjoyed the benefit). The advantage of the reduction in SSC is different according to the type of contract adopted by the firm hiring the worker:

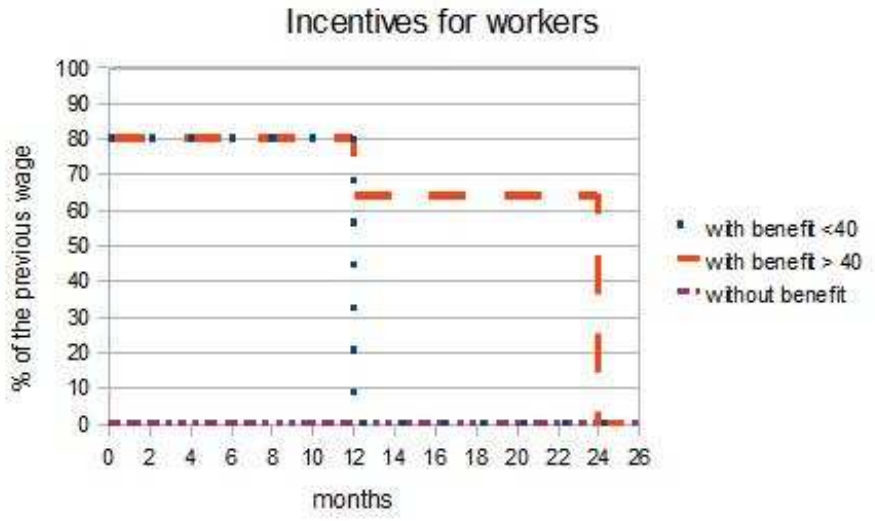

Fig. 4.1: incentives for workers to stay in LM.

- If firms hire workers on a temporary contract (up to 12 months), firms enjoy 12 month in cut SSC.
- If firms hire workers on a temporary contract and then they switch it into a permanent one, cut in SSC can last up to 2 years.
- If firms hire workers immediately on a permanent contract, they enjoy 18 months of cut in SSC.

In addition firms receive a benefit equal to 50% of the remaining bonus that workers would have received had they remained in the list. The maximum benefit transfer is equal to the 50% of total amount of the monetary benefit of at most one year.

If employers hire workers without benefit they enjoy only cut in social security contribution. Therefore the best strategy for firms is to hire a worker with benefit with a temporary contract and then switch it into a permanent one.

In figures 4.2 and 4.3 we can observe the incentives for firms[1].

The difference of incentives for employers hiring a worker $40-49$ years old with bonus instead of a worker younger than 40 is that they have an

[1]Incentives for employers are computed using a study of Rettore, Paggiaro, Trivellato (2009). They are the percentage of labour savings (respect of the total labour cost) over two years for firm hiring a worker in LM. The assumption used for these estimates is that the annual gross wage is 13000 €

	Firm size			
	workers collectively dismissed by large firm (≥ 15)		workers collectively dismissed by small firm (< 15)	
age of dismissal	<40	40-49	<40	40-49
eligibility duration (year)	1	2	1	2
monetary benefits	80%	80% first year, 64% second year	-	-
rebate on SSC's	18 - 24 months			
benefits transfer to hiring firm	50% of one year at most		-	-

Table 4.2: Summary table about incentives for firms [Paggiaro et al., 2009].

Fig. 4.2: Incentives for employers to hire workers enrolled in LM younger than 40 years old with a permanent contract.

Fig. 4.3: Incentives for employers to hire workers enrolled in LM older than 40 years old with a permanent contract.

additional year for hiring the worker (because the spell in the LM for these workers is of two year).

During the first month the incentives are the same, then until the end of the first year they are a little higher for the workers aged $40-49$ because the period of bonus received by the worker is two years and by the employer is half of it up to 1 year. During the second year it is convenient to hire a worker aged $40-49$ because there are no incentives for those younger than 40.

4.2 Previous studies on LM

There are several studies on the LM programme, because it has a considerable role in the field of labour policies and for the uncertainty of its effectiveness. All these studies differs with respect to analysed regions, methods and results, but they use all the same kind of data: administrative regional archive of LM. Since there is not an appropriate control group, analyses are concentrated on differences between different treatments received by workers, varying according to worker's age and to the size of the firms which the workers belonged to. It is important to distinguish the effect of the treatment (one year more in the LM) from the effect of the age, which tend to combine together.

Most analyses show that remaining one more year in the LM has a negative effect, maybe because older workers are more selective in accepting a new job (they have a higher reservation wage). Although the programme gives them more incentives, the negative effect caused by the age is not eliminated. Usually studies exclude people with more than 49 years old, because some of them in the list are only waiting for retirement. The main studies on LM are about the duration of stay in the list and the probability to find a new job according to workers' features and LM rules.

A study about length of stay in the list [Brunello and Miniaci, 1997b], conducted in Lombardia, finds out that bonuses tend to extend the duration of stay in list, in particular for workers of higher age. To avoid this negative effect, the real search and job acceptance by workers and the possible participation at market of undeclared work should be checked. In the same year and still in Lombardia, Brunello and Miniaci conducted another study related to workers between 40-49 years old [Brunello and Miniaci, 1997a]. They observe that conditionally to workers' age, an additional year of benefits reduces the probability to find a new job, in particular for women. Despite this favourable treatment for older workers, the negative effects caused by bigger reservation wages prevails on the positive effects due to the larger benefits given to the firms hiring them.

From a study [Borzaga and Carpita, 1997] conducted in Veneto and in the province of Trento, we observe that the probability to find a new job for workers enrolled in LM depends on the characteristics of workers (on the side of the supply) and of firms which discriminate older and less skilled workers (on the side of the demand). If the labour market is dynamic, there will be more possibility of finding a new job and fewer differences between men and women. From this study the passive element of the policy (benefit) does not seem to have a significant negative effect on the probability of finding a new job.

A study about LM in Veneto [Franceschini and Trivellato, 1998], notices that the bonus has a negative effect and it reduces chances of re-employment for workers older than 40 years old and in particular for those older than 50 years old. For workers younger than 40 years old, the bonus works like an active component of the policy, because it increases the probability to leave the LM. A possible cause could be that firms prefer younger workers and that older workers enjoy bonus for long period, so they are less stimulated to look for a new job.

In another study still in Veneto [Paggiaro and Trivellato, 2002], the authors find that the transfer of the bonus from workers to firms has not a dominant role, because the advantage obtained by the firms by the cuts in social security contributions is bigger. The SSC's cut is invariant with the

size of the firm which the worker belonged to, with worker's age and the time spent in LM. Moreover the authors affirm that the facility for firms to cumulate social security reductions, by hiring on temporary contracts and then transforming them into permanent ones, is used.

A study about LM in Umbria [Caruso, 2001] notices that, the longer is the period allowed in staying in list, the most negative is the effect of the bonus. This effect is associates with the negative effect of age; even if the bonus is bigger, workers are discriminated by firms for their age and they are more selective with the new job offers because they have a higher reservation wage.

In another study still in Umbria [Caruso and Pisauro, 2005], the authors study the duration of unemployment. They face the problem of opportunistic behaviours of firms; in fact firms fire some workers and then they recall the same from the LM in order to achieve incentives in cut is SSC. They find out that there is a negative dependence between unemployment duration and recall from the previous employer, while there is no dependence between unemployment duration and new jobs.

In a study in Turin [Martini and Costabella, 2007] opportunistic behaviour of firms and of unemployed are analysed. They find out a non negligible number of firms who fraudulently dismiss their workers to rehire them soon afterwards under a different firm denomination. They also find a strong negative effect of the receipt of income support on the probability of re-employment. Such negative effect increases strongly with the age of the worker.

One of the most recent studies about LM is carried out by Paggiaro, Trivellato and Rettore in 2009. In this research they study the impact of extending the duration of eligibility on re-employment probabilities and wages. They find that for most subgroups there is no significant impact, except a small negative one for women at the 40-years threshold (which could be attributed to family commitments in particular if they have young children) and a significant negative one for workers aged 50 years or more, probably because they use this programme as a bridge to retirement. Finally they conclude that more generous provision for older workers do not help in getting them back to work, but it just makes the programme more expensive [Paggiaro et al., 2009].

4.3 Conclusion

Looking at features of the LM and at previous studies we learnt that treatment is different mostly according to the size of the dismissing firms which

workers belonged to. However is difficult to find the real effect of different treatments because the two groups are not randomly assigned, so we do not have a control group. The treatment differs also according to the age of dismissed workers; in particular incentives are longer for older workers. These bigger incentives are not enough to fill the differences caused by age, in fact for older workers it is more difficult to leave the LM. Incentives for workers are constant during the first year of stay in LM, then during the second and the third year they are reduced and they are enjoyed only by older workers. Incentives for firms are mostly related to cuts in social security contribution, which are enjoyed when workers enrolled in LM are hired. However incentives are bigger when workers who enjoy bonus are hired, in particular if they are at the beginning of the stay in LM. Although incentives are larger for workers who receive benefits, from the previous studies we observe that bonuses do not have always a positive significant effect on re-employment rate and that an additional year of benefits for older workers reduces the probability to find a job.

The literature relating to LM is quite wide, but this topic is worth of a lot of future studies for its importance and uncertainty of effectiveness.

Chapter 5

Data used in our analysis

5.1 Sources

In this study we use administrative data. The database is obtained by the linkage between two administrative archives: Giove (that is an archive from the Labour Exchange Office) and INPS (that is an archive from social security administration) [Maurizio and Trevisan, 2009].

The advantages to use administrative data are in term of cost, coverage and timeliness:

- there is a reduction of costs, because data-gathering takes place for other purposes and it is not sponsored and organized by statistical data collectors.

- Usually there is a total coverage, thus data are more detailed than in surveys on samples.

- The gathering of statistical data is continuous, thus it is possible to obtain data with timeliness.

Nevertheless there are also some limitations in using administrative data. In fact these databases are constructed for purposes different from the statistical analyses. There could be variables not collected, because considered not interesting for administrative purposes. Some administrative variables could have different definitions than those utilized in statistic and the population registered in administrative data could be different from the population of interest for statistical analyses.

5.1.1 Giove database

Giove is a statistical database composed by data coming from Labour Exchange Offices *(centri per l'impiego)* [Maurizio, 2006].

Data collected by Labour Exchange Offices come from:

- firms: they are committed by law to communicate information concerning working histories (hiring, contracts and dismissal). These are the biggest component of the dataset.
- workers: when they are looking for a job and they spontaneously go to employment exchange offices.

The database is composed by four tables, concerning workers, firms, agencies and working histories. In particular we utilize data about:

- workers: gender, citizenship, age and educational qualification
- working histories: the date of beginning and cessation of working spells, kind of contract, qualification and position.

5.1.2 Inps database

The other database used in order to obtain more information is composed by data coming from the archive of social security administration *(Inps)*. In this database we have data about firms and more detailed information about working histories. In fact there are data about all the employment spell between employers and employees (with the dates of beginning and cessation of every work and contract), qualification, salary, position, kind of contracts for every spell. In particular we have data about the salary received by each worker during each working spell. For a smaller sample, composed only by workers enrolled in LM during 1997 and 1998, we have also the salary after three years from the entrance in LM.

5.1.3 Linkage

Although these two databases are composed by administrative data, there are some differences caused by the way and the purposes of data-gathering. In the first dataset we have more personal information about workers; instead in the second one we have more information about working spells and about the salaries.

The linkage is obtained using a key for workers and one for employers. With record linkage we lose some observations, but we gain in term of amount of variables.

	with benefit		without benefit	
	men	women	men	women
total	8266	9825	7766	17832
percentage	0.19	0.22	0.18	0.41

Table 5.1: Summary statistics

5.2 Our sample

We carry out analyses on dismissed workers enrolled in LM in the Veneto region from 1997 to 2003. Veneto is a well-developed region with an unemployment rate lower than the Italian average. During 2003 the unemployment rate for workers between 15 and 64 years old was 3,4% compared to the 8,8% in Italy [Oecd, 2010]. Thus our main results could be generalized to most of Northern and Central Italian regions, with similar unemployment rate; but they can not be taken as representative of whole Italy. Furthermore in the South of Italy the programme is different in length. We use data from 1997 to 2006 in order to observe working histories over three years from the entrance (years 1997-2003) in the LM programme.

We consider only workers younger than 50, because for older workers the situation is more complicated, indeed sometimes they exploit an adding programme called *long mobility*, that is a bridge to retirement. From the linkage between the two databases we obtain a dataset with 43689 individuals. In the dataset we can follow working history for each enrolled in list up to three years. With the linkage we obtain information concerning:

- social demographic features: age, gender, education and citizenship
- past working history: length, position, qualification and weekly wage of the job which caused the mobility.
- LM with new working histories: year of start of the programme, if the worker receives benefits or not (it depends if the worker belonged to a small or a big firm), days of unemployment up to a first job and to a permanent one, kind and supposed length of the first contract and (for a smaller sample) wage after three years from the entrance in LM

In table 5.1 we observe that most of our sample is composed by women without benefits. It means that a lot of women took advantage of the change of the programme LM of 1993. With this change also workers belonged to firms with less than 15 employees could be enrolled in LM, enjoying only the active component.

		with benefit		without benefit	
		men	women	men	women
Age %	<40	0.61	0.7	0.7	0.8
	40-49	0.39	0.3	0.3	0.2
Citizenship %	Italian	0.91	0.97	0.88	0.97
	foreign	0.09	0.03	0.12	0.03
Destination of	permanent	0.54	0.39	0.57	0.43
the first job %	temporary	0.34	0.39	0.33	0.37
	no job in 3 years	0.12	0.22	0.10	0.20
Educational	middle school	0.73	0.73	0.63	0.68
qualification	high school	0.24	0.23	0.25	0.29
(up to)%	degree	0.03	0.02	0.02	0.02

Table 5.2: Summary statistics

	with benefit		without benefit	
age	men	women	men	women
<40	872	1041	1023	2278
40 - 49	529	301	437	367
total	1401	1342	1460	2645

Table 5.3: Summary statistics of the reduced sample

Looking at table 5.2 we observe that there are more young than old workers, most of workers are Italian and with up to 8 years of education. Looking at the percentage of workers who do not find a job during three years from the beginning of the LM, we figure out that the percentage is almost the same for workers with and without benefits (a little bigger for workers without benefits) and it is around 10% for men and 20% for women.

In order to analyse effects of benefits on wages we can use a smaller sample. We have data about wage of the previous job and after three years for a sample of workers enrolled during 1997 and 1998. This sample is composed by 8548 unemployed. If we restrict the sample to workers who find a permanent job during these three years we obtain 6848 observations. Table 5.3 reports the composition of the sample by sex age and entitlement to income support.

Chapter 6

Exploratory analyses

In this chapter we describe through exploratory analyses the main data characteristics.

6.1 General trends depending on the contract

In the following four graphs we can see the probability to find a job during two years from the beginning of stay in LM, according to 4 types of contract:

- permanent;
- temporary contract switched later into a permanent one;
- temporary long (if the expected length of contract is more than 6 months);
- temporary short (if the expected length of contract is between 0 and 6 months).

These graphs are divided by age (younger and older than 40 years old) and by benefits (workers who enjoy benefits or not). They have time (in months) in abscissa and the probability to find a job in ordinate.

The probability of re-employment during the t month (r_t) is computed as follows:

$$\Pr(r_t) = \frac{\#\text{ of unemployed who find a job during } t \text{ month}}{\text{mean between } \#\text{ of unemployed at } t \text{ and at } t{+}1 \text{ month}}$$

Figure 6.1 shows the probability to find a job for workers younger than 40 years old, who receive benefit. During the first month it is higher, then

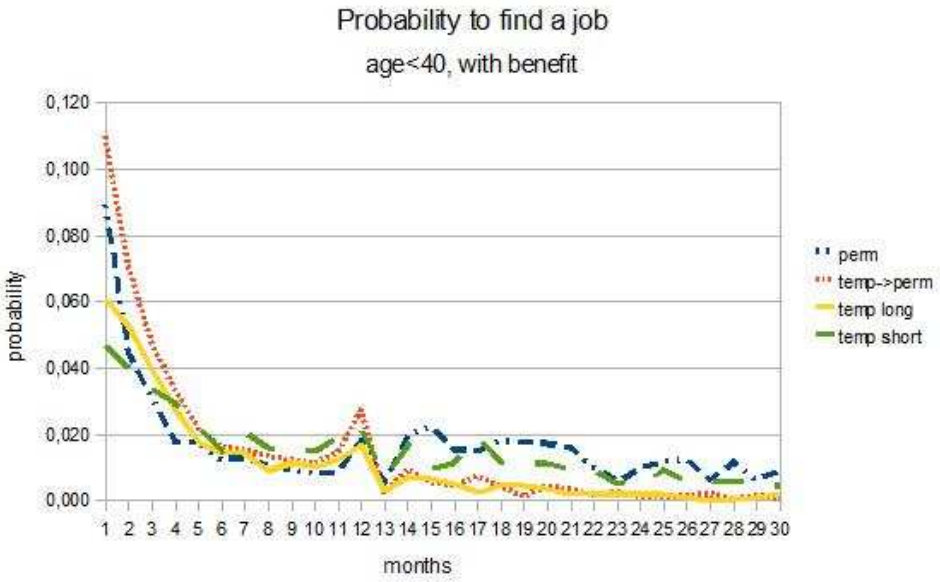

Fig. 6.1: Probability to find a job for workers, who receive benefits, younger than 40 years old.

Fig. 6.2: Probability to find a job for workers younger than 40 years old, who do not receive benefit.

it decreases quickly and after some months it becomes almost constant. We can notice a little spike at one year, when workers stop to receive the bonus.

Figure 6.2 shows the probability to find a job for workers younger than 40 years old, who do not receive benefit. This group has a similar trend of the previous one, but here the probability to find a job decreases slower during the first year. At the end of the first year there is a little spike and after the trend is almost constant. This group of workers do not receive benefits, but the firms have some incentives to hire them during the first year.

The spike in correspondence of the last month of the mobility, followed by a valley on the thirteenth month, could be attributed to the active part of the programme (the incentive for firms). In fact an employer hiring a worker up to the twelfth month takes advantage of cut in SSC, which is an important saving in labour cost. Thus he is more interested in hiring workers on the twelfth than on the thirteenth month. However the bigger spike seen in figure 6.1 could be attributed to the mix of active component (incentives for firms) and passive component (incentives for workers).

Focusing on the kind of contract, we notice that at the beginning there are more unemployed who find a job with a permanent contract (or with a temporary contract switched later in a permanent one) than unemployed who find a job with a temporary short contract. After some months the trend of all four kinds of contracts is almost the same.

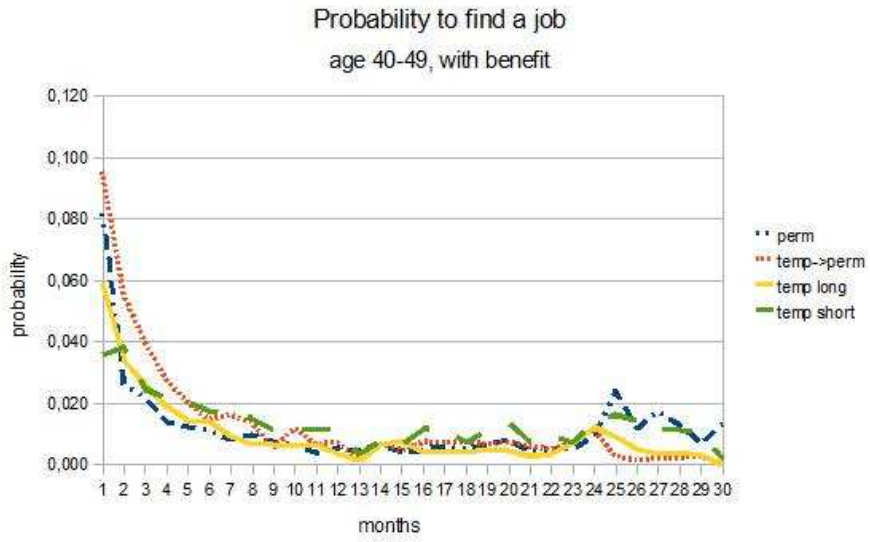

Fig. 6.3: Probability to find a job for workers older than 40 years old, who receive benefit.

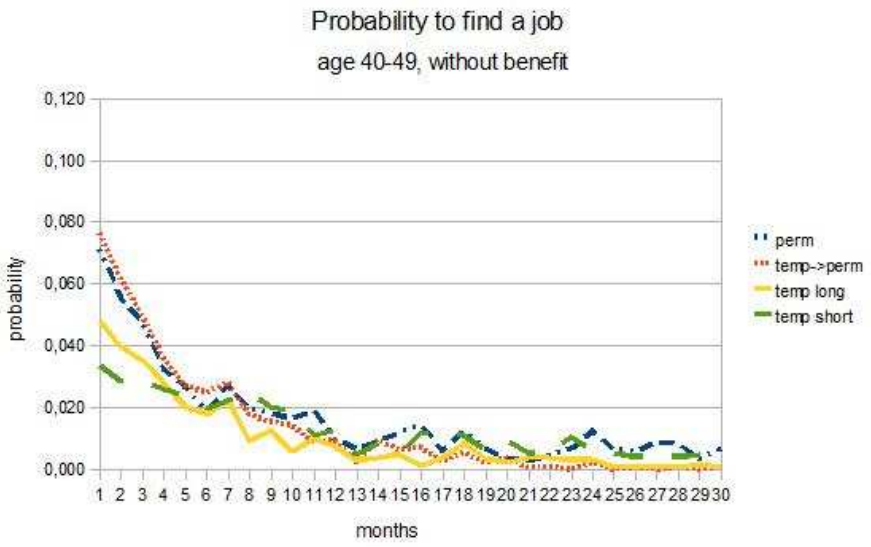

Fig. 6.4: Probability to find a job for workers older than 40 years old, who do not receive benefit.

Figure 6.3 shows the situation for workers older than 40 years old, who receive benefits. After some months the probability to find a job decreases quickly and then it is quite small until the end of the stay in LM. The probability to find a job increases at the end of the second year, when the unemployed exit from the LM.

Figure 6.4 shows the probability of re-employment for people older than 40 years old, who do not receive benefits. This group has a trend similar to that of younger workers who do not receive the bonus.

For older workers, we observe that at the end of the second year (when the programme for unemployed is almost finished), there is a little increase in re-employment. This growth is smaller for workers who do not receive benefits.

In all these four graphs we observe that during the first five months, the line representing temporary contract switched into permanent one is the highest. This is the best strategy for firms, because with this type of contract they enjoy up to 2 years of cut in SSC.

6.2 Survival analyses

Survival analysis is used to estimate the probability to leave the LM and unemployment. For workers we have data on the first three years from the

dismissal; indeed we have to face the problem of right censoring, because not all workers find a job during that period.

In order to handle the right censoring problem we could use survival analysis. The survival function can be estimated by the Kaplan-Meier estimator, which can be interpreted as joint probability of surviving to time t, where surviving means remaining unemployed.

The Kaplan Meier estimator is defined by

$$S(t) = \prod_{j|t_j \leq t} \frac{r_j - d_j}{r_j}$$

where:

r_j is the number of spell at risk at time t_j. In this analysis it is the number of unemployed at time t_j

d_j is the number of spells ending at time t_j. In this analysis it is the number of unemployed who find a job at time t_j

6.2.1 Survival analysis up to the first job

In this section we study the unemployment duration up to the first job. Actually if a worker finds a temporary job, he will temporarily leave the LM up to the end of the contract; instead if he finds a permanent job, he will definitively leave the LM.

Using the Kaplan Meier estimator we check the main effects of some variables. We start with the variable most interesting for our analysis, which is the variable benefit.

Figure 6.5 has in abscissa the time in days and in ordinate the probability of staying in LM. Vertical lines show the end of the first and of the second year. The solid line represents workers who receive benefits, the dashed line the others.

From the graph we find out that at the beginning the variable benefit has a positive effect on re-employment, but after some months this effect becomes negative. During the second year the negative effect decreases and during the third year it is almost null. However the difference between the two lines is not caused only by the presence of benefits, because the two groups are not randomly selected; workers with benefit belonged to large firms, while workers without benefit belonged to smaller firms.

Now we separate the effect of the same variable benefit on four different groups. We want to check if the impact of a monetary aid is different when we divide the population in four groups according to gender and age (younger

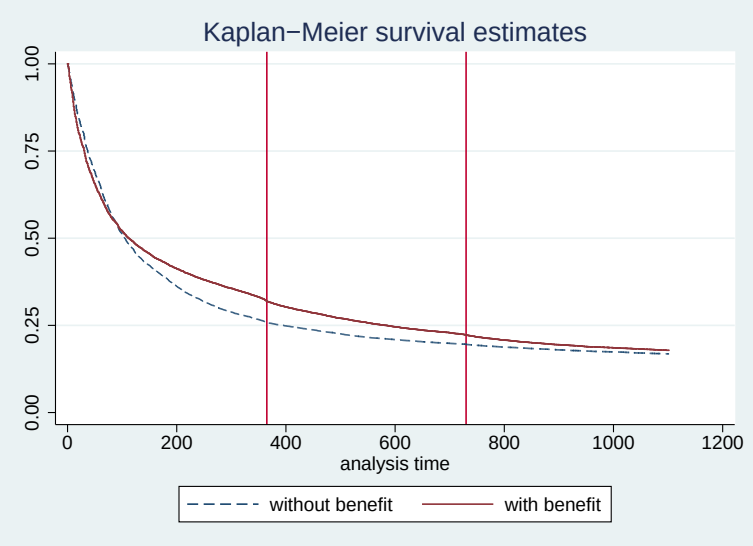

Fig. 6.5: Probability to stay unemployed, during the first three years, by benefit.

or older than 40 years old). For these groups, we observe what happens during the first three years from the entrance in the list. We remind that permanence in list of workers younger than 40 years lasts up to one year, while the permanence of workers older than 40 years lasts up to two years.

Figure 6.6 shows the probability of surviving (staying unemployed) for women below the threshold of 40 years old. During the first three months it is almost the same (a little higher for those who do not receive benefits), instead later it is higher for those who receive benefit. During the second and the third year, when benefits for unemployment are finished, the difference is smaller. Probably firms prefer to hire unemployed workers at the beginning of the LM because incentives are higher. After the first year workers who received benefits have more motivation to look for a job, because they do not receive money anymore; thus during the second and the third year the difference between the two groups decreases.

In figure 6.7 (men younger than 40 years old) we observe that for men the distribution has a similar trend of the previous one, but the differences between workers with and without benefits are smaller. In general the probability to remain unemployed is higher for women.

In figure 6.8 we find out that the probability to find a job for women older than 40 years old is very low and here the difference, between those who receive benefits and those who do not, is higher than in the previous graphs. The group receiving benefits seems to have a real negative impact

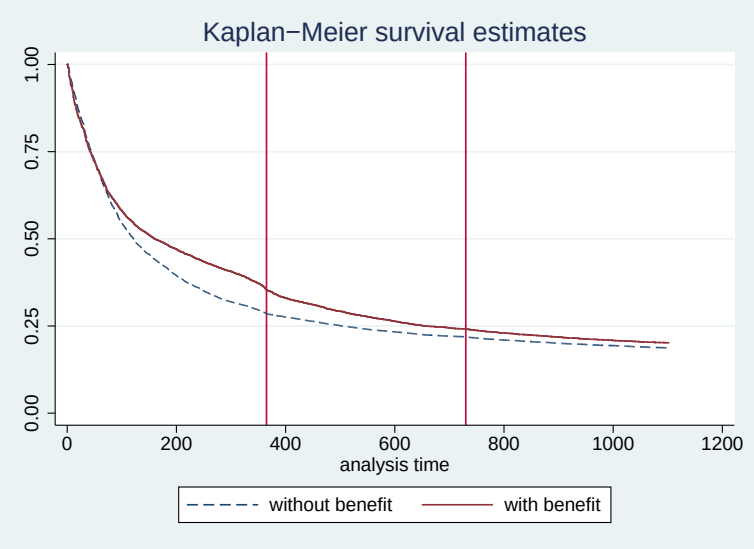

Fig. 6.6: Probability to stay unemployed, during the first three years for women younger than 40, by benefit.

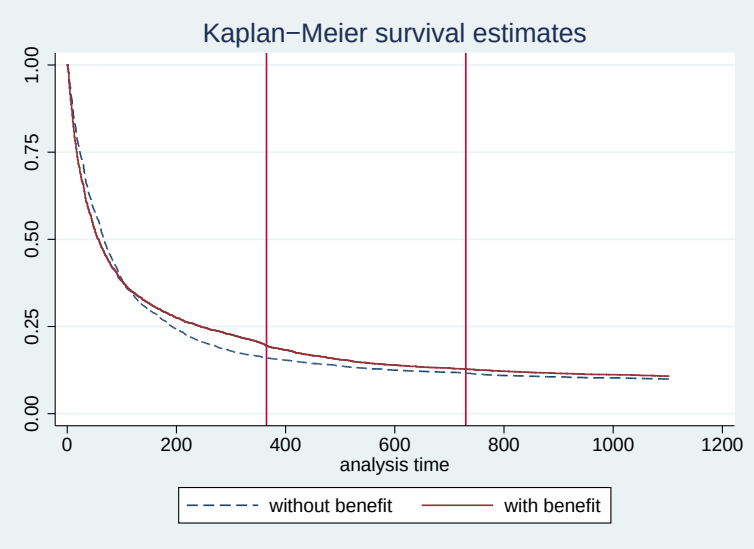

Fig. 6.7: Probability to stay unemployed, during the first three years for men younger than 40, by benefit.

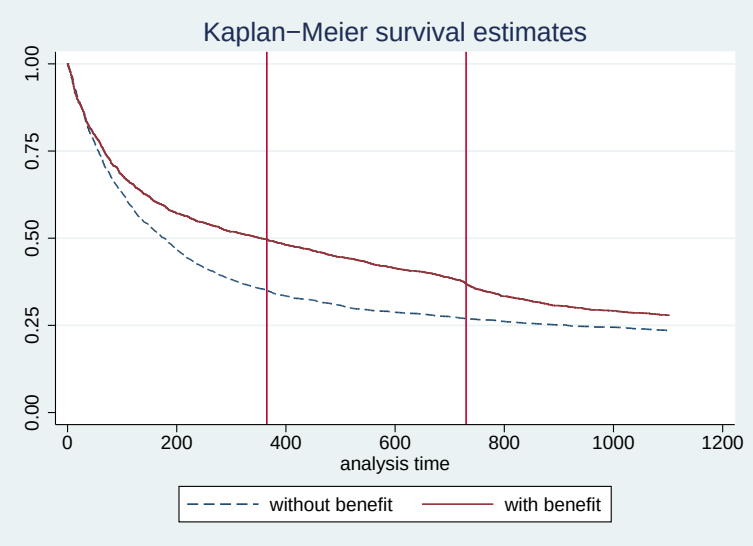

Fig. 6.8: Probability to stay unemployed, during the first three years for women older than 40, by benefit.

on the probability to find a new job. We observe that the negative impact decreases after the end of the second year, when workers are no longer in LM.

In figure 6.9 we observe that for men over 40, receiving benefits has a negative impact after about three months. But here the differences between the two distributions are smaller than for women. Also for this group the negative impact becomes a little smaller after the second year.

From these four graphs we can conclude that finding a new job is more difficult for women and for older unemployed. Moreover for these groups the entitlement to benefit has a bigger negative impact on the probability of re-employment.

Now we analyse the effect of the variable education on the probability of re-employment. We divide the number of years of education in three groups:

- *middle school* : where we consider workers who studied at most for 8 years
- *high school*: where we consider who studied between 9 and 13 years
- *degree*: where we consider graduated workers

Figure 6.10 shows that the probability to find a new job is the highest for workers with a number of years of education between 9 and 13 and it is

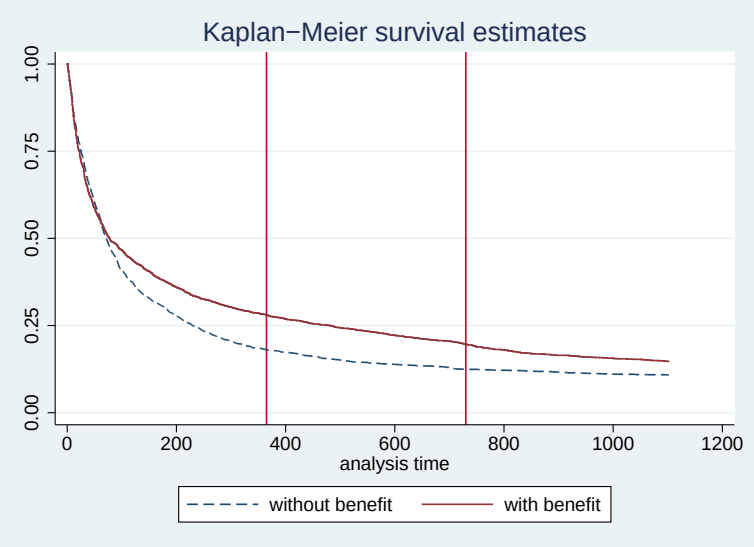

Fig. 6.9: Probability to stay unemployed, during the first three years for men older than 40, by benefit.

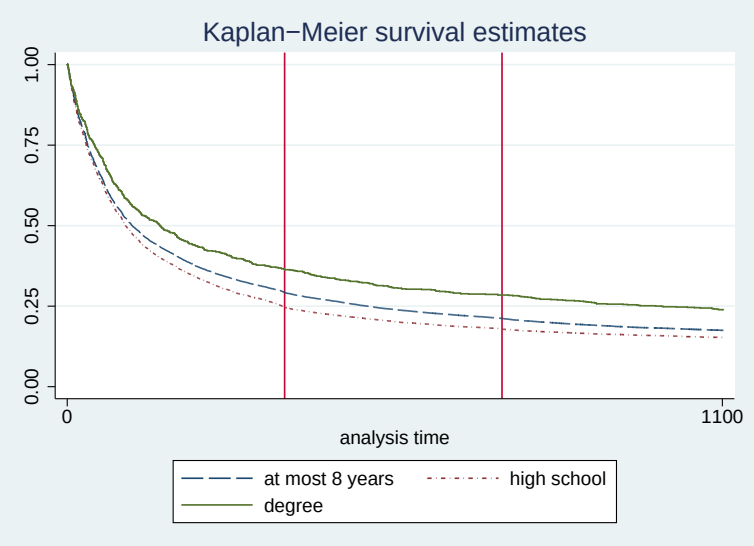

Fig. 6.10: Probability to stay unemployed, during the first three years, by education.

the lowest for workers with a degree. May be that graduated workers spend more time to look for a job, because they have an higher reservation wage.

Then we analyse the effect of another variable: the influence of the type of previous work on the probability of staying in LM. We divide the type of previous job in two groups:

- *White collar* workers are usually salaried professionals who do a job, which is expectedly less strenuous but typically more highly paid than that of blue-collar workers. With white collar workers we indicate: highly specialized intellectual professions, intermediate technical occupations, administrative executive professions, jobs of sales and family services.

- *Blue collar* workers refer to manual or technical labourers, such as in a factory or in technical maintenance trades. They may be skilled or unskilled. With blue collar workers we include: artisans, skilled and unskilled workers and unqualified personnel.

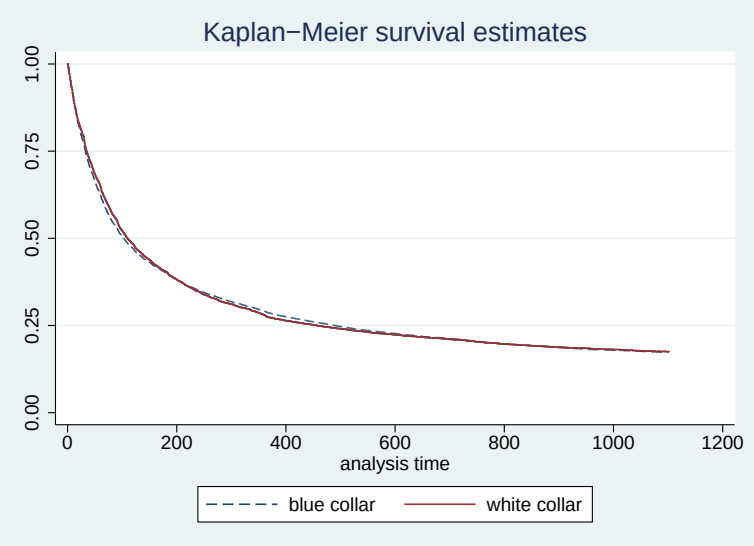

Fig. 6.11: Probability to stay unemployed, during the first three years, by kind of previous work position.

In figure 6.11 we do not observe significant differences between two groups. The type of the previous job does not seem to influence the probability of re-employment.

In figure 6.12 we observe the probability of re-employment considering the

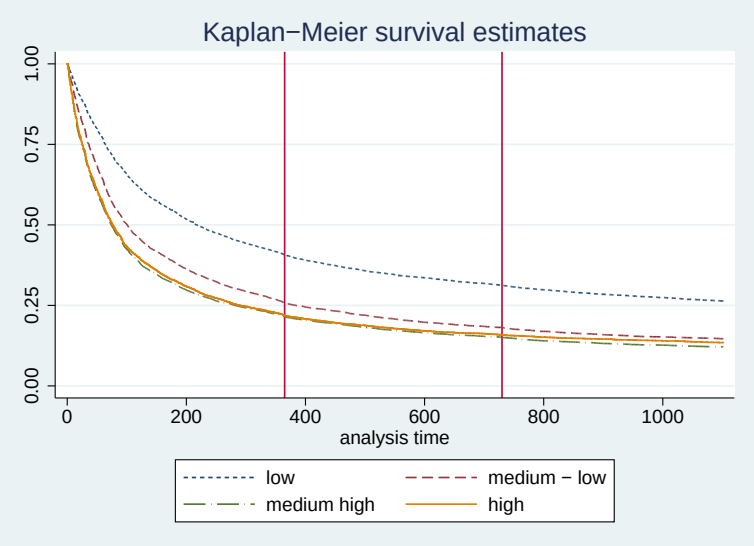

Fig. 6.12: Probability to stay unemployed, during the first three years, by salary.

variable salary of the previous job[1]. This variable is divided in four categories, using quartiles of the distribution. From this analysis we notice that workers with a lower previous wage have a lower probability of re-employment. This probability of re-employment increases with the growth of the previous wage and it is the same for workers with middle-high and high wages. Maybe these two groups receive the same amount of bonus because of the ceiling of maximum benefits. Looking at this figure we find out that workers with a previous job with a medium or a higher wage have a bigger probability to find a job than workers with a lower wage. We guess that this behaviour can depend both on firms, which might prefer workers with a bigger previous wage (since they are more experienced and qualified) and on workers who may have bigger necessity of income since their higher standard of living or family needs.

6.2.2 Survival analysis to a permanent job

In this section we use survival analysis in order to estimate the probability to stay in LM, where the failure is considered finding a permanent job, therefore definitively leaving the LM. In these estimates d_j (the number of spells ending at time t_j) is the number of unemployed who find a permanent job at time t_j.

[1]This variable is a proxy of the wage of the job, which caused the enrolment to the LM. Actually it is the wage earned one year before the entrance in LM.

This analysis could be useful to observe the effect of LM, because the main aim of this programme is to assist people to find a permanent job. We could achieve different results because workers who do not receive benefits may be more interested in finding a job (even if temporary) than workers who receive benefits. In fact workers without benefits have to sustain their income, while workers with benefits can afford to refuse some job offers because they are waiting for a permanent job.

First of all we analyse the effect of the variable benefit (figure 6.13). We

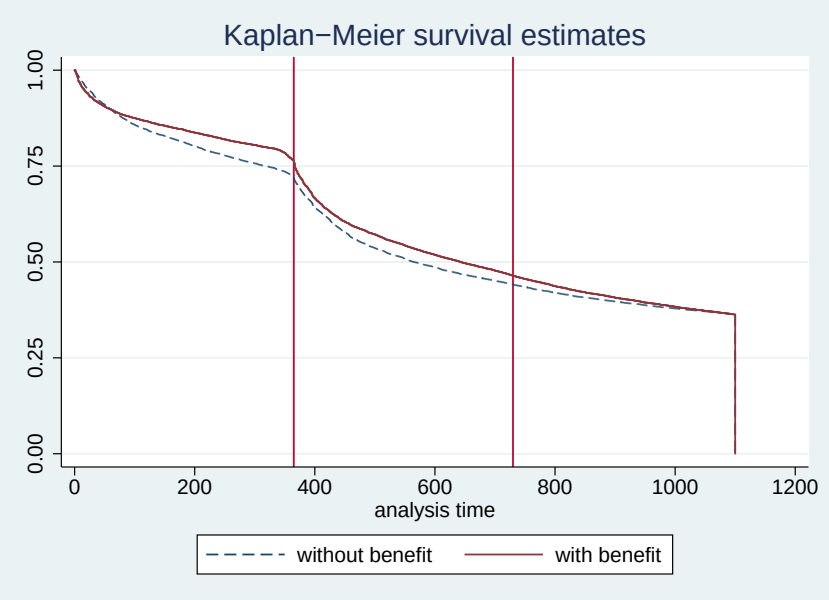

Fig. 6.13: Survival analysis (where the failure is to find a job with a permanent contract), during the first three years, by benefit.

observe that the probability to find a permanent job is fast-growing at the end of the first year. This trend could be explained by the active component of the programme. In fact employers find profitable to hire workers during the first month of LM with a temporary contract and after one year to switch it into a permanent one. With this strategy they will enjoy up to two years of cut in social security contributions. Looking at the effect of the variable benefit we observe that after the first month the probability to find a permanent job is bigger for workers without benefits, during the second year this difference is smaller and at the end of the third year it is almost null. Differences between the two groups are similar to differences achieved in figure 6.5.

Now we separate the effect of the variable benefit on four groups divided by gender and age. We observe survival estimates for women (figure 6.14)

and men (figure 6.15) younger than 40 years old and survival estimates for women (figure 6.16) and men (figure 6.17) older than 40 years old.

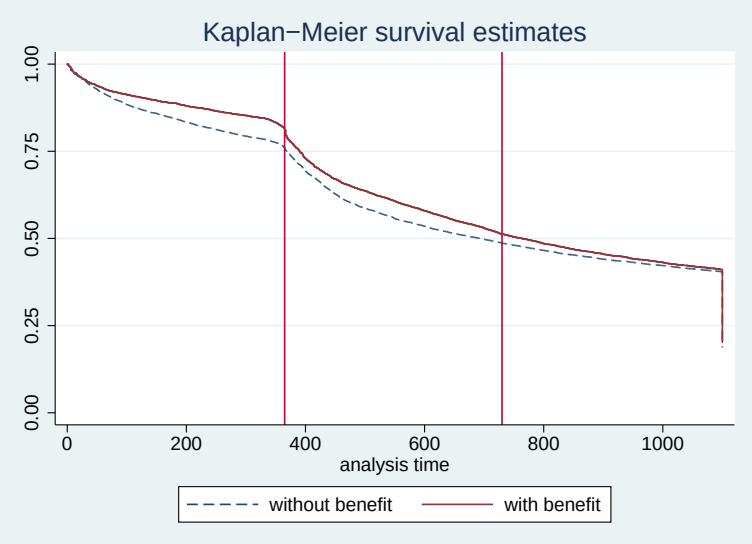

Fig. 6.14: Survival analysis (where the failure is to find a job with a permanent contract), for women younger than 40 years old, during the first three years, by benefit.

First of all we observe that the variable benefit has a small positive effect for men aged up to 40, during the third year. We remember that for this group the programme lasts up to one year (first vertical line), but it could lasts longer if workers experience temporary job. During the third year workers who receive benefits have a slightly higher probability to find a permanent job than workers who do not receive them. It means that there are some small positive effects of the programme after about one year from the end of LM.

Comparing the four graphs we notice that differences between receiving or not receiving benefits are smaller for workers aged up to 40 than for older workers. The entitlement to income support has a negative effect on the probability of a permanent re-employment especially for older workers. Younger workers has a bigger probability to find a permanent job than older workers, probably because they are more attractive on the labour market and for the possible effect caused by different length of the programme between two groups.

Now we want to check if the programme has positive effects on some subgroups. For this reason we consider only younger workers. In particular we want to understand if the programme has a positive effect on the probability

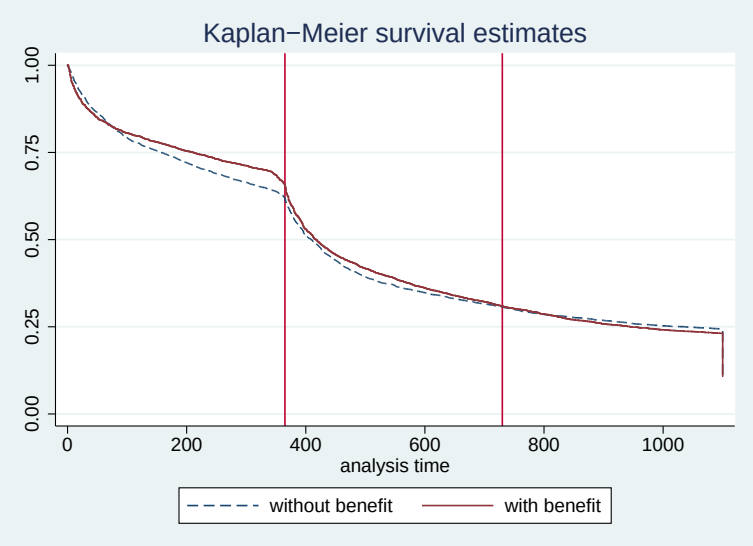

Fig. 6.15: Survival analysis (where the failure is to find a job with a permanent contract), for men younger than 40 years old, during the first three years, by benefit.

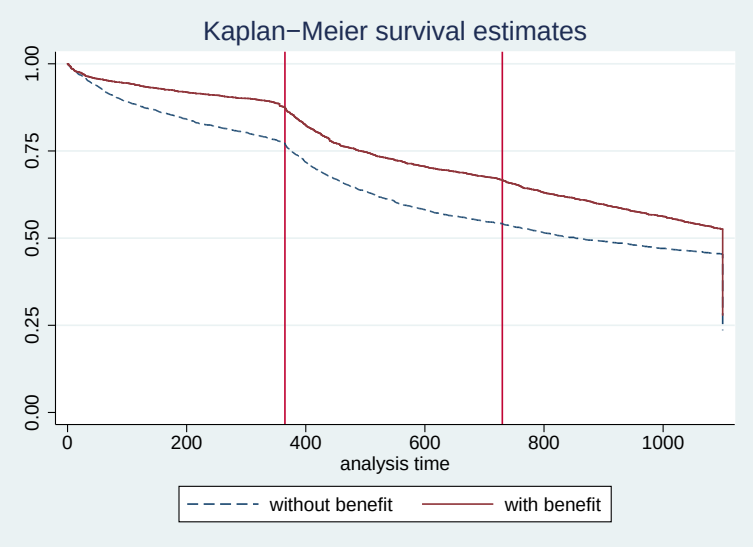

Fig. 6.16: Survival analysis (where the failure is to find a job with a permanent contract), for women older than 40 years old, during the first three years, by benefit.

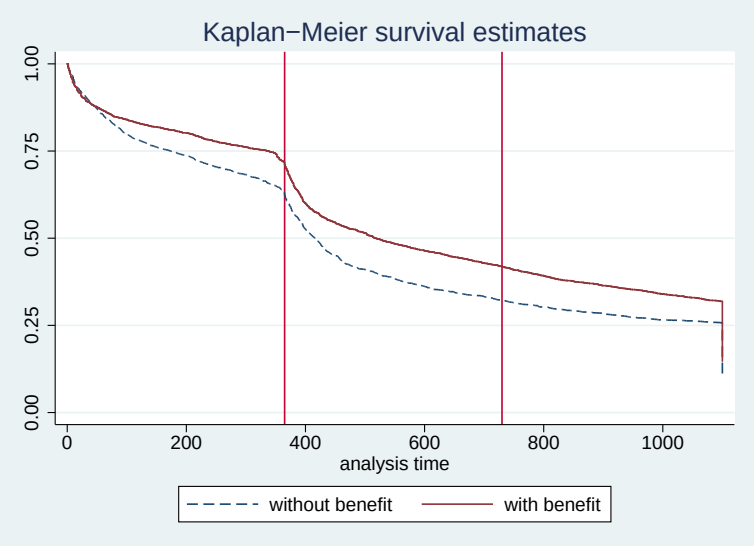

Fig. 6.17: Survival analysis (where the failure is to find a job with a permanent contract), for men older than 40 years old, during the first three years, by benefit.

of permanent re-employment for workers with bigger expectations. We focus on two groups of younger workers: white collar and workers with degree. We suppose that these sub-groups have bigger expectations from the labour market and probably a bigger reservation wage. We want to analyse if the entitlement to income support is an incentive to wait for a better job (in this case a permanent job), thus if workers who receive benefits find a permanent job before than workers who do not.

In figure 6.18 we observe the probability to find a permanent job for younger white-collar workers. This probability is bigger for workers who receive benefits during all the three years, in particular from the end of the first year. For this subgroup the programme has a positive impact.

In figure 6.19 we observe that workers with degree have a higher probability to find a permanent job in presence of benefits. For this group the programme has a significant positive effects during all three years.

6.3 Conclusions

From the exploratory analysis we can conclude these main effects:

- The variable benefit seems to have a negative effect on the probability of re-employment after the first month. This effect is smaller for younger

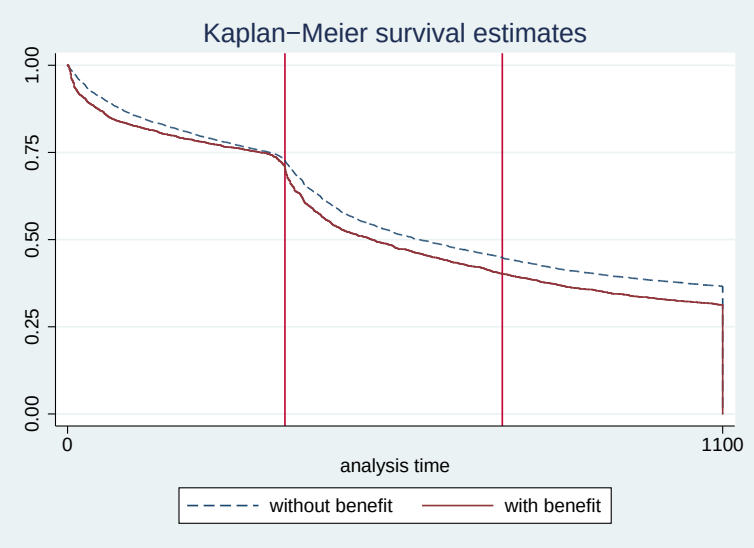

Fig. 6.18: Survival analysis (where the failure is to find a job with a permanent contract), for workers younger than 40 years old and white collar, during the first three years, by benefit.

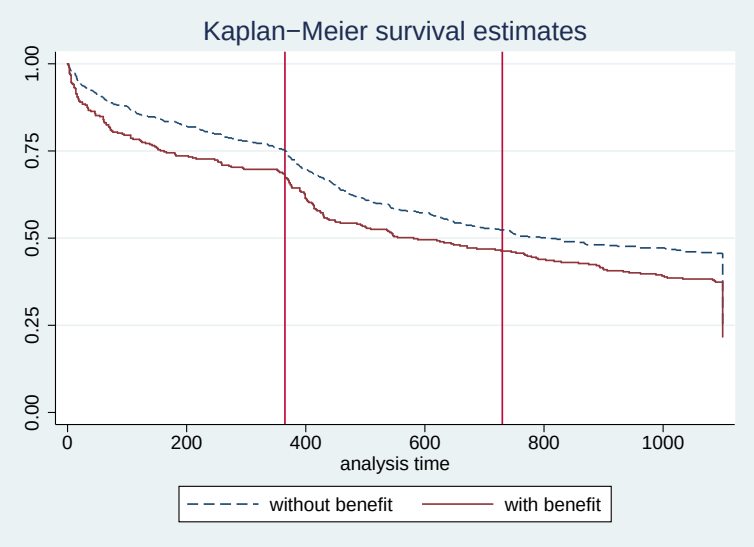

Fig. 6.19: Survival analysis (where the failure is to find a job with a permanent contract), for workers younger than 40 years old with degree, during the first three years, by benefit.

workers and men and it is bigger for older workers and women. In general women and older workers find more difficult to come back in the labour market. This is in line with previous studies.

- The variable education seems to have quite a positive effect: with more years of education it is easier to find a new job, but not for workers with degree where the situation is quite opposite.

- The position of the previous job (if the worker was a white or a blue collar) seems not to influence the unemployment duration.

Looking at the exploratory analysis on the probability to find a permanent job, we could say that benefits help in particular more attractive unemployed on the labour market. The bonus has a positive (or more exactly not negative) effect on younger workers. We found also a positive effect of the benefit on workers with a previous job with a higher qualification and on workers with degree. Comparing the trend of survival analysis to the first job and to a permanent one, we find that many workers are hired during the first month with a temporary contract, which is switched later in a permanent one. This is the best strategy for firms, in order to enjoy more months of cut in SSC.

Chapter 7

Empirical analyses

In this chapter we estimate a logit model in order to have a general idea of the effect of selected variables on the re-employment probability. In particular we focus on the effect of the variable benefits, in order to observe how different incentives influence the unemployment duration. Then we focus on a subgroup of workers aged between 38 and 41, in order to better understand what happens near the threshold of 40 years old. We conclude with a short analysis of quality of re-employment, considering wages.

7.1 Logit model

In this section we estimate a model in order to evaluate the effect of some variables on the re-employment probability. In this model the response is a binary variable, which takes two possible values representing success and failure. We could define the response:

$$y_i = \begin{cases} 1 & \text{if the worker find a job within the } i\text{-th month} \\ 0 & \text{otherwise} \end{cases}$$

The response y_i can take the value 1 with probability p_i. These probabilities p_i depend on a vector of observed covariates x_i. The simplest idea would be to let p_i be a linear function of the covariates:

$$p_i = x_i'\beta$$

where β is the vector of regression coefficients. One problem with this model is that the probability p_i should be between 0 and 1, but this linear predictor does not guarantee that this condition will be satisfied. A solution is to transform the model through two steps, obtaining in this way the logit model.

In the logit model we have:

$$\Pr(y_i = 1|x_i) = \frac{\exp(x_i\beta)}{1 + \exp(x_i\beta)} \tag{7.1}$$

The marginal effects of changes in the j-th component of x_i are computed in this way:

$$\frac{\partial Pr(y_i = 1|x_i)}{\partial x_{ij}} = \frac{exp(x_i\beta)}{1 + exp(x_i\beta)} * \left(1 - \frac{exp(x_i\beta)}{1 + exp(x_i\beta)}\right) * \beta_j \tag{7.2}$$

We apply this model to two different responses:

- the probability of first re-employment, where we analyse the probability to find the first job from the entrance in LM. In the first job are included also jobs with temporary contract.
- The probability of permanent re-employment.

We are interested in particular on the probability of permanent re-employment, because it is the main purpose of the programme. However it is interesting to study the probability of finding the first job because only looking at this probability we exactly know if unemployed are in LM. In fact when we compute the probability of first re-employment we know that, at the end of the first and of the second year, younger and older unemployed exit from the LM. Instead looking at the probability of permanent re-employment we only know the spell from the entrance in LM, but we do not control if during the stay in LM workers have experienced temporary jobs, which cause the LM duration temporary frozen.

7.1.1 Logit model on the probability of first reemployment

In tables 7.1 and 7.2 we report the cumulative marginal effects of changes in some variables on the probability of finding a job during some months of the first year in LM. They are cumulative effects because the response is the probability to find a job from the entrance in list up to the first, third, sixth and twelfth month. They are computed separated by gender: men (table 7.1) and women (table 7.2).

The most interesting variable that could have some effect is the variable benefit. This variable acts in a double way:

- it is an incentive for employers who hire workers who enjoy benefit (active part of the programme).

Table 7.1: Logit model for men (first job)

Variables	**Months**			
(reference variable)	**1**	**3**	**6**	**12**
Benefit (*without*)	0.032 ***	-0.029 ***	-0.055 ***	-0.064 ***
	(0.009)	*(0.009)*	*(0.008)*	*(0.007)*
AGE (*< 40*)	0.348 ***	0.174 ***	0.149	0.132 *
	(0.123)	*(0.009)*	*(0.098)*	*(0.077)*
Age, if < 40	-0.002 **	-0.005 ***	-0.005 ***	-0.003 ***
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*
Age, if 40-49	-0.010 ***	-0.010 ***	-0.008 ***	-0.006 ***
	(0.003)	*(0.001)*	*(0.002)*	*(0.002)*
Citizenship (*Italian*)	-0.063 ***	-0.079 ***	-0.049 ***	-0.015
	(0.017)	*(0.020)*	*(0.018)*	*(0.015)*
Education (*8 years*)				
High school	-0.023 **	-0.040 ***	-0.025 **	-0.009
	(0.011)	*(0.012)*	*(0.011)*	*(0.009)*
Degree	-0.056 **	-0.092 ***	-0.090 ***	-0.107 ***
	(0.028)	*(0.032)*	*(0.031)*	*(0.029)*
Wage (*low*)				
medium low	0.140 ***	0.132 ***	0.088 ***	0.079 ***
	(0.027)	*(0.019)*	*(0.015)*	*(0.011)*
medium high	0.213 ***	0.228 ***	0.173 ***	0.127 ***
	(0.024)	*(0.019)*	*(0.015)*	*(0.012)*
high	0.228 ***	0.224 ***	0.156 ***	0.112 ***
	(0.024)	*(0.019)*	*(0.015)*	*(0.012)*
Previous job (*Blue collar*)	-0.046 ***	-0.058 ***	-0.051 ***	-0.039 ***
	(0.011)	*(0.012)*	*(0.011)*	*(0.009)*

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

Table 7.2: Logit model for women (first job)

Variables	**Months**			
(reference variable)	**1**	**3**	**6**	**12**
Benefit (*without*)	-0.004	-0.005 ***	-0.096 ***	-0.110 ***
	(0.006)	*(0.008)*	*(0.008)*	*(0.007)*
AGE (*< 40*)	0.065	-0.138	-0.131	-0.092
	(0.109)	*(0.107)*	*(0.116)*	*(0.110)*
Age, if < 40	-0.005 ***	-0.012 ***	-0.014 ***	-0.011 ***
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*
Age, if 40-49	-0.006 ***	-0.007 ***	-0.009 ***	-0.008 ***
	(0.002)	*(0.002)*	*(0.002)*	*(0.002)*
Citizenship (*Italian*)	-0.008	-0.023	-0.023	-0.037
	(0.020)	*(0.026)*	*(0.027)*	*(0.025)*
Education (*8 years*)				
High school	0.019 ***	0.012	0.028 ***	0.036 ***
	(0.007)	*(0.009)*	*(0.009)*	*(0.008)*
Degree	-0.003	-0.028	-0.032	-0.067 ***
	(0.020)	*(0.026)*	*(0.026)*	*(0.026)*
Wage (*low*)				
medium low	0.063 ***	0.141 ***	0.149 ***	0.136 ***
	(0.008)	*(0.009)*	*(0.008)*	*(0.007)*
medium high	0.105 ***	0.176 ***	0.172 ***	0.144 ***
	(0.010)	*(0.011)*	*(0.009)*	*(0.008)*
high	0.080 ***	0.156 ***	0.162 ***	0.148 ***
	(0.009)	*(0.010)*	*(0.009)*	*(0.008)*
Previous job (*Blue collar*)	-0.014 **	-0.032 ***	-0.024 ***	-0.015 *
	(0.006)	*(0.008)*	*(0.009)*	*(0.008)*

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

- It is an income for workers who enjoy it, during the stay in LM (passive part of the programme).

The estimates from the models confirm the effects observed in the previous chapter. The variable benefit has a positive effect on the probability to find a new job only during the first month. This effect is positive and significant only for men, instead for women it is not significant. After the first month this effect becomes negative and this cumulative negative effect increases during all the first year. In section 7.2.1 we will see more in detail the effect of this variable during three years from the entrance in LM.

The dummy variable AGE indicates what happens at the threshold of 40 years old. It could explain some effects of the programme, because the policy is different for the groups below and above this threshold. The difference is related to the maximum permanence in LM: respectively up to one and up to two years. Thus with this variable we could analyse the effect of the additional year, because the effect of age is already accounted for other variables (Age, if < 40 and Age, if 40-49). The dummy variable AGE has a positive cumulative effect for men, but it is significant only until the third month. Instead for women it is not significant. By the way we will better analyse the effect near the threshold in section 7.3.

The other variables of the model explain the effect of some worker's features on the probability to find a job. The variable age is computed separately for younger workers (*Age, if < 40*) and for older workers (*Age, if 40-49*). It has a negative significant effect both for men and for women, in both categories. This negative effect means that an increased wage makes more difficult to find a job. This is why there are more incentives for older workers: the programme tries to eliminate these differences caused by age.

The variable citizenship (not Italian citizen) has a negative effect on the probability to find a job; this effect is negative only for men.

Then we analyse the effect of education. We divided the number of years of education in three level: up to 8 years, up to the high school and degree. For men more years of education have a negative effect on the probability to find a job; for women the situation is different. If they study more than 8 years, the probability to find a job is higher than if they study less than 8 years; but if they have the degree this probability is smaller (it is significant only at the end of the first year). Probably employers prefer to hire men with less years of education, instead they prefer women who attended the high school. This difference could be attribute to the type of job they are looking for.

The variable previous job indicates if the worker was a blue or a white collar workers. If the previous job was a more specialized one, then during the

first year it will be more difficult to find a job. Maybe it could be attribute to the expectation of workers. If a worker had a more specialized job and he has the opportunity to refuse the first job offers because he has an income from the LM, then he will accept a job when he find one with similar qualification than the previous.

7.1.2 Logit model on the probability of permanent re-employment

Now we estimate the same model of 7.1.1 in order to analyse if there is a different effect on the probability to find a permanent job. We are interested in this analysis because unemployed definitely exit from the list only when they find a permanent job.

The logit model estimates the probability to find a permanent job for men are in table 7.3. If we compare these results with those in table 7.1, we observe similar effects. In particular the variable benefit has the same negative effect after the first month. By the way we find some differences:

- the variable age for workers aged up to 40 is not significant
- the variable citizenship is not significant
- the variables related to education (which divide the number of years of education in three groups) are not significant. In particular we observe that the effect of workers with degree is changed: in the previous analysis the degree had a significant negative effect on the probability to find a job; in this model it has a not significant positive effect on the probability to find a permanent job (except at the end of the first year which becomes a not significant but negative).

The logit model estimates for the probability to find a permanent job for women, are in table 7.4. If we compare these results with those in table 7.2, we observe similar effects. In particular the variable benefit has the same significant negative effect after the first month, but its effect is slightly smaller than in the previous analysis. Also the effect of the variable age is the same, but slightly smaller. The differences are:

- the variable citizenship is still significant, but the effect becomes positive
- the variables related to education are mostly not significant. Also for women the variable degree has a positive not significant effect (except at the end of the first year, that it becomes a not significant negative effect)

Table 7.3: Logit model for men (permanent job)

Variables	**Months**			
(reference variable)	**1**	**3**	**6**	**12**
Benefit (*without*)	0.018 ***	-0.019 ***	-0.039 ***	-0.060 ***
	(0.006)	*(0.008)*	*(0.008)*	*(0.009)*
AGE (*< 40*)	0.321 **	0.296 **	0.338 ***	0.230 *
	(0.140)	*(0.130)*	*(0.127)*	*(0.127)*
Age, if < 40	0.000	0.000	0.000	0.000
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*
Age, if 40-49	-0.005 ***	-0.006 ***	-0.007 ***	-0.005 **
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*
Citizenship (*Italian*)	-0.017	-0.014	0.006	0.026
	(0.012)	*(0.015)*	*(0.017)*	*(0.019)*
Education (*8 years*)				
High school	-0.003	-0.011	-0.017	-0.024 **
	(0.008)	*(0.009)*	*(0.011)*	*(0.012)*
Degree	0.003	0.021	0.018	-0.013
	(0.020)	*(0.026)*	*(0.028)*	*(0.031)*
Wage (*low*)				
medium low	0.062 ***	0.062 ***	0.047 ***	0.070 ***
	(0.020)	*(0.023)*	*(0.020)*	*(0.023)*
medium high	0.106 ***	0.109 ***	0.091 ***	0.106 ***
	(0.022)	*(0.023)*	*(0.020)*	*(0.021)*
high	0.118 ***	0.122 ***	0.099 ***	0.116 ***
	(0.020)	*(0.021)*	*(0.021)*	*(0.021)*
Previous job (*Blue collar*)	-0.164 **	-0.021 **	-0.019 *	-0.038 ***
	(0.007)	*(0.009)*	*(0.010)*	*(0.011)*

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

Table 7.4: Logit model for women (permanent job)

Variables	**Months**			
(reference variable)	**1**	**3**	**6**	**12**
Benefit (*without*)	-0.004	-0.032 ***	-0.055 ***	-0.073 ***
	(0.003)	*(0.004)*	*(0.005)*	*(0.006)*
AGE (*< 40*)	0.033	0.108	0.134	0.139
	(0.071)	*(0.113)*	*(0.119)*	*(0.121)*
Age, if < 40	-0.001 ***	-0.002 ***	-0.002 ***	-0.003 ***
	(0.000)	*(0.000)*	*(0.001)*	*(0.001)*
Age, if 40-49	-0.001	-0.004 **	-0.004 **	-0.005 **
	(0.001)	*(0.002)*	*(0.002)*	*(0.002)*
Citizenship (*Italian*)	0.001	0.033	0.031	0.023
	(0.012)	*(0.018)*	*(0.020)*	*(0.022)*
Education (*8 years*)				
High school	0.006	-0.001	-0.004	-0.012
	(0.004)	*(0.005)*	*(0.006)*	*(0.007)*
Degree	0.030 **	0.017	0.008	-0.026
	(0.014)	*(0.016)*	*(0.018)*	*(0.020)*
Wage (*low*)				
medium low	0.017 ***	0.034 ***	0.043 ***	0.053 ***
	(0.004)	*(0.006)*	*(0.007)*	*(0.080)*
medium high	0.024 ***	0.049 ***	0.059 ***	0.080 ***
	(0.006)	*(0.008)*	*(0.009)*	*(0.010)*
high	0.023 ***	0.048 ***	0.057 ***	0.074 ***
	(0.005)	*(0.007)*	*(0.008)*	*(0.009)*
Previous job (*Blue collar*)	0.002	0.002	0.008 *	0.015 **
	(0.004)	*(0.005)*	*(0.006)*	*(0.007)*

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

- the kind of previous job (divided in white and blue collar) does not influence the probability to find a job.

7.2 Effect of benefits on first reemployment

In this section we focus on the most interesting variable in order to understand the effect of incentives: the variable benefit. On the basis of the same models of the previous section, we estimate and put in a graph the cumulative effect of the variable benefit for thirty-six months from the entrance in LM. In the previous section analyses were carried out separately for two groups (men and women), while here we use four groups, separately by gender (men vs women) and age (younger vs older than 40 years old). We are mostly interested in the effect of the variable benefit on the probability of permanent re-employment, but we start observing the effect of the variable benefit on the probability to find a first job, to understand workers behaviour during the stay in LM. In fact in the first two graphs we exactly know if workers are still in LM (we do not have to handle previous temporary experiences, which temporary freezes the duration of the programme).

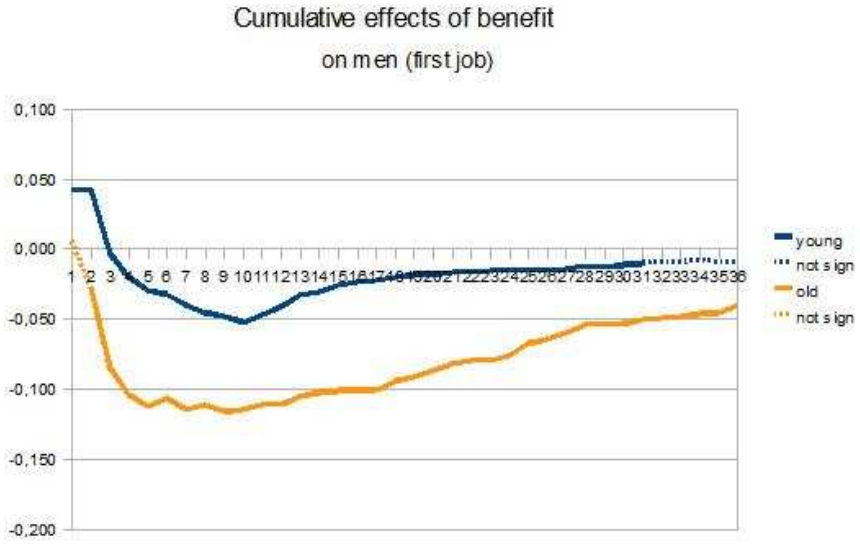

Fig. 7.1: Cumulative effect of the variable benefit on the probability to find a job, for men.

In figure 7.1 and in figure 7.2 we observe the cumulative effect of the variable benefit respectively for men and women. The continuous line represents

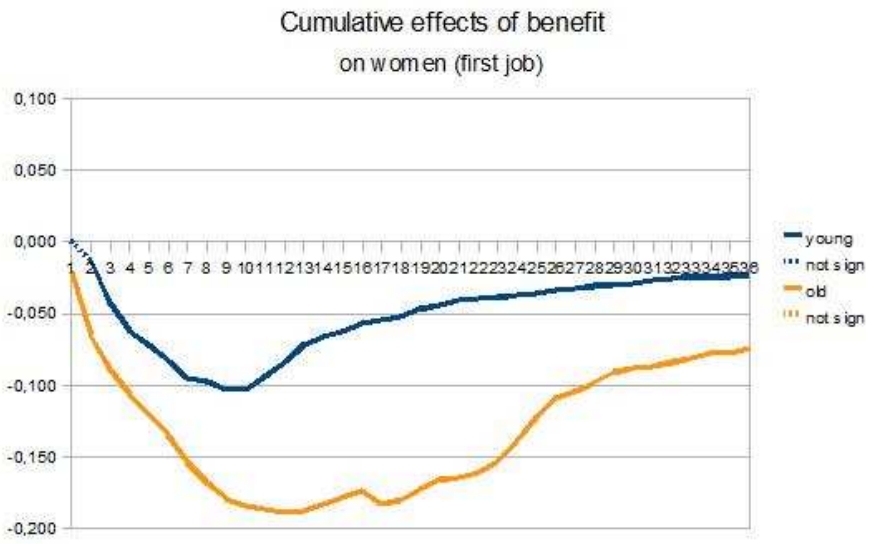

Fig. 7.2: Cumulative effect of the variable benefit on the probability to find a job, for women.

significant estimates and the dotted line the not significant ones. Looking at younger workers behaviour, we observe that during the first two months there is a positive effect of the variable benefit on the probability of first re-employment for men, instead it is not significant for women. Then the cumulative effect of the variable benefit becomes significantly negative and this negative effect increases up to the tenth month. From the eleventh month the negative effect starts to decrease and it almost disappears during the third year (it is still negative for women, but with a small effect; while it is not significant for men). This behaviour could be explained combining workers and employers incentives. In figure 7.3 are summarized incentives for workers to find a job (on the left) and incentives for employers to hire a worker in LM (on the right). Incentives for workers are computed assuming that they find a job with the same wage of the previous one; actually if they find a job with a bigger wage, incentives are bigger than those represented in the graph. Instead if they find a job with a smaller wage, incentives are smaller. Moreover incentives of finding a new job will be larger for workers who had a job with a bigger wage than the maximum ceiling, because staying in LM allows them to receive less than 80% of the previous wage. As for employers, they will receive bigger incentives hiring workers with benefit only if they hire them with a permanent contract.

Looking at figure 7.3 we can better understand the trend of the variable

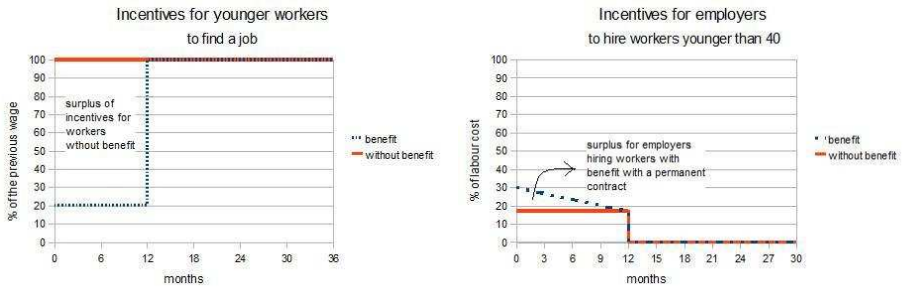

Fig. 7.3: Incentives hiring younger workers

benefit for younger workers. The positive effect during the first month could be explained by incentives for employers. In fact if two workers are looking for the same job and the first one receives benefits instead the second one does not, the employer will find more convenient to hire the first worker, because (besides the cut in SSC) he will receive also half of the total bonus of the worker. The negative trend of the variable benefit during following months could be explained considering also incentives for workers. During the first year, workers with benefits staying in LM receive a bonus of 80% of the previous wage. So if they find a job during the first year, the bonus finishes and they receive a full wage. Indeed if the salary earned in the new job is the same of the previous one, the incentive for this group of workers is a surplus of 20% more of the wage. Instead if they find a job after the first year, the incentive will be the full new wage. Maybe for this group during the first year it would be difficult to accept a job with a lower salary than their reservation wage; we will discuss with more in detail this point in section 7.4.

After the first year incentives for employers and for workers with or without benefits are the same, thus the negative effect accumulated during the first year starts to decrease and almost disappears after more than one year.

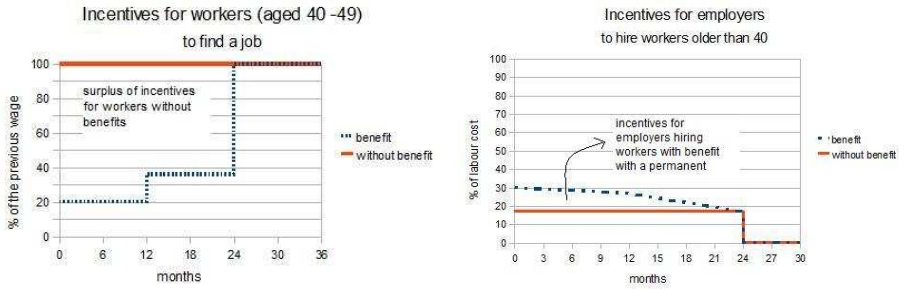

Fig. 7.4: Incentives hiring younger workers

Now we analyse the behaviour of older workers. The cumulative effect of the variable benefit on the probability to find the first job is negative and it increases up to the ninth month for men and to the twelfth for women. From the thirteenth month the cumulative negative effect start to decrease, in particular during the third year. Workers without benefits older than 40 (but younger than 50) staying in LM receive 80% of the previous wage during the first year and 64% during the second one. So if they find a job with the same wage of the previous one, the surplus is

20% more if they find it during the first year,

36% more during the second year

100% more (the full wage) after the second year.

Looking at incentives both for employers and for workers (figure 7.4) we can understand the trend of the graphs. The negative effect caused by the passive component is bigger for older workers, probably because for them the passive component lasts two years. At the end of three years from the entrance in LM there is still a negative effect of the variable benefit.

Both for men and for women we observe that the increasing trend at the end of the first year for younger workers is parallel with the trend at the end of the second year for older workers, even if at different levels. This effect could be explained by the different duration of the programme (one year vs two years). Comparing men with women we can see that the trend is similar, but the negative effect is bigger for women.

The variable benefit has a double effect:

- it anticipates the entrance in the labour market for a group of workers, probably the most desirable workers for employers. This effect is due to the active part of the benefit effect, which encourage firms to hire workers with benefit, in order to enjoy more incentives;

- it postpones the entrance in the labour market for another group, probably because they take more time to look for a better job and they do not accept jobs with a wage lower than their reservation wage.

This last point is worth to be analysed more in detail in the next section. In particular we want to focus on the probability for workers in LM to find a permanent job.

7.2.1 Effect of benefits on a permanent reemployment

In this section we analyse the effect of the variable benefit on the probability to find a permanent job. In fact we want to figure out if workers stay longer in LM because they are waiting for a permanent job and so if the programme has a good impact on the type of contract that workers find during the first three years. Tables A.1 and A.2 (in appendix) show the cumulative effects of the variable benefit for each month, respectively for men and women. These effects are represented in figures 7.5 and 7.6.

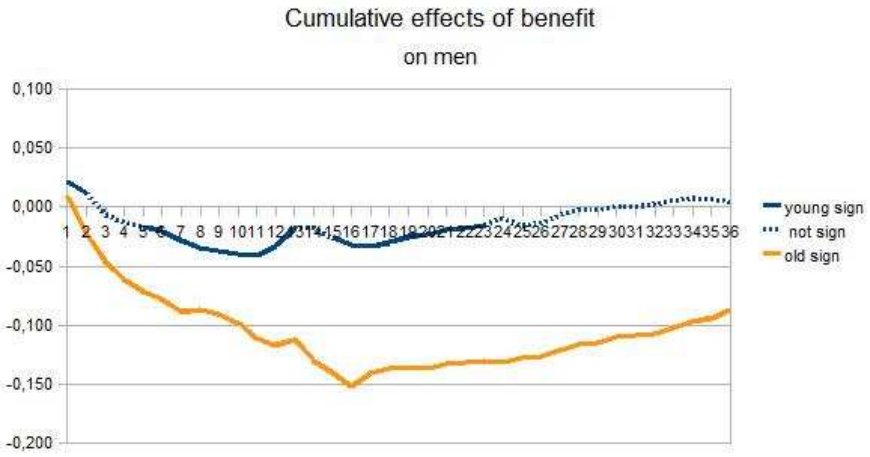

Fig. 7.5: Cumulative effect of the variable benefit on the probability to find a permanent job, for men.

Comparing these graphs with the previous ones we observe a similar trend, therefore previous comments for workers who find a first job apply also to workers getting a permanent re-employment. Anyway the negative effect is smaller. May be that less workers, who receive benefits, accept temporary jobs, because they still receive an income, thus they can stay longer unemployed waiting for a permanent job. A difference with previous graphs is a positive slope at the end of the first year in particular for men. Probably at the beginning of the LM, firms hire a lot of workers with a temporary contract and at the end of the first year they switch it to a permanent one in order to receive more months of cut in SSC. In fact we have seen that this is the best strategy for firms. In this way employers could enjoy 24 months of cut in SSC, that is the largest saving for firms from this programme. The bigger positive effect, for the first job with respect to the permanent job, could be due to this kind of switching contracts.

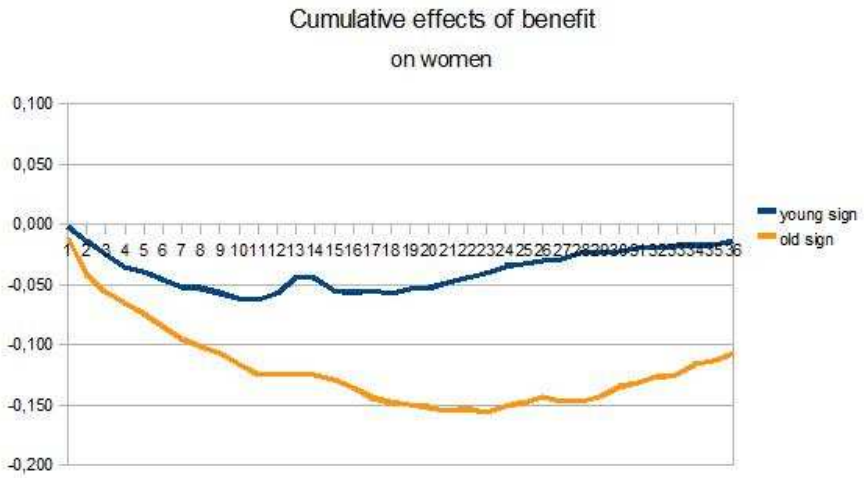

Fig. 7.6: Cumulative effect of the variable benefit on the probability to find a permanent job, for women.

7.3 Logit model near the threshold

In this section we want to estimate the logit model for workers near the threshold of 40 years old, in order to remove differences caused by age. We reduce the sample to workers aged between 38 and 41 years old, obtaining two groups:

- workers aged 38-39, who could enjoy up to one year in LM
- workers aged 40-41, who could enjoy up to two years in LM

Thus we can focus on the effect of benefit according to the duration of programme. In this way we have a control group in order to check the effect of a longer benefit on re-employment probability. Therefore we introduce the interaction between the variable AGE (dummy variable, equal to 1 if the worker is older than 40 years old and to 0 if he is younger) and benefit (dummy variable, it is 1 if the worker receives the bonus). Through this interaction we create two new dummy variables:

- *benefit*older*: is the effect of the variable benefit on older workers
- *benefit*younger*: is the effect of the variable benefit on younger workers

Introducing these two variables, we estimate the same models of section 7.1. These new models are estimated first for the probability of first re-employment and then of the permanent one.

7.3.1 Logit model on the probability of first reemployment, near the threshold

Firstly we estimate the cumulative effect of changes in some variables on the probability to find a first job during the two first years from the entrance in LM. We estimate it, first for men (table 7.5) and then for women (table 7.6).

Looking at the interaction between the dummy variable AGE and benefit we observe the cumulative effect of benefits on younger and older men:

- For older workers the cumulative effect of the variable benefit is positive only during the first month, but it is not significant. Then it starts to decrease and it becomes significantly negative during the second year.

- For younger workers during the first year, there is a positive effect of the variable benefit on the probability to find a job. Afterwards it becomes negative with the biggest impact at the end of the first year. During the second year, when workers do not receive benefits, the negative cumulative effect starts to decrease. At the end of the second year it is almost null. The effect of benefit for younger men is mostly not significant.

Looking at the cumulative effect of this variable on women we observe:

- For women the effect of benefit is not significant during the first month. Afterwards it becomes significantly negative both for younger and older. This negative effect is bigger than for men.

- Looking at the trend of the variable benefit we observe that for older women, the bonus has a negative increasing effect until the first part of the second year; then during the second half of the second year, the cumulative negative effect starts to decrease.

- For younger women the negative effect increases until the end of the first year, then after the thirteenth month, the cumulative negative effect starts to decrease.

Looking at younger workers behaviour we find that when workers stop to receive a bonus, the bonus starts to have a positive effect. Younger workers, who receive a bonus equal to the 80% of the previous wage, probably during the first year are not so interested to look for a job and then when this income finishes, they start to look for a job with more intensity. Even removing the differences caused by age, benefit has a bigger negative impact on older (40 - 41 years old) workers. This bigger negative impact could be attributed

Table 7.5: Logit model for men between 38 and 41 years old (first job)

Variables	**Months**							
(reference variable)	**1**	**3**	**6**	**12**	**13**	**15**	**18**	**24**
Benefit (*without*)								
younger * benefit	0.068 *	0.010	-0.037	-0.054 *	-0.049 *	-0.021	-0.010	-0.001
	(0.034)	*(0.034)*	*(0.032)*	*(0.029)*	*(0.029)*	*(0.026)*	*(0.024)*	*(0.022)*
older * benefit	0.063	-0.056	-0.064	-0.067 *	-0.077 **	-0.085 **	-0.074 **	-0.081 **
	(0.041)	*(0.042)*	*(0.040)*	*(0.036)*	*(0.037)*	*(0.037)*	*(0.034)*	*(0.035)*
AGE (*< 40*)	0.020	0.012	0.002	-0.011	-0.002	0.016	0.005	-0.027
	(0.039)	*(0.021)*	*(0.036)*	*(0.031)*	*(0.031)*	*(0.029)*	*(0.027)*	*(0.025)*
Citizenship (*Italian*)	-0.162 ***	-0.170 ***	-0.103 **	-0.001	0.002	-0.012	-0.010	0.016
	(0.040)	*(0.049)*	*(0.049)*	*(0.038)*	*(0.037)*	*(0.037)*	*(0.034)*	*(0.029)*
Education (*8 years*)								
High school	0.005	-0.037	-0.024	0.013	0.012	0.008	-0.000	0.008
	(0.034)	*(0.035)*	*(0.032)*	*(0.025)*	*(0.025)*	*(0.024)*	*(0.023)*	*(0.020)*
Degree	-0.016	-0.082	-0.071	-0.019	-0.027	-0.044	-0.058	-0.045
	(0.070)	*(0.074)*	*(0.069)*	*(0.054)*	*(0.054)*	*(0.054)*	*(0.053)*	*(0.047)*
Wage (*low*)								
medium low	0.085	0.077	0.119 **	0.082 **	0.088 ***	0.087 ***	0.076 ***	0.075 ***
	(0.084)	*(0.067)*	*(0.047)*	*(0.035)*	*(0.033)*	*(0.029)*	*(0.026)*	*(0.022)*
medium high	0.126 *	0.118 *	0.172 ***	0.137 ***	0.137 ***	0.127 ***	0.133 ***	0.134 ***
	(0.076)	*(0.064)*	*(0.051)*	*(0.040)*	*(0.039)*	*(0.036)*	*(0.033)*	*(0.030)*
high	0.181 **	0.141 **	0.156 ***	0.091 **	0.098 **	0.096 **	0.086 ***	0.084 ***
	(0.075)	*(0.064)*	*(0.052)*	*(0.041)*	*(0.040)*	*(0.037)*	*(0.033)*	*(0.030)*
Previous job (*Blue collar*)	-0.115 ***	-0.130 ***	-0.108 ***	-0.067 **	-0.065 **	-0.072 ***	-0.064 ***	-0.074 ***
	(0.029)	*(0.032)*	*(0.031)*	*(0.026)*	*(0.026)*	*(0.025)*	*(0.024)*	*(0.023)*

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

Table 7.6: Logit model for women between 38 and 41 years old (first job)

Variables	**Months**							
(reference variable)	**1**	**3**	**6**	**12**	**13**	**15**	**18**	**24**
Benefit (*without*)								
younger * benefit	-0.021	-0.082 ***	-0.117 ***	-0.133 ***	-0.112 ***	-0.098 ***	-0.073 **	-0.055 *
	(0.021)	*(0.027)*	*(0.030)*	*(0.031)*	*(0.030)*	*(0.030)*	*(0.029)*	*(0.028)*
older * benefit	-0.009	-0.097 ***	-0.129 ***	-0.183 ***	-0.177 ***	-0.182 ***	-0.169 ***	-0.144 ***
	(0.024)	*(0.031)*	*(0.035)*	*(0.036)*	*(0.036)*	*(0.036)*	*(0.036)*	*(0.035)*
AGE (*< 40*)	-0.022	0.027	0.013	-0.008	-0.004	-0.004	-0.007	0.006
	(0.021)	*(0.028)*	*(0.029)*	*(0.029)*	*(0.028)*	*(0.028)*	*(0.027)*	*(0.026)*
Citizenship (*Italian*)	0.034	0.018	0.060	0.004	-0.013	-0.031	-0.003	-0.032
	(0.055)	*(0.080)*	*(0.083)*	*(0.080)*	*(0.079)*	*(0.080)*	*(0.075)*	*(0.075)*
Education (*8 years*)								
High school	0.029	0.010	0.031	0.051 *	-0.053 *	-0.039	-0.076	-0.069
	(0.023)	*(0.030)*	*(0.030)*	*(0.028)*	*(0.028)*	*(0.028)*	*(0.026)*	*(0.026)*
Degree	0.048	0.103	0.011	-0.035	-0.053	-0.039	-0.076	-0.069
	(0.074)	*(0.093)*	*(0.094)*	*(0.093)*	*(0.093)*	*(0.009)*	*(0.092)*	*(0.090)*
Wage (*low*)								
medium low	0.083 ***	0.150 ***	0.141 ***	0.174 ***	0.170 ***	0.166 ***	0.152 ***	0.137 ***
	(0.025)	*(0.029)*	*(0.027)*	*(0.023)*	*(0.022)*	*(0.022)*	*(0.021)*	*(0.020)*
medium high	0.152 ***	0.179 ***	0.180 ***	0.163 ***	0.152 ***	0.154 ***	0.140 ***	0.132 ***
	(0.031)	*(0.032)*	*(0.029)*	*(0.025)*	*(0.024)*	*(0.023)*	*(0.022)*	*(0.020)*
high	0.135 ***	0.213 ***	0.180 ***	0.198 ***	0.190 ***	0.190 ***	0.177 ***	0.158 ***
	(0.034)	*(0.035)*	*(0.032)*	*(0.025)*	*(0.024)*	*(0.023)*	*(0.022)*	*(0.021)*
Previous job (*Blue collar*)	-0.034 *	-0.082 ***	-0.061 **	-0.062 **	-0.058 **	-0.064 ***	-0.053 **	-0.046 *
	(0.019)	*(0.026)*	*(0.028)*	*(0.027)*	*(0.027)*	*(0.026)*	*(0.025)*	*(0.024)*

Significance levels are indicated with asterisks (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$). Standard errors are in brackets

to the programme, which does not work as expected in term of spell of unemployment up to the first job, in particular during the second year from the entrance in LM.

We are considering only workers between 38 and 41 years old, in order to understand what happens near the threshold of 40 years. The dummy variable AGE (that is 1 if workers are older than 40) is not significant. It means that if we consider workers with similar age, not considering the interaction with benefit, there are no differences between two groups (up or below the threshold of 40 years old). The effect of the variable AGE of the previous model now disappears and it is caught by the interaction between benefit and AGE.

The variable citizenship (not Italians) has a negative significant effect only for men during the first year. Actually for women during the first year it has a positive effect, but it is not significant. During the second year it is not significant both for men and women.

Education does not influence this group on re-employment probability. Instead the variable wage is significant both for men and women. If they had a medium-high or a high wage in the previous job, then they will have a higher probability of re-employment.

From the variable related to the kind of previous job we figure out that workers with higher qualification will stay longer in LM.

7.3.2 Logit model on the probability of permanent re-employment near the threshold of 40 years old

Now we compute the same model, but changing the variable response. We analyse the probability to find a permanent job, near the threshold of 40 years old. Tables 7.7 and 7.8 show the logit model respectively for men and women. We observe the effects of selected variables on the probability of permanent re-employment for men and women.

Looking at the interaction between benefit and younger workers, we find the effect of the benefit on workers aged 38 and 39. The variable benefit has a positive effect during the first month, but afterwards it becomes negative. This effect for men is significantly negative during the second half of the first year, therefore during the stay in LM. For women the negative effect continues also during the second year.

Looking at the interaction between older workers and benefit we find that from the end of the first year, the variable benefit starts to have a negative effect on the probability of permanent re-employment for workers aged 40 and 41. But we will see more in detail the effect of benefit for each month in

Table 7.7: Logit model for men between 38 and 41 years old (permanent job)

Variables	**Months**								
(reference variable)	**1**	**3**	**6**	**12**	**13**	**18**	**24**	**25**	**30**
Benefit (*without*)									
younger * benefit	0.005 *	-0.035	-0.064 **	-0.066 **	-0.054	-0.057 *	-0.042	-0.034	-0.014
	(0.024)	*(0.027)*	*(0.029)*	*(0.032)*	*(0.034)*	*(0.035)*	*(0.033)*	*(0.032)*	*(0.030)*
older * benefit	0.041	-0.026	-0.054	-0.100 ***	-0.115 ***	-0.166 ***	-0.139 ***	-0.117 ***	-0.095 **
	(0.032)	*(0.032)*	*(0.033)*	*(0.037)*	*(0.040)*	*(0.043)*	*(0.043)*	*(0.042)*	*(0.041)*
AGE (*< 40*)	-0.007	0.007	0.018	0.026	0.051	0.051	0.030	0.032	0.030
	(0.027)	*(0.031)*	*(0.034)*	*0.037*	*(0.039)*	*(0.039)*	*(0.037)*	*(0.036)*	*(0.035)*
Citizenship (*Italian*)	-0.055 **	-0.041 ***	0.002 **	0.059	0.001	0.046	0.022	0.009	0.031
	(0.028)	*(0.037)*	*(0.043)*	*(0.049)*	*(0.050)*	*(0.050)*	*(0.045)*	*(0.045)*	*(0.041*
Education (*8 years*)									
High school	0.013	0.002	-0.006	-0.023	-0.059 *	-0.097 ***	-0.046	-0.041	-0.006
	(0.024)	*(0.029)*	*(0.031)*	*(0.034)*	*(0.035)*	*(0.035)*	*(0.033)*	*(0.032)*	*(0.030)*
Degree	0.017	0.034	0.000	-0.052	-0.122 *	-0.141 *	-0.127 *	-0.136 *	-0.151 **
	(0.055)	*(0.067)*	*(0.068)*	*(0.070)*	*(0.071)*	*(0.074)*	*(0.073)*	*(0.073)*	*(0.072)*
Wage (*low*)									
medium low	0.056	0.043	0.052	0.076	0.141 *	0.183 ***	0.187 ***	0.176 ***	0.178 ***
	(0.073)	*0.070*	*(0.075)*	*(0.076)*	*(0.073)*	*(0.056)*	*(0.042)*	*(0.041)*	*(0.037)*
medium high	0.064 *	0.069 *	0.118 *	0.161 **	0.207 ***	0.259 ***	0.257 ***	0.245 ***	0.261 ***
	(0.060)	*(0.062)*	*(0.067)*	*(0.069)*	*(0.068)*	*(0.058)*	*(0.050)*	*(0.049)*	*(0.043)*
high	0.060	0.061	0.108	0.138 **	0.214 ***	0.231 ***	0.235 ***	0.226 ***	0.219 ***
	(0.060)	*(0.062)*	*(0.067)*	*(0.069)*	*(0.068)*	*(0.060)*	*(0.051)*	*(0.050)*	*(0.046)*
Previous job (*Blue collar*)	-0.041 **	-0.055 **	-0.068 **	-0.043	-0.067 **	-0.029	-0.055 *	-0.062 **	-0.065 **
	(0.020)	*(0.026)*	*(0.027)*	*(0.031)*	*(0.032)*	*(0.032)*	*(0.031)*	*(0.030)*	*(0.029)*

Significance levels are indicated with asterisks (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$). Standard errors are in brackets

section 7.3.3.

The effect of workers characteristics on the probability of permanent re-employment is similar to those seen in the previous section, in particular for men. For women we find differences according to the previous job. The negative effect of being white collar workers on the probability of permanent re-employment now is not significant.

7.3.3 Effect of benefits on a permanent reemployment near the threshold

We estimate the same model of the previous section, but we report only the cumulative effect of the variable benefit on men and women. Then we test the differences between the two variables (effect of benefit for older workers and effect of benefits for younger workers) in order to understand if they have a significant different effect. Figures 7.7 and 7.8 show the cumulative effect of the variable benefit on the probability of permanent re-employment. We observe a trend similar to the one seen in the previous graphs. In tables 7.9 and 7.10 we report the cumulative effect for all 36 months and a test with its corresponding p-value. The null hypothesis is that two coefficients are equal and thus that there is no difference on the effect of the variable benefit on workers below or above the threshold of 40 years old.

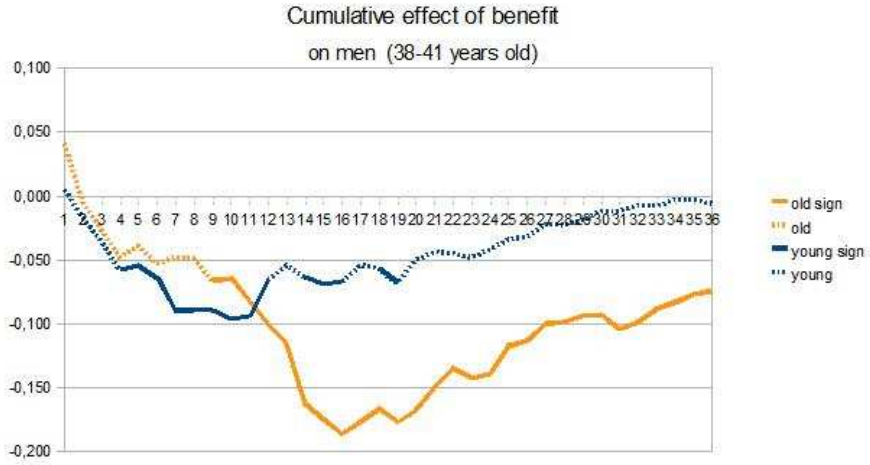

Fig. 7.7: Cumulative effect of the variable benefit on the probability to find a permanent job, for men.

The test for women accepts the null hypothesis of equal effect of benefit on younger vs. older workers, during all the three years. Regarding the test for

Table 7.8: Logit model for women between 38 and 41 years old (permanent job)

Variables	**Months**								
(reference variable)	**1**	**3**	**6**	**12**	**13**	**18**	**24**	**25**	**30**
Benefit (*without*)									
younger * benefit	-0.014	-0.027 *	-0.064 ***	-0.082 ***	-0.072 ***	-0.074 ***	-0.061 **	-0.060*	-0.049
	(0.011)	*(0.015)*	*(0.017)*	*0.021*	*(0.024)*	*(0.028)*	*(0.030)*	*(0.030)*	*(0.030)*
older * benefit	0.008	-0.034 **	-0.047 **	-0.107 ***	-0.109 ***	-0.121 ***	-0.110 ***	-0.104 ***	-0.104 ***
	(0.015)	*(0.015)*	*(0.020)*	*(0.023)*	*(0.026)*	*(0.032)*	*(0.034)*	*(0.035)*	*(0.035)*
AGE (*< 40*)	0.001	0.018	-0.007	0.001	0.006	-0.013	-0.051 *	0.053 *	-0.035
	(0.011)	*(0.015)*	*(0.018)*	*(0.023)*	*(0.025)*	*(0.028)*	*(0.029)*	*(0.029)*	*(0.029)*
Citizenship (*Italian*)		0.014	0.064	0.028	0.061	0.005	-0.068	-0.078	-0.119
		(0.048)	*(0.065)*	*(0.070)*	*(0.077)*	*(0.081)*	*(0.082)*	*(0.082)*	*(0.082)*
Education (*8 years*)									
High school	0.021	0.003	-0.009	-0.014	-0.007	-0.060 **	-0.018	-0.019	-0.027
	(0.014)	*(0.016)*	*(0.020)*	*(0.024)*	*(0.026)*	*(0.029)*	*(0.030)*	*(0.030)*	*(0.030)*
Degree	0.017	0.034	0.000	-0.052	-0.122 *	-0.141 *	-0.127 *	-0.136 *	-0.069
	(0.045)	*(0.051)*	*(0.057)*	*(0.073*	*(0.077)*	*(0.085)*	*(0.090)*	*(0.092)*	*(0.093)*
Wage (*low*)									
medium low	0.001	0.022	0.017	0.046 *	0.074 ***	0.123 ***	0.119 ***	0.124 ***	0.120 ***
	(0.012)	*(0.018)*	*(0.021)*	*(0.025)*	*(0.027)*	*(0.028)*	*(0.028)*	*(0.028)*	*(0.026)*
medium high	0.028 *	0.042 *	0.029	0.040	0.063 **	0.127 ***	0.144 ***	0.157 ***	0.163 ***
	(0.017)	*(0.022)*	*(0.024)*	*(0.028)*	*(0.031)*	*(0.032)*	*(0.031)*	*(0.030)*	*(0.030)*
high	0.033 *	0.087 ***	0.076 ***	0.126 ***	0.146 ***	0.163 ***	0.176 ***	0.178 ***	0.157 ***
	(0.019)	*(0.027)*	*(0.028)*	*(0.033)*	*(0.035)*	*(0.035)*	*(0.033)*	*(0.033)*	*(0.032)*
Previous job (*Blue collar*)	-0.009	-0.005	0.007	-0.009	-0.022	-0.011	-0.029 *	-0.027	-0.007
	(0.010)	*(0.015)*	*(0.018)*	*(0.022)*	*(0.024)*	*(0.027)*	*(0.027)*	*(0.028)*	*(0.027)*

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

Table 7.9: Cumulative effects of the variable benefit on men (38-41 years old)

Variables ***(reference variable)***	**Months** **1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
younger	0.005	-0.017	-0.035	-0.058 **	-0.054 *	-0.064 **	-0.090 ***	-0.089 ***	-0.089 ***
	(0.024)	*(0.026)*	*(0.027)*	*(0.028)*	*(0.029)*	*(0.029)*	*(0.029)*	*(0.030)*	*(0.030)*
older	0.041	-0.005	-0.026	-0.048	-0.039	-0.053	-0.048	-0.049	-0.066 *
	(0.032)	*(0.030)*	*(0.032)*	*(0.032)*	*(0.033)*	*(0.033)*	*(0.035)*	*(0.035)*	*(0.035)*
test	0.84	0.09	0.04	0.05	0.11	0.05	0.82	0.71	0.23
	0.360	0.764	0.833	0.816	0.742	0.830	0.367	0.398	0.632
	Months **10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
younger	-0.096 ***	-0.094 ***	-0.066 **	-0.054	-0.063 *	-0.069 **	-0.067 *	-0.054	-0.057 *
	(0.031)	*(0.031)*	*(0.033)*	*(0.034)*	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*
older	-0.064 *	-0.082 ***	-0.100 ***	-0.115 ***	-0.163 ***	-0.174 ***	-0.186 ***	-0.176 ***	-0.166 ***
	(0.036)	*(0.036)*	*(0.037)*	*(0.040)*	*(0.041)*	*(0.041)*	*(0.042)*	*(0.042)*	*(0.043)*
test	0.42	0.05	0.51	1.32	3.50 *	3.74 *	4.76 **	4.99 **	3.99 **
	0.517	0.821	0.474	0.250	0.061	0.053	0.029	0.025	0.046
	Months **19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
younger	-0.068 **	-0.050	-0.044	-0.045	-0.048	-0.042	-0.034	-0.032	-0.022
	(0.035)	*(0.034)*	*(0.034)*	*(0.034)*	*(0.034)*	*(0.033)*	*(0.032)*	*(0.032)*	*(0.032)*
older	-0.177 ***	-0.167 ***	0.150 ***	-0.134 ***	-0.142 ***	-0.139 ***	-0.117 ***	-0.113 ***	-0.100 **
	(0.043)	*(0.043)*	*(0.043)*	*(0.043)*	*(0.043)*	*(0.043)*	*(0.042)*	*(0.042)*	*(0.041)*
test	3.95 **	4.58 **	3.76 *	2.72 *	2.95 *	3.23 *	2.46	2.42	2.26
	0.047	0.032	0.053	0.099	0.086	0.072	0.117	0.121	0.133
	Months **28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
younger	-0.023	-0.019	-0.012	-0.012	-0.008	-0.008	-0.003	-0.003	-0.006
	(0.031)	*(0.031)*	*(0.031)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*
older	-0.098 **	-0.094 **	-0.093 **	-0.104 **	-0.098 **	-0.088 **	-0.083 **	-0.077 *	-0.074 *
	(0.041)	*(0.041)*	*(0.041)*	*(0.041)*	*(0.040)*	*(0.040)*	*(0.040)*	*(0.039)*	*(0.039)*
test	2.08	2.16	2.64	3.34 *	3.33 *	2.65	2.75	2.34	1.96
	0.150	0.140	0.104	0.067	0.068	0.104	0.097	0.126	0.161

Significance levels are indicated with asterisks (* p < 0.1; ** p < 0.05; *** p < 0.01). Standard errors are in brackets

Table 7.10: Cumulative effects of the variable benefit on women (38-41 years old)

Variables	**Months**								
(reference var.)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
younger	-0.014	-0.027 **	-0.027 **	-0.046 ***	-0.060 ***	-0.064 ***	-0.079 ***	-0.075 ***	-0.082 ***
	(0.011)	*(0.012)*	*(0.015)*	*(0.015)*	*(0.016)*	*(0.017)*	*(0.017)*	*(0.018)*	*(0.019)*
older	0.008	-0.023 *	-0.034 **	-0.028	-0.034 *	-0.047 **	-0.065 ***	-0.068 ***	-0.080 ***
	(0.015)	*(0.013)*	*(0.015)*	*(0.018)*	*(0.020)*	*(0.020)*	*(0.020)*	*(0.021)*	*(0.021)*
test	1.56	0.04	0.15	0.56	1.03	0.38	0.23	0.04	0.00
	0.212	0.837	0.696	0.452	0.309	0.540	0.628	0.836	0.995
	Months								
	10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
younger	-0.087 ***	-0.086 ***	-0.082 ***	-0.072 ***	-0.070 ***	-0.082 ***	-0.089 ***	-0.078 ***	-0.074 ***
	(0.019	*(0.019*	*(0.021)*	*(0.024)*	*(0.025)*	*(0.026)*	*(0.027)*	*(0.028)*	*(0.028)*
older	-0.087 ***	-0.095 ***	-0.107 ***	-0.109 ***	-0.119 ***	-0.141 ***	-0.129 ***	-0.124 ***	-0.121 ***
	(0.021)	*(0.022)*	*(0.023)*	*(0.026)*	*(0.028)*	*(0.028)*	*(0.030)*	*(0.031)*	*(0.032)*
test	0.00	0.14	0.78	1.19	1.83	2.51	1.07	1.29	1.29
	0.995	0.707	0.378	0.276	0.176	0.113	0.302	0.256	0.255
	Months								
	19	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
younger	-0.071 **	-0.068 **	-0.076 ***	-0.075 ***	-0.067 **	-0.061 **	-0.060 *	-0.059 *	-0.057 *
	(0.028)	*(0.029)*	*(0.029)*	*(0.029)*	*(0.029)*	*(0.029)*	*(0.030)*	*(0.030)*	*(0.030)*
older	-0.117 ***	-0.113 ***	0.116 ***	-0.118 ***	-0.121 ***	-0.110 ***	-0.104 ***	-0.098 ***	-0.101 ***
	(0.032)	*(0.033)*	*(0.033)*	*(0.034)*	*(0.034)*	*(0.034)*	*(0.035)*	*(0.035)*	*(0.035)*
test	1.23	1.11	0.88	0.97	1.51	1.25	0.95	0.73	0.94
	0.267	0.291	0.348	0.324	0.219	0.263	0.329	0.393	0.332
	Months								
	28	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
younger	-0.054 *	-0.056 *	-0.052 *	-0.045	-0.052 *	-0.049	-0.051 *	-0.054 *	-0.053 *
	(0.030)	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*	*(0.030)*
older	-0.097 ***	-0.110 ***	-0.107 ***	-0.107 ***	-0.100 **	-0.101 ***	-0.097 ***	-0.098 ***	-0.080 **
	(0.035)	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*	*(0.035)*
test	0.87	1.39	1.46	1.90	1.10	1.28	1.01	0.92	0.34
	0.350	0.238	0.228	0.168	0.294	0.257	0.314	0.337	0.559

Significance levels are indicated with asterisks (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$). Standard errors are in brackets

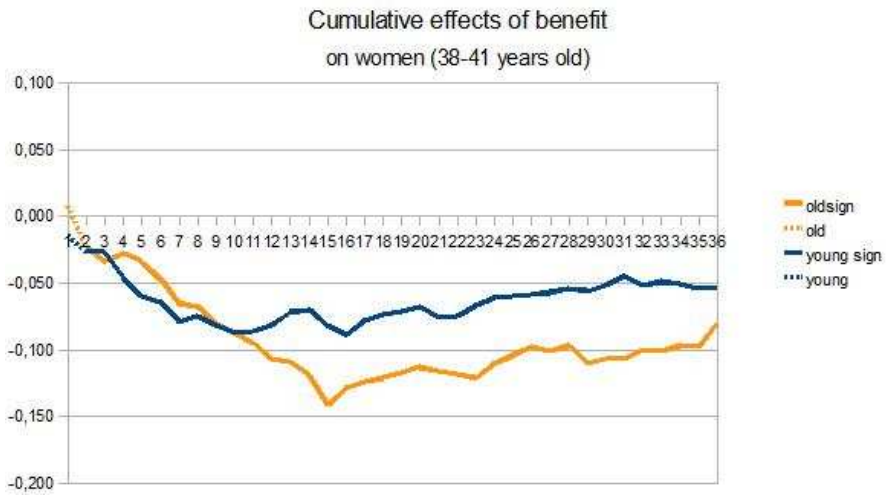

Fig. 7.8: Cumulative effect of the variable benefit on the probability to find a permanent job, for women.

men, if we choose a significance level of 10%, we refuse the null hypothesis during the second year and some months of the third year. If we choose a significance level of 5%, we refuse the null hypothesis from sixteenth to twentieth month. This means that during these months the effect of benefit on re-employment probability is negative and higher in magnitude for older workers. Actually we do not know if workers younger than 40 years old are still in LM, it depends if they had temporary job experiences. We could attribute this different impact to the additional year of the programme. We can conclude that during the additional year the passive component of the programme has a negative impact on the probability of re-employment for older men. This negative effect is not counteracted by the active component of the programme. However during the third year the significant differences between two effects almost disappear. Therefore the additional year has no significant negative effect after three years from the entrance in LM. It would be interesting to check if the negative impact during the programme has positive effects afterwards, in particular in term of quality of job.

7.4 Analyses of wages

In this chapter we observed the effect of some variables (in particular of benefit) on the duration of unemployment. At this point it is worth to analyse the effect on the quality of re-employment. As quality of re-employment we considered the type of contract (permanent contract). Now we introduce a

new variable related to the quality of re-employment. In fact we have data on wage after three years from the entrance in LM for workers who entered in LM during 1997 and 1998. With exploratory analyses we try to understand if benefit has effect on re-employment quality in term of increase or reduction of worker's wage.

First of all we compute a new variable as the fraction of new over previous wage. This variable is bigger than 1 if there is a wage increase, instead it is smaller than 1 if there is a wage reduction. Through survival analysis we check, during three years from the entrance in LM, if workers exit from unemployment with an increased or a reduced wage.

For these analyses we use a sample composed by workers enrolled in LM during 1997 and 1998, who found a permanent job during three years from the entrance in list. Figure 7.9 shows the survival analysis to a permanent job, considering increased or reduced wage. We observe that at beginning there are no differences between the probability to find a job with a reduced or an increased wage. From the end of the first year the probability to find a permanent job with a reduced wage is slightly bigger.

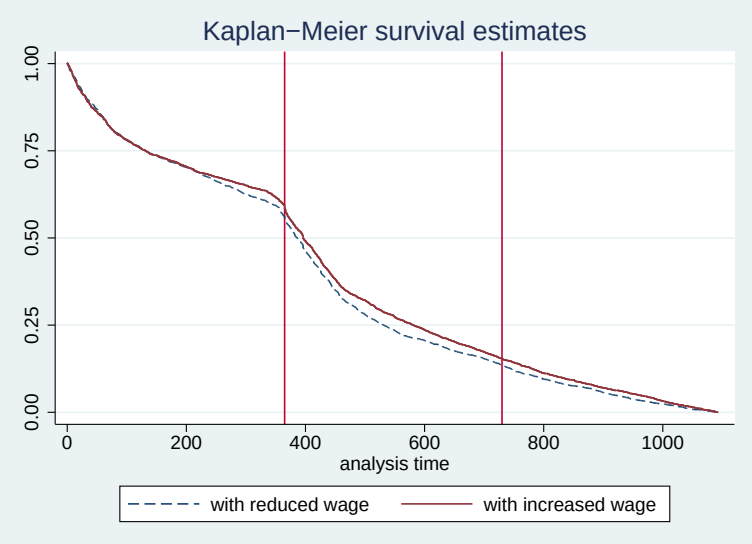

Fig. 7.9: Survival analysis, by new wage

Then we observe the survival analysis more in detail, we consider eight sub-groups generated by gender, age and entitlement to income support.

In figure 7.10 (on the right) we observe the sub-group composed by men younger than 40 years old, entitled to an income support. During the first year, there are more unemployed who find permanent job with an increased wage (compared to the previous job), than unemployed who find a job with

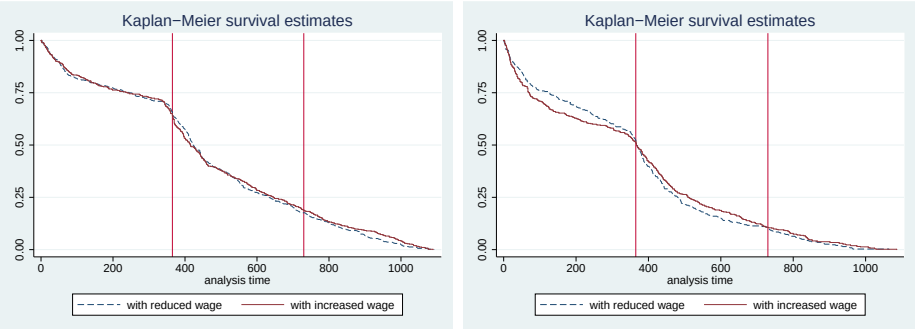

Fig. 7.10: Survival analyses, by new wage. Younger workers entitled to income support, on the left women and on the right men

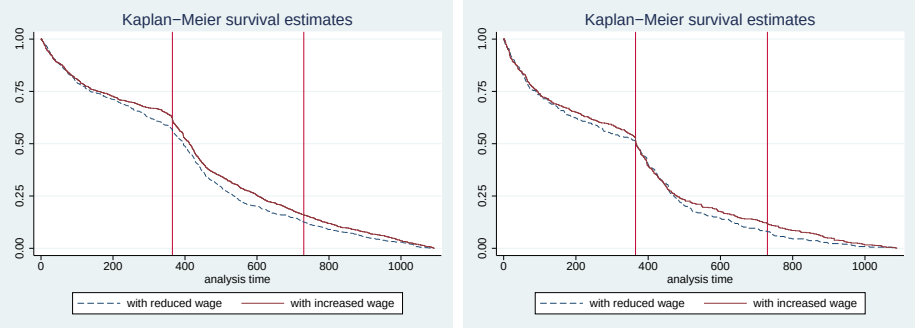

Fig. 7.11: Survival analyses, by new wage. Younger workers not entitled to income support, on the left women and on the right men

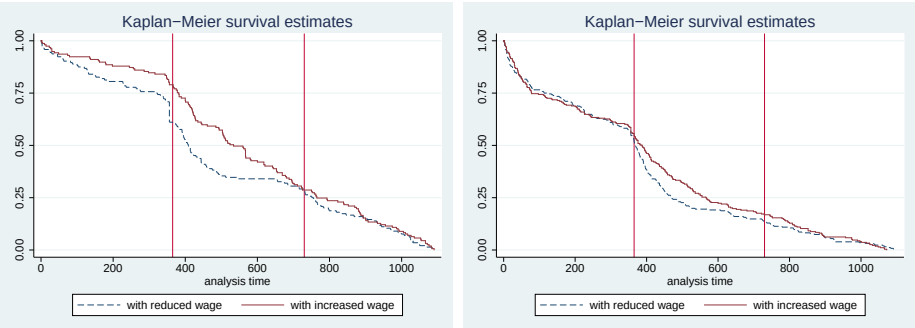

Fig. 7.12: Survival analyses, by new wage. Older workers entitled to income support, on the left women and on the right men

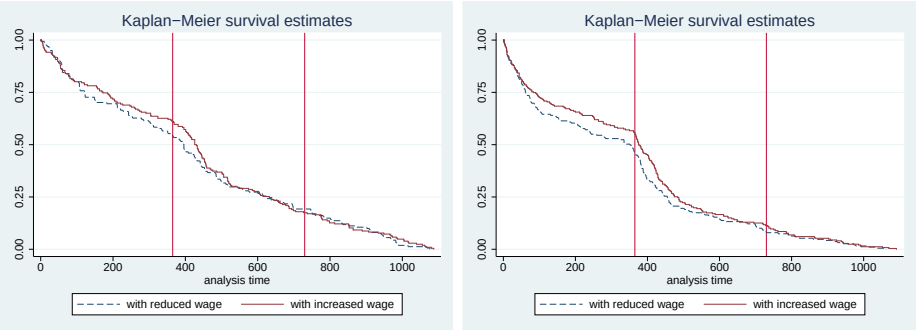

Fig. 7.13: Survival analyses, by new wage. Older workers not entitled to income support, on the left women and on the right men

a reduced wage. Comparing this group with younger men not entitled to income support (figure 7.11 on the right), we observe that during all three years there are more unemployed who find a job with a reduced wage. It means that during the stay in LM (first year), workers with benefit have a positive effect from the income support on the quality of job. Probably they refuse job offers with smaller wages. Nevertheless during the second year this positive effect disappears and workers start to find more jobs with reduced wage.

Looking at figures 7.10 and 7.11 on the left, we observe that during the first two years, younger women aged up to 40 not entitled to benefit find more permanent job with a reduced wage, than those entitled to benefit.

On the other hand, women older than 40 years old entitled to benefit (figures 7.12 and 7.13 on the left) have a remarkable bigger probability to exit from unemployment with a reduced wage than older women not entitled to benefit, in particular during the second year.

The situation of older men is similar to the one seen for younger men. During the first year workers not entitled to income support have a bigger probability to find a job with a reduced wage.

We can suppose that the bigger probability to exit from unemployment during the first year for workers not entitled to benefit, is due to the fact that they accept more job offers with reduced wage, than workers entitled to benefit (not for older women). Workers entitled to benefit during their permanence in LM have a bigger reservation wage, thus they refuse more job offers. After the first year, this positive effect on the new wage of receiving benefits disappears. Probably during the second and the third year, the reservation wage of workers entitled to benefits decreases, thus they start to accept jobs with lower wages.

Chapter 8

Final conclusions

In this thesis we studied the effect of the Italian programme Liste di mobilità (LM) on unemployment duration. The complexity of the evaluation is due to the fact that it is an universal programme, thus we do not have a control group. The programme is different in terms of duration and entitlement to benefits according to the workers characteristics. Hence, in order to handle the problem caused by the programme universality, we obtain control groups taking advantage of different programme features, even if the workers enrolled in LM are not randomly selected. As we saw before, this policy is interesting because it combines both a passive component in order to sustain worker's income and an active component in order to assist workers to find a new job:

- The largest part of the active component is enjoyed by all the workers enrolled in LM. It is an incentive for firms to hire workers in LM, which consists in cutting social security contributions. We do not focus on this active component because its effectiveness is difficult to be assessed as it is applied to all the workers of the sample. The other part of the active component is enjoyed by employers who hire workers in LM. They receive half of the remaining bonus, for one year at maximum. This incentive decreases every month, thus firms find convenient to hire workers during the firsts month in LM.

- The passive component is enjoyed only by workers collectively fired from firms with more than 15 employees. This component is a bonus in order to support workers' income but, as we saw above, it can become a benefit transfer from worker to firm.

Looking at the analyses, in particular at the survival analyses, we suppose that firms take advantage of the active component. In fact during the first month we find a larger number of temporary contracts, switched in permanent ones probably at the end of the year. With this strategy, the firms

obtain the largest amount of cut in SSC (up to 24 months). We can not assert that this effect is due to the programme, as this component is universal (enjoyed by the whole sample).

Now we shortly see which kind of worker is more attractive or, more exactly, has shorter unemployment duration. We observed that the more attractive workers in the labour market are younger males. The probability of re-employment is higher for younger than for older workers, although older workers get more incentives. All these observations are in line with previous studies.

Analysing the number of years of education, we notice that men with less years of education (up to 8 years) have a bigger probability of finding a job, while women unemployment duration is shorter if they attended the high school. Anyway, the degree has a negative effect on the probability to find the first job both for men and women. Regarding the duration of unemployment up to a permanent job, education is mostly not significant.

Workers with a previous white collar job take more time to find a new job, but it could depend by their expectations (may be because they are looking for a job with the same qualification). The previous job has an higher effect on men than on women.

Looking at how previous wages influence the probability of re-employment, we observe that workers with a lower previous wage have a smaller probability of re-employment, while workers with higher wages have shorter unemployment duration. We guess that this behaviour can depend both on firms, which might prefer workers with a higher previous wage (since they are more experienced and qualified) and on workers who may have larger necessity of income because of their higher standard of living or family needs. In fact workers with higher wages will have a bigger loss of income when they loose their job, even if they are entitled to income support. This is due to the fact that income support can not exceed a ceiling, which changes every year, hence the benefit could be definitely lower than the 80% of the previous wage. Considering the supposed big impact of the previous wage level, it could be interesting to study the unemployment duration stratifying by previous wage level.

Then we focused on the most interesting variable: benefit. Through exploratory analyses, we observed that benefits do not seem to have a positive effect on the probability of finding a job, during the stay in LM (except at the beginning). After three years from the entrance in LM, the difference between who was or who was not entitled to benefit is almost null for younger workers. For older workers, in particular for women, we still observe a negative, even if smaller, effect of the income support.

Then we estimated a logit model in order to check the effect found with the survival analysis. In particular we want to focus on the benefit effect on unemployment duration. First of all we estimate a model concerning unemployment duration up to the first job, then up to a permanent job. The first model is interesting because we can observe workers behaviour, knowing exactly if they are still in LM. The second one is interesting because the programme aim is to assist workers to find a permanent job. These analyses are carried out on four different groups, in order to eliminate differences caused by gender or programme duration according to the workers age.

The effect of the benefit could be explained looking at incentives for employers, workers and their reservation wage. Looking at the trend of the cumulative effects of benefit on younger workers we find that:

- At the beginning of the first year there is a bigger probability of re-employment for workers entitled to benefit. This effect can be explained by incentives for firms, which are larger if they hire workers with benefit, in particular during the first month.

- Then during the first year, there is a bigger probability of re-employment for those without benefit. This effect is explained by incentives for workers: workers not receiving an income support have a bigger incentive to re-employment than those who receive the 80% of the previous wage. Moreover workers with benefit have a bigger reservation wage, because it is positively correlated with the amount of benefit and with the probability of obtaining a bigger wage if they prolong the search for a job. Therefore the workers who receive benefits refuse more job offers, because below their reservation wage. Looking at the survival analysis, during the first year we find more younger men entitled to benefit who find a job with an increased wage than with a reduced wage (comparing the wage of the new permanent job, with the wage of the job which caused the enrolment to the programme). While the situation for younger men is opposite. Concerning women, we find smaller positive effect of the entitlement to benefit.

- During the second year all these effects decrease. This reduction is explained by incentives for workers and their decreasing reservation wage because workers are not receiving a bonus anymore. Thus the workers entitled to benefit start to accept job offers more frequently (also if with smaller wages) and during the third year, the differences between those who received benefit and those who did not is almost null. Actually we find a positive not significant effect for men and a small negative effect for women. Also differences considering the increase or

the wage reduction disappears; thus the positive effect of the first year of the programme vanishes over time.

Looking at the trend of the cumulative effect of benefit on older workers, we observe that it is similar for younger workers, but the negative effect of the income support is bigger:

- The positive effect observed during the first month for younger workers, is almost null in the case of older workers. Employers prefer hiring younger workers even if the incentives for hiring younger or older workers are the same during the first month.

- The negative effect seen during the first month, for older workers lasts up to half of the second year (slightly less for men). During the second year the incentive to find a new job is smaller for older than younger workers, because older workers still receive an income (even if smaller). Looking at the effect of receiving benefit on the wage growth/reduction, we observe similar results to those seen for younger workers. But this is true only for men during the first year, while the results are opposite during the second year and for women.

- During the second half of the second year the negative effect starts to decrease, but it is still significantly negative both for men and women at the end of the third year from the entrance in LM.

Then we focused on the effect of the additional year of the programme on unemployment duration. We estimated a logit model on workers aged between 38 and 41 years old. Comparing the effect of the variable benefit on younger workers with older workers through a test, we find that the additional year has a significant negative effect during the second year from the entrance in LM, but this negative effect disappears after three years from the entrance in LM.

In conclusion we found the effect of the benefit on unemployment duration over three years from the entrance in LM. The entitlement to benefit:

- anticipates the entrance in the labour market, thanks to the active part of the benefit (as transfer from workers to employers). This effect is small and can be seen only during the first month;

- delays the entrance in labour market; this is due to the passive component of the benefit (income for workers). Workers receiving an income have a smaller incentive to find a job. Moreover income increases their reservation wage, thus they will accept less job offers, even if the benefit might be useful for a better matching between job supply and demand.

The effectiveness of the programme is higher for workers more attractive for the labour market (younger men) than for women and older workers. During the programme the passive component increases the unemployment duration, but these effects almost disappear after three years from the entrance in LM (in particular for younger workers). Anyway the main aim of the programme is to provide an insurance against an otherwise uninsurable unemployment risk. Surely it is an important step ahead after others passive policies such as Cassa integrazione guadagni, for the active component of the programme which assists the worker during the search of a new job and because with LM programme workers are definitely fired, thus they can start to actively look for a new job. Anyway it is still an important object of study for its complexity and social impact.

Appendix A

Table A.1: Cumulative effects of the variable benefit on a permanent re-employment on men

Variables	**Months**								
(reference var.)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
younger	0.022 ***	0.012	-0.006	-0.013	-0.017 *	-0.020 *	-0.028 ***	-0.035 ***	-0.037 ***
	0.007	*(0.008*	*(0.009)*	*(0.010*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.011)*	*(0.011)*
older	0.009	-0.023 *	-0.046 ***	-0.061 ***	-0.072 ***	-0.078 ***	-0.089 ***	-0.087 ***	-0.091 ***
	(0.010)	*(0.012)*	*(0.013)*	*(0.014)*	*(0.014)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*
	Months								
	10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
younger	-0.040 ***	-0.041 ***	-0.033 ***	-0.018	-0.018	-0.026 **	-0.032 ***	-0.033 ***	-0.030 ***
	(0.011)	*(0.011)*	*(0.011)*	*(0.012)*	*(0.012)*	*(0.012)*	*(0.011)*	*(0.011)*	*(0.011)*
older	-0.098 ***	-0.111 ***	-0.117 ***	-0.112 ***	-0.130 ***	-0.141 ***	-0.152 ***	-0.141 ***	-0.137 ***
	(0.016)	*(0.016)*	*(0.016)*	*(0.017)*	*(0.017)*	*(0.017)*	*(0.016)*	*(0.016)*	*(0.016)*
	Months								
	19	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
younger	-0.025 **	-0.023 **	-0.019 *	-0.018 *	-0.015	-0.010	-0.016	-0.014	-0.007
	(0.011)	*(0.011)*	*(0.011)*	*(0.011)*	*(0.011)*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*
older	-0.137 ***	-0.137 ***	0.133 ***	-0.132 ***	-0.130 ***	-0.132 ***	-0.128 ***	-0.127 ***	-0.121 ***
	(0.016)	*(0.016)*	*(0.016)*	*(0.016)*	*(0.016)*	*(0.016)*	*(0.015)*	*(0.015)*	*(0.015)*
	Months								
	28	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
younger	-0.003	-0.003	0.000	0.000	0.002	0.005	0.007	0.006	0.004
	(0.010)	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*
older	-0.116 ***	-0.115 ***	-0.110 ***	-0.109 ***	-0.107 ***	-0.102 ***	-0.097 ***	-0.094 ***	-0.087 ***
	(0.015)	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.014)*	*(0.014)*	*(0.014)*

Significance levels are indicated with asterisks (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$) Standard errors are indicated in brackets

Table A.2: Cumulative effects of the variable benefit on a permanent re-employment on women

Variables	**Months**								
(reference variable)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
younger	-0.002	-0.014 ***	-0.025 ***	-0.036 ***	-0.039 ***	-0.046 ***	-0.052 ***	-0.053 ***	-0.057 ***
	(0.004)	*(0.004)*	*(0.005)*	*(0.005)*	*(0.006)*	*(0.006)*	*(0.006)*	*(0.006)*	*(0.006)*
older	-0.011 *	-0.042 ***	-0.056 ***	-0.065 ***	-0.075 ***	-0.085 ***	-0.095 ***	-0.102 ***	-0.107 ***
	(0.006)	*(0.007)*	*(0.008)*	*(0.009)*	*(0.009)*	*(0.010)*	*(0.010)*	*(0.010)*	*(0.010)*
	Months								
	10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
younger	-0.062 ***	-0.063 ***	-0.058 ***	-0.045 ***	-0.045 ***	-0.055 ***	-0.057 ***	-0.055 ***	-0.058 ***
	(0.006)	*(0.007)*	*(0.007)*	*(0.008)*	*(0.008)*	*(0.008)*	*(0.008)*	*(0.008)*	*(0.008)*
older	-0.116 ***	-0.125 ***	-0.124 ***	-0.125 ***	-0.125 ***	-0.129 ***	-0.136 ***	-0.144 ***	-0.148 ***
	(0.011)	*(0.011)*	*(0.012)*	*(0.013)*	*(0.013)*	*(0.014)*	*(0.014)*	*(0.014)*	*(0.015)*
	Months								
	19	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
younger	-0.054 ***	-0.053 ***	-0.049 ***	-0.045 ***	-0.042 ***	-0.035 ***	-0.033 ***	-0.030 ***	-0.029 ***
	(0.008)	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*
older	-0.150 ***	-0.152 ***	0.155 ***	-0.153 ***	-0.156 ***	-0.151 ***	-0.148 ***	-0.143 ***	-0.147 ***
	(0.015)	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*
	Months								
	28	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
younger	-0.024 ***	-0.024 ***	-0.023 ***	-0.020 **	-0.020 **	-0.018 **	-0.018 **	-0.017 *	-0.014 *
	(0.009)	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.009)*	*(0.008)*	*(0.008)*
older	-0.147 ***	-0.143 ***	-0.135 ***	-0.132 ***	-0.127 ***	-0.125 ***	-0.116 ***	-0.113 ***	-0.107 ***
	(0.015)	*(0.015)*	*(0.015)*	*(0.015)*	*(0.015)*	*(0.016)*	*(0.016)*	*(0.016)*	*(0.016)*

Significance levels are indicated with asterisks (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$) Standard errors are indicated in brackets

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