

Firm-Worker Transfers at the end of the employment relationship: The Case of Italy*

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March 28, 2004

Abstract

Italy does not feature a widespread mandatory statutory payment to be paid to all workers in case of employer initiated legislation. Yet, there exists two firm-worker transfers at the at the end of the employment relationship. On the one hand, Italy features an in-kind protection applied to all workers hired in firms that employ more than 15 workers. On the other hand, Italy features a mandatory deferred wage (*Trattamento di Fine Rapporto*, TFR) that is paid to workers at the end of the employment relationship regardless of the reasons behind the job termination. This paper reviews and assesses the labour market effects of both institutions. In light of the empirical results, the paper argues that a reform of the mandatory deferred wage is likely to increase labour market flexibility. Conversely, the reform of the size threshold has more uncertain labour market effects.

*Part of this research was presented at the joint World Bank-Ludwig Boltzmann Gesellschaft conference on Severance Payments and Individual Accounts, held in Vienna on November 7-8, 2003. We thank seminar participants as well as Giuseppe Bertola and Milan Vodopivec.

1 Introduction

Italy is often considered one of the OECD Countries with the most stringent employment protection legislation for regular (i.e. open ended) employment. Despite recent reform efforts, the basic framework for the protection of regular workers is still regulated by the 1970 labor code (see Bertola Garibaldi, 2003 for a recent survey). In the Italian institutional setting, individual dismissals for economic reasons are explicitly contemplated and admitted by the law, and can be carried out without specific costs and/or mandatory severance payments on the part of firms. Yet, individual dismissals are very difficult in practice, mainly because the interpretation of "fair dismissal" has been traditionally very strict and biased in favor of the worker (Ichino et al. 2003).

In Italy there exists two transfers to be made from to the worker at the end of the employment relationship. The first transfer (called *Trattamento di Fine Rapporto*, *TFR* hereafter) applies to all workers, but it has to be paid regardless the reasons for job termination. Such scheme, which is technically a mandatory deferred wage, can or can not result in an employment protection scheme. Garibaldi and Pacelli (2003) show that TFR is akin to Employment Protection when unpaid wages are accumulated below market rates and when wages are rigidly set outside the employment relationships. The second transfer (called *tutela obbligatoria*) is a more traditional severance payments and applies only to workers employed in firms hiring less than 15 employees. It amounts to six months of salary in case of unfair dismissal. Conversely, employees of larger firms that are unfairly dismissed have the right to an in-kind protection which takes the form of a full reinstatement of the relationship

Both institutions, which have been analyzed separately in our previous research (Garibaldi et al. 2004 and Garibaldi and Pacelli, 2003) have recently taken centre place in the Italian policy debate. On the one hand, the government is trying to force firm worker-pairs to invest the deferred wage (*TFR*) into pension funds. On the other hand, the government is trying to increase the firm threshold at which the in-kind protection takes place. The aim of this paper is to take stock and to assess the labour market effects of these two institutional transfers. Throughout the paper, we rely on micro data drawn from the Italian Social Security Administration. We use the same data source for analyzing both institutions, even though we emphasize different dimensions of the dataset in the various exercise.

Our exercise and results are as follows. In the first exercise, we exploit an institutional dimension of the wage deferral institutions, namely the possibility of proceeding to an early withdrawal of the accumulated and unpaid wages. Specifically, we ask whether there is a relationship between early withdraws and future separation. We find that this is indeed the

case, particularly so for "mobile workers" employed in small firms. In the second exercise we exploit the cross sectional difference (i.e. across firms) in the strictness of employment protection and we ask whether the shift from a severance payment to an in-kind protection has sizeable effect on firm dynamics. In other words, we look whether firms' inaction vis-à-vis employment increases close to the 15 employees threshold, as our previous research predicted. We rely on transition probability matrices for a sample of some 30,000 Italian firms between 1987 and 1996. While the probability of inaction decreases markedly with firm size, we find evidence of a significant spike in the region below the threshold. This effect, albeit significant, is quantitatively very small.

Our results have some policy implications, even though they are not derived within a general equilibrium model. They suggests that changes in wage deferral program can have more visible effects in the labour markets than changes in the threshold effects of the size distribution.

The paper proceeds as follows. Section 2 discusses the institutional setting, emphasizing the two institutional transfers that we review in this paper. Section 3 studies the employment protection dimension of the wage deferral, and presents the empirical results. Section 4 studies the labour market dynamics of firms close to the threshold rule of severance payments and presents the results. Section 5 discusses the results and concludes.

2 The Institutional Setting

In the literature on employment protection legislation, statutory severance payments are defined as mandatory payments (monetary transfers) to which a worker is entitled in case he or she is dismissed without fault of her own. In practice, beyond statutory payments, collective bargaining can and do set additional severance payments to which workers are entitled in case of redundancy. In most countries workers are also entitled to a minimum advance notice periods, a minimum time to be given to workers before firing can actually take place. Even in the case of advance notice, one can distinguish between mandatory and bargained periods of advance notice.

While severance payments and advance notice are key elements in one country's employment protection legislation, other important elements need to be considered. The OECD (1999) has assessed the extent of protection against individual dismissal for a regular employee who is given notice on personal grounds or due to economic redundancy. The OECD considers the strictness of EPL based on three criteria: procedural inconveniences which the employer faces when trying to dismiss employees; notice and severance pay provisions;

and prevailing standards and penalties for “unfair” dismissal. The first and the third elements are clearly present in the Italian institutional setting, while the situation of severance payments is more difficult. The Italian legislation states that a regular worker can be fired for both personal grounds (*giustificato motivo soggettivo*) or economic reasons (*giustificato motivo oggettivo*), and firms can initiate a involuntary separation by given proper notice to worker in written forms. Workers have the right to appeal employer initiated separation and ask in court whether the specific firing was actually fair or unfair.

2.1Severance Payments for Small Firms

Whenever the judge rules the dismissal fair, the workers is not entitled to any compensation, so that in this case the statutory severance payments are literally zero. Conversely, workers are entitled to compensations when a judge rules the dismissal unfair. The amount and nature of compensation varies with firm size. Unfairly dismissed workers employed in firms with less than 16 employees are entitled to a severance payment that varies between 2.5 and 6 months (*tutela obbligatoria*). In alternative to the severance payment, small firms have the option (but they are not obliged) to reinstate the unlawfully dismissed worker. Conversely, firms employing more than 15 workers must compensate the worker for the foregone wages between the dismissal date and the court ruling, and in addition they are obliged to rehire the worker (*Article 18, tutela reale*). In this respect, the reinstatement clause is analogous to an in kind compensation. Note, that if the worker does not exercise the option to be reinstated, he or she can receive a severance payment of 15 months. This implies that *stricto senso*, the *only severance payment that exists in Italy is the one that applies to small firms in case of unfair dismissals*. This is one of the two transfers that are analyzed in the current paper. Furthermore, it is important to stress that whenever the individual dismissal is ruled fair, severance payment are not due.

It is also important to stress how the labour code computes the 15 employees threshold relevant for Article 18, *tutela reale*. First of all, the 15 employees refer to establishments rather than to firms, and to different establishments as long as they are located within the same city. In addition, the 15 employees refer to the date in which the firing was intimated, which can be ahead of the actual separation date. Further, apprentices and temporary workers below nine months should not be computed. Conversely, part-time workers should be included in proportion on to their actual time, and all other temporary contracts should be counted. Finally, any form of employment which does not classify as dependent employment (interim workers, full-time and part-time consultants) should not be included in the labour

code based definition of employment. These measurement issues are relevant in the empirical strategy discussed in Section 4.

2.2and *Trattamento di Fine Rapporto* (TFR)

In light of the above discussion, mandatory severance payments in Italy are very low, and basically zero in the case of employees of large firms. Yet, as was recently pointed out by Brandolini and Torrini (2002), it is puzzling to notice that in the international comparison of severance payments carried out by the OECD (1998), Italy features one of the largest mandatory severance payment, with the actual payments that can reach 2 year salary for a workers with long tenure (20 or more years, Table 2.A.3) How this is possible? This is a subtle issue, and deserves to be discussed in details.

The confusion over the size of the severance payment in Italy is linked to the existence of another important institution, called *Trattamento di Fine Rapporto* (Remuneration upon Separation, TFR in the rest of the paper). *TFR* is an amount of money to which the worker is entitled at the end of the employment relationship, regardless of the cause beyond the job separation. In this respect, TFR is not a severance payment, and in principle should not be included in the OECD index of the strictness of employment protection.

The *TFR* is technically defined as a fraction of the yearly wage that is paid to all employees (including those under probation) with a time delay. It is a sum of yearly provisions that are explicitly included in the firm's balance sheet (and so they are part of the labor costs for accounting purposes) and it is periodically revaluated. Under normal circumstances, the *TFR* is paid to the worker at the time of job separation, independently of the reasons that led to the separation. For each year of service, a provision of two twentyseventh (or 1/13.5) of the yearly gross salary should be included in the individual *TFR* account, and should be revalued yearly. Each year, past *TFR* provisions should be mandatory revalued according to the following coefficients: 1.5% fixed plus 75% of the CPI inflation of the previous year. Such rate is clearly below the best market rate available in the banking system, as Table 1 shows. In legal terms, the *TFR* is a credit from the employee to the firm, and it is guaranteed by the social security administration in case the firm goes bankrupt. While in normal times *TFR* is paid at the end of the employment relationship, workers have the right to draw the *TFR* in advance if they have at least 8 years of tenure, and if they use the advance payment for health related expenses, for buying a house, or for specific periods of unpaid leave. The advance draw is the right on the part of the worker as long as less than 10 percent of the workers applies for it. In practice, workers draw their

individual accounts earlier in their tenure spell, even though such early drawings are subject to employer approvals.

Table 1: Prime Rates and Policy Determined Interest Rate for Recapitalizing TFR stocks

year	Policy \tilde{r} ^a	Market r ^b
1988	5.596	13.00
1989	6.387	14.00
1990	6.28	13.00
1991	6.032	12.50
1992	5.068	16.25
1993	4.491	10.38
1994	4.542	9.38
1995	5.851	11.50
1996	3.422	10.75
1997	2.643	9
1998	2.626	7.875

^a Policy Determined Yearly Capitalization rate for *TFR*
^b Market Determined Annual Prime Rate
Source: Authors' calculation, and Datastream.

3 The Labour Market Effects of TFR

Garibaldi and Pacelli (2003) showed that wage deferral can increase firms profits if two conditions hold: wages are rigidly set outside the employment relationship and past provisions are accumulated at interest rates below the market rates. The first condition ensures that a firm-worker transfer can have allocative effects, so that the well established Lazear (1990) neutrality result does not apply. The second condition ensures *TFR* results in subsidized financing of firm operation from the worker standpoint. Table 1 has clearly shown that the first condition is satisfied in Italy. In our empirical analysis we assume that also the second conditions hold in Italy.

If the above conditions are satisfied, the impact of *TFR* on workers welfare is the results of two effects, which have opposite sign. The first effect is an income effect and reduces workers' welfare while the second effect is an employment protection effect and increase workers' welfare. Let's first look at the *income effect*. A larger *TFR* induces a fall in workers' utility, since the worker is financing the firm at an interest rate below market rates and reduces the present discounted value of its wage stream. The *employment protection* effect of *TFR* increases workers' welfare. With a larger *TFR*, the firm holds on to marginal losses, and increases the average duration of the job. Such labour hoarding effect, holding the stream of payment constant, clearly increases workers' utility. The goal of our empirical exercise is to find evidence of the employment protection effect of *TFR*.

The difficult issue is how to identify empirically the employment protection effect. To this end, we focus on the institutional possibility of withdrawing from the accumulated stock of unpaid wages. In light of the two effects of TFR emphasized above, it is clear that early withdrawing from the stock of TFR has ambiguous effects on workers' welfare, since the larger income available may be offset by the larger increase in the probability of job termination. This suggests that an individual should draw from the accumulated stock of unpaid wages when the interest in the employment protection dimension of TFR is less important. Obviously, this effect should be stronger for individuals with a high propensity to move in the labour market. In other words, individuals that have larger propensity to move should be more interested in the income effect of TFR and should be more likely to be withdraw during the employment relationship. This discussion suggests the following remark

Remark 1 *Individuals with high propensity to move in the labour market should be more likely to draw from the unpaid stock of TFR before a separation.*

If we analyse the issue from the firm standpoint, one can easily argue early withdrawal should be more harmful in firms that are more financially constrained. For such firm, a loss of subsidized financing should have more impact on the future separation decision, as the following remark highlights.

Remark 2 *Early withdraw should increase probability of separation in firms that are more financially constrained.*

The next section described the data set used and the empirical specification of our test.

3.1 The Data-Set

We have access to a single-spell flow-sample of Italian employment spells. The data source is the INPS (Italian Social Security Administration) archive of employees of private firms. We have a 1:90 random sample of the entire archive of the Social Security Administration for the period 1985 to 1999. This is a longitudinal archive, as the same worker can be followed over time through possibly different employers. From such sample we select all employees that start a new job between February and December 1985¹ and we follow those particular employment spells till they end or until December 1999. Ongoing spells at December 1999 are

¹For those working in January 1987 we cannot distinguish between new hirings and left censored ongoing employment spells.

right censored². Overall, we have about 6800 employment spells. Starting time and censoring are clearly exogenous. Notice that calendar time and on-the-job tenure are identical in our sample, as everybody is hired in the same year (1985). Notice also that we observe the workers once a year, even though we know the exact month in which the hire and the (possible) separation took place.

We observe time varying and time invariant characteristics. Available time invariant characteristics are individual's gender, age at entry, place of birth, occupation, type of contract, firm's industry and location. Among time varying covariates, observed once a year, we have the individual's stock of *TFR*, daily average wage, number of days worked in the year, firm size (employees). In what follows we focus on the effect of age and firm size in particular.

The INPS archive records the *TFR* stock at December of year t .³ Before proceeding, we need to carefully define the event "withdrawing" since there are several cases of small negative changes in the *TFR* stock that are not likely to be actual withdraws (they might be measurement errors of some sort). We define a withdraw as negative change in the stock of *TFR* between $t - 1$ and t that:

1. it does not occur in the separation year (it would be the compulsory payment, not a withdraw);
2. it involves at least 20% of the existing *TFR* stock;
3. it amounts at least at 500€.

3.2 Evidence of the EPL Effects of TFR

Drawing from the stock of *TFR* is not a legal right of the worker until eight years of tenure have elapsed. As a result, one should not be surprised that the total number of observed draws is not high. Specifically, overall we observe some 721 withdrawal events, that involve every year about 2% of workers with elapsed tenure below 9 years and 4 to 5% of workers with longer elapsed tenure. Information on the mean draw suggests that workers go for a large share of the *TFR* (about 60% of the accumulated stock). Such draw is quantitatively relevant. Since the *TFR* stock increases approximately by one month of salary for every

²For those working in December 1998 we cannot distinguish between separations occurring in December and right censored ongoing employment spells. This generates an - unavoidable - underestimation of the separation rate in 1998.

³If separation occurs in t , it can either record the final value of the *TFR* stock or 0.

year of tenure, drawing for example 50% of the stock at the 8th year of tenure is equivalent to receiving some 4 months of salary.

To show some evidence of the EPL effect, we look for subset of individuals in which the *EPL* effect is more likely to be observable. In general, drawers with respect to all survivors at t are more likely to be male, older, earning higher daily wages and employed in smaller firms. The characteristics we focus on are workers age and firm size. In other words, we look at the effect of *age and firm size on the probability of observing a separation after an early withdrawal event*. The econometric tool we exploit is a non parametric estimator of the hazard rate, i.e. the Kaplan-Meier estimator of the probability of separation between t and $t + 1$ conditional on having been employed for t periods (Wooldridge, 2002). In formula, if we indicate with $h(t)$ the non parametric estimator, we have that

$$h(t) = \frac{m(t)}{n(t)}$$

where m is the number of spells terminated between t and $t + 1$ and n is the number of ongoing spells at t . We compute $h(t)$ separately for early withdrawals at $t - 1$ and for the others. We exclude retirement events limiting the analysis to workers that separate before 55 years of age. The following figures plot $h(t)$ for $t = 2$ to 14 and for the different groups.

Our econometric evidence is based on comparison of the hazard rate for those individuals who did and did not withdraw from their stock of unpaid wages. In what follows, we label the hazard rate conditional on drawing the year before as $draw_1 = 1$ and the hazard rate for those individuals who did not withdraw as $draw_1 = 0$. Further, we focus on two key observable characteristics which refer to the age in which the employment relationship began and to the size of the firm.

Figure 1 focuses on the age dimension. Panel A of Figure 1 reports the hazard rate for the two types of workers, who are distinguished on the basis of the age at which they start their employment relationship. As panel A shows, individuals who start the employment relationship at a later age have a larger increase in the probability of ending the employment spell. In this respect, we think of these individuals as movers in the labour market. In what follows and in Figure 1, $young = 0$ is akin to *mover* while $young = 1$ is akin to *stayer*. Our analytical idea is that movers should be more likely to draw and separate, since they are likely to be more interested to the income effect of TFR rather than on EPL effect. Technically, individuals labelled $young/movers = 1$ should have a hazard rate conditional on having drawn different than that of young-stayers. Panel C of Figure 1 shows indeed that the hazard rates of drawers and non drawers are significantly different only for the $young = 1/movers$ while they look very similar for the $young = 0/stayers$. This empirical

observation appears consistent with the first remark of the previous section: individuals that are more mobile in the labour market have a larger tendency to withdraw and separate.

Figure 2 focuses on the firm size dimension. It is well known that in Italy capital market imperfections are more important and more likely to bind for small firms than for large firms (Scanagatta, 1999). This reasoning would suggest that an early withdrawing event is more likely to lead to a future separation in smaller rather than large firms. Figure 2 reports the Kaplan-Meier estimates controlling for firm size, with a cutting point at 20 employees. The figure shows that only employees of small firms show a significantly different behavior after an early withdrawal event. This is clearly in line with our interpretation: in a small firm losing subsidized financing is more important than in larger firms.

In Figure 3 we interact the two characteristics age and firm size, and we find that the maximum effect of an early withdrawing event is obtained from the interaction of the firm and the age dimension (Panel A). We view such findings as being consistent with the predicted links between job security and withdrawals. On the one hand, workers who are hired at a later age are likely to be labour market movers. On the other hand, such effect should be larger in small firms, since small firms are more financially constrained and are more reactive to react to the labour hoarding implication of the accumulated TFR .

4 Severance Payments and Threshold Effects

We now focus on the second transfer conditional on job separation. Such transfer is a standard severance payment but it applies only to small firms. Garibaldi et al. (2004) propose a model of employment protection with threshold effects, and study the effect of a 1990 reform which tightened EPL on small firms. In this section, we briefly review the evidence on the threshold effect. As we argued above, employment protection is tighter for firms larger than 15 employees, since an unfair dismissal can induce a worker reinstatement while it induces only a severance payment in the case of small firms. The theoretical analysis proposed by Garibaldi et al. suggests that close to threshold firm inaction should grow, since firms will have no incentive to react to small shocks that would lead to an employment level just behind the threshold. The key prediction in this respect is thus the following prediction.

Remark 3 *Persistence Prediction: firm level persistence increases (decreases) right below (above) the threshold;*

4.1 Empirical evidence on Threshold Effects

The empirical goal of this paper is to study employment dynamics of firms close to the 15 employees threshold, and to check whether such behavior is consistent with the theoretical predictions outlined above. The empirical exercise can be done successfully only using longitudinal microdata on employment.

We use a sample of firms drawn from the Italian Social Security Administration (INPS) archives, called “Standardized DM10m” . The DM10 national archive includes the population of private Italian firms that have at least one employee. For each firm, the standardized record covers 6 years and includes the monthly total number of employees. In a given year, our sample includes all firms that employ in May a worker born on the 10th of March, June, September and December. For sampled firms at year t , we follow employment behavior in December of year t and $t - 1$. This sampling method generates a random sample of firms, even though the sampling probability is proportional to firm size. In a given year, the sample includes some 900 firms of 14, 15 and 16 employees. In terms of age, our sample requires firms to have at least one year of life, while it is perfectly possible that firms currently active leave the market in the following year.

We generate a set of transition matrices for employment size. We consider a subset of the firm size distribution, and we concentrate our analysis on all firms with employment in the interval $[i = 1, I = 30]$, so that the employment threshold we are interested in lies perfectly in the middle of our size interval. Let $p_{ij,t}$ be the probability that firm size i switches to size j in $t + 1$. If $i = j$, the transition probability refers to the persistence probability, or the probability of employment inaction. Notice that our transition probabilities refer only to continuing firms. With this database of transition probabilities in hand, we test whether employment dynamics around the 15 employees threshold is consistent with the theoretical predictions.

If we indicate with $p_{ii,t}$, the estimate of the persistence probability for firms of size i between time t and $t + 1$, our first step requires estimating the following baseline regression is

$$p_{ii,t} = \gamma_t + \frac{\alpha}{size_i} + u_{it}$$

where γ_t is a time effect. Let d_j be a dummy of window k , or a dummy variable that takes the value 1 if size belongs to the interval $[j - k, j + k]$. We then estimate the following regression

$$p_{ii,t} = \gamma_t + \frac{\alpha}{size_i} + \delta_j + u_{it}$$

for various values of dj . The persistence test is equivalent to the following test

$$H_o : \delta_k = 0; H_1 : \delta_k > 0; k = 13, 14, 15$$

which is simply a test that looks for an increase in $p_{ii,t}$ around the 15 employees threshold. This type of test needs to be carried out with different baseline statistical models, and several robustness tests in terms of the size of the dummy. Notice also that we include only one size dummy in each estimated model, i.e. we estimate the same model several times including size dummies in turn.

Figure 4 reports the benchmark statistic relation estimated according to equation [11] and the observed median probability of transition: the persistence probability increases close to the threshold, and declines thereafter. Figure 6 (in the column labelled Model 1) reports the estimated coefficients obtained by adding size-one dummies in turn to the model outlined above. The dummy is positive and strongly significant already at size 13, and reaches a peak at size 15, with a quantitative value that is about 2 percent. When the size of the dummy is 3 (column labelled Model 2), the results do not change much. Garibaldi et al. (2003) perform various robustness tests to this effects and finds to hold. Overall, the evidence provided suggests that, on average, *firm persistence below the threshold increases by some 1.5 percent relatively to a baseline specification*. Such effect is significant, but quantitatively small.

5 Discussion and Conclusions

In this paper we have analyzed the labour market effects of two firm-worker transfers at the end of the employment relationship. The first one is a mandatory deferred wages that is paid at the end of the employment relationship, regardless of the reasons behind job termination. The second one is a traditional severance payment that is paid to workers employed in small firms, and it applies only to employees of firms with less than 16 workers. Larger firms, conversely, are regulated by an in-kind protection that forces firms to rehire workers dismissed without just cause. Our empirical results have show that both transfers have some labor market effects, even though the evidence of the threshold effect is rather mild.

Both institutions have recently taken centre place in the policy debate, for very different reasons. The *TFR* reform is considered part of the social security reform. The policy goal in this respect is to invest the unpaid wages in pension funds (on a flow basis), so as to boost the second pillar of the social security system. If such reform is implemented firms would now have to pay in cash the full salary, including the deferred part. The latter part, however, would not be transferred to the worker but would be invested in a pension fund. While

such reforms is likely to have some impact on the social security system (whose discussion is beyond the scope of this paper), our results suggest that this reform will induce labour market effects. Since *TFR* has a built-in employment protection dimension, the transfer of the *TFR* from the firm to the pension funds is akin to a reduction of employment protection.

An interesting question is what will happen to worker welfare in this case? Our analytical perspective suggests that the answer depends mainly on two dimensions: *i*) the expected returns that the worker will enjoy from the pension funds and *ii*) workers assessment of their own employment protection. In this perspective, workers that feel very secure on their jobs would probably be better off with by investing the unpaid wages in the pension funds. Conversely, workers that put a great weight on the employment protection component of *TFR* would be better off if the unpaid wages could stay with the current employer. One option to solve the ambiguity from the worker standpoint would be to leave the choice of the investment to the workers, so that workers optimally sort themselves into those that are interested in the employment protection dimension and in the income dimension of *TFR*. Looking at the firm dimension, it is clear that paying the full salary in cash is certainly welfare decreasing.

The government is also discussing the possibility of increasing the firm threshold at which the in-kind protection bites. The idea in this respect is that the severance payments (as it applies to small firms) offers over a more flexible way to employers for adjusting the workforce. The policy proposal proved very controversial to employees, and the government appears now very reluctant to move forward in this direction. In any event, the evidence presented in this paper as well as in other research mentioned above suggests that the labour market effects of such proposal are likely to be modest. In the paper we show that firm employment dynamics does not appear to be greatly affected by the presence of the threshold effect.

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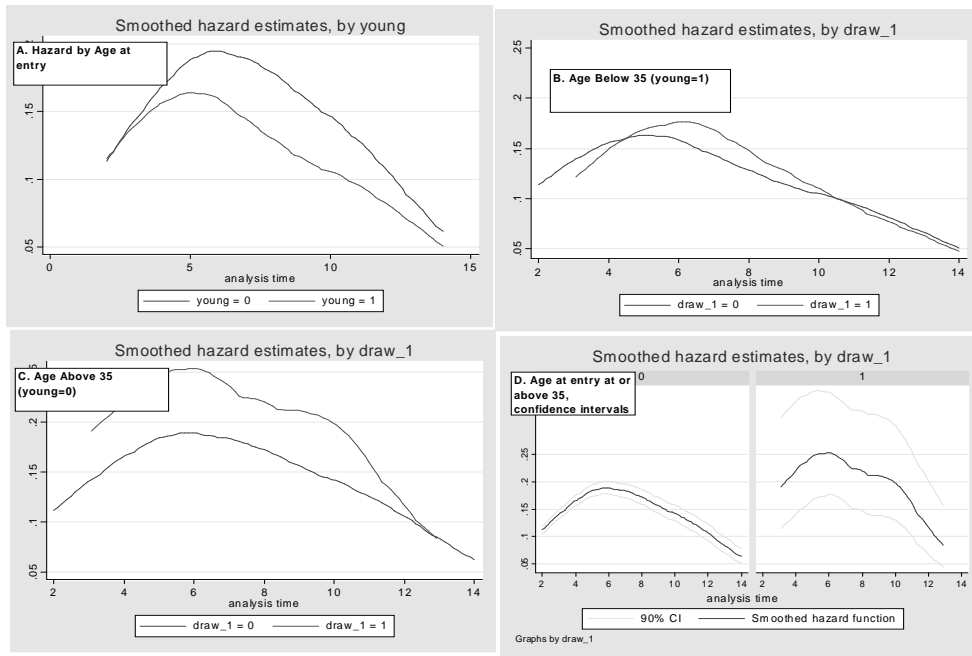


Figure 1: Hazard Rates Conditional (and non-conditional) on TFR withdraws by Workers' Age at Entry. Nota that the group *Young* = 1 refer to individual *Stayers* while *Young* = 0 refer to individual *Movers*.

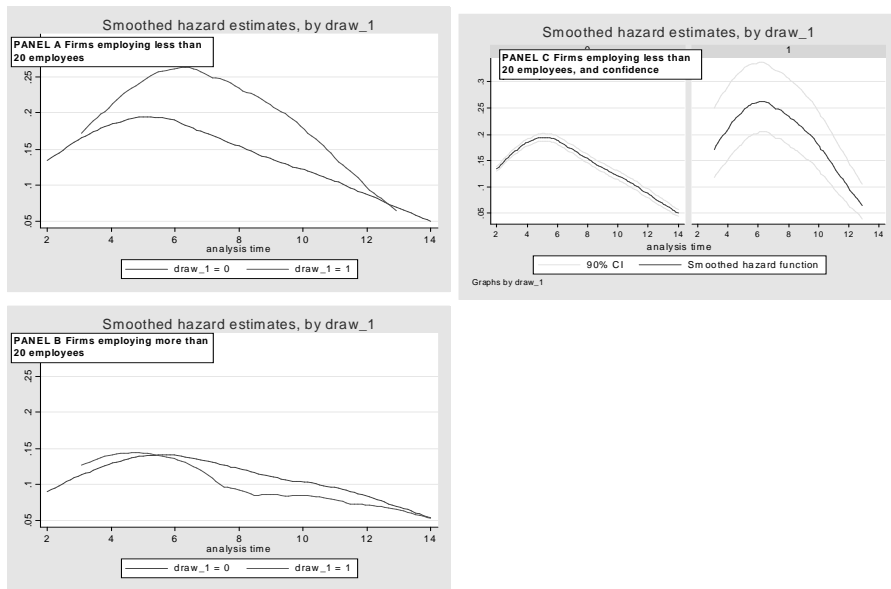


Figure 2: Hazard Rates Conditional (and non conditional) on early Withdraws by Firm Size

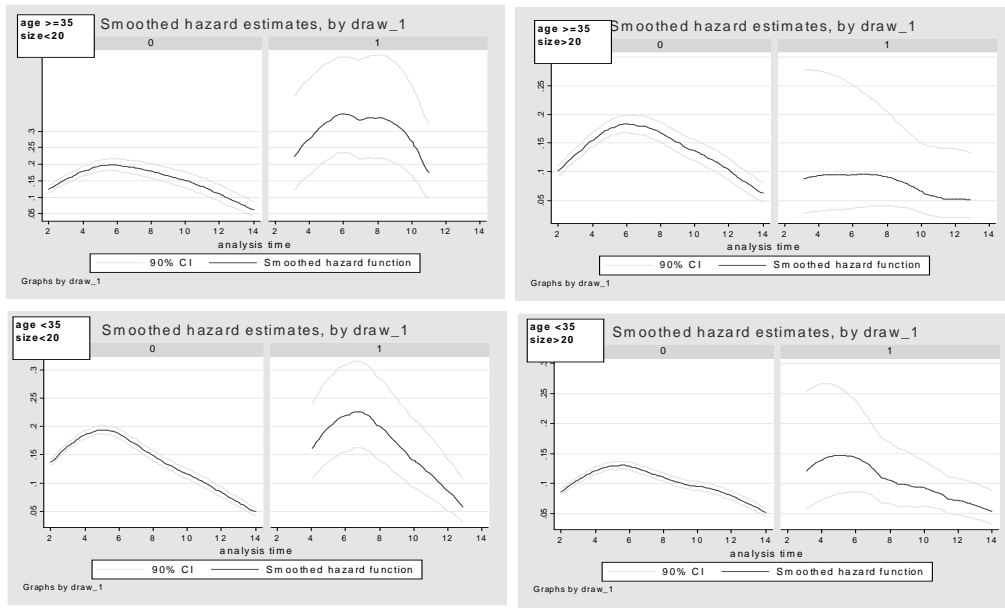


Figure 3: Hazard Rates Conditional (and non conditional) on TFR Withdraws by Firm Size and Workers' Age at Entry

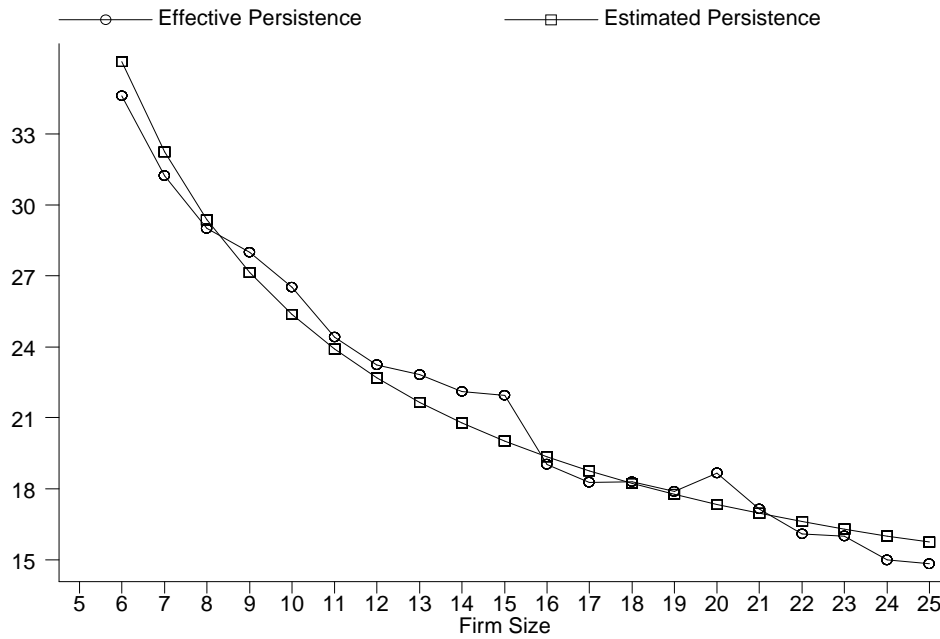


Figure 4: Effective and Estimated Persistence Probability around the size threshold.

RHS Variables	Model: 1	Model: 2	Model: 3	Model: 4
Dummies: window size	Inverse of Size	Inverse of Size	Inverse of Size; Size	Inverse of Size; Size
Size Dummy	1	3	1	3
	Coefficient	Coefficient	Coefficient	Coefficient
6	-2.28**		0.4	
7	-1.29		-0.44***	
8	-0.42		-0.38**	
9	0.93**	0.77	0.49***	0.29
10	1.24***	-0.29	0.53**	0.08
11	0.52*	0.88**	-0.38*	-0.11
12	0.58**	0.86**	-0.4*	-0.23
13	1.22***	1.18***	0.25	0.14
14	1.40***	1.71***	0.47*	0.83**
15	2.02***	1.14*	1.19***	0.21
16	-0.31	0.44	-1.14***	-0.47
17	-0.51**	-0.28	-1.19***	-1.09***
18	0.07	-0.11	-0.41**	-0.69**
19	0.13	0.62	-0.17	0.28
20	1.42***	-0.06	1.31***	0.32*
21	0.19		0.29*	
22	-0.57*		-0.24*	
23	-0.33		0.24*	
24	-1.09***		-0.28**	
Constant \1	10.3***	10.3***	16.6***	16.6***
Inverse of Size	160.36***	160.36***	106.05***	106.05***
Size		-	-0.32***	-0.32***
Time Dummies	Yes	Yes	Yes	Yes
Num. Observations	198	198	198	198
R ² without dummy	0.92	0.92	0.94	0.94

*, **, and *** refer to 90, 95 and 99 percent significance
\1 below line: estimated coefficients when size dummies are excluded

Figure 5: Regression Results on the Persistence Probability