Introduction effects of the Chilean unemployment Insurance over unemployment spells durations[*]

Isabel Poblete [†]   Ximena Quintanilla [‡]   George Vega [§]

December 2012

Abstract

The Chilean Unemployment Insurance was established in October 2002. Its aim is to smooth consumption of private sector's workers when facing unemployment spell. Its novel design mixes individual savings account (property of the worker) and a solidarity fund named Unemployment Solidarity Fund. This paper estimates the effect of the its introduction, in particular of the individual accounts, on unemployment duration and evaluates if the self-insurance component suffer of the existence of moral hazard.

Keywords: Unemployment Insurance, Chile, Duration Models, Natural Experiment

JEL Codes: J64, J65, D82, H55

1   Introduccion

Unemployment and its consequences on individuals wellbeing has been a permanent concern in Chile, moreover considering that Chilean economy is characterized by been small and open to international markets. Until 2002, the only form of institutional protection against unemployment's negative income shocks was the Unemployment Subsidy. This subsidy, which covered a limited population segment, had strict eligibility rules and provided small benefits which were not enough to protect middle income individuals. The Asian crisis in 1997, which affected the Chilean economy in 1998, had a big impact over the local labor market, significantly rising unemployment levels for a long period (see Gatica and Romaguera (2005)). While the idea of implementing an Unemployment Insurance was been discussed starting the 1990's, the crisis made apparent the weakness of the Chilean system in consumption smoothing during unemployment spells.

Eventually, in October 2002 the Chilean Unemployment Insurance,UI, was implemented with the main objective of protecting private sector workers who loose their jobs. Its novel design mixes individual savings accounts (refereed as CIC)[1], property of the worker, and a solidarity fund named Unemployment Solidarity Fund (refereed as FCS)[2]. This combination was designed considering the country's needs and context: medium-high level of institutional development, non negligible informal labor market size, experience on Individual Savings Accounts management and high employment turnover. While its savings component seeks to reduce and/or eliminate moral hazard effects, present in traditional unemployment insurance schemes[3], the FCS allows to share risk by redistributing resources from the group of workers with more stable employment and likely more able to smooth consumption smoothing during unemployment periods to those more vulnerable (see section 2 for more details on UI design).

In the case of Chile, a few studies have attempted to evaluate the existence of moral hazard[4]. Some of them have found evidence of moral hazard for FCS beneficiaries (solidarity component of the UI) but no for CIC beneficiaries.

---

[1]Cuenta Individual de Cesantía.

[2]Fondo de Cesantía Solidario.

[3]Vodopivec and Raju (2002).

[4](Reyes, Van Ours, & Vodopivec, 2010), (Huneeus, Leiva, & Micco, 2012) y (Castillo & Sanhueza, 2008).

This paper estimates the effect of the introduction of the Unemployment Insurance on unemployment spells durations, making a special emphasis on the individual accounts component. We evaluate the extent to which individual accounts suffer of the existence of moral hazard and we explore the possibility that unemployment spells durations may be determined by liquidity effects[5]. The methodology considers a semi-parametric duration model and the identification strategy of the effect is given by a natural experiment such as the starting date of the UI.

Our results suggests that the treatment (been a member of the UI and be potential beneficiary of CIC), reduces the reemployment rate in a 55% in comparison with the control group, which states as evidence of the existence of moral hazard. Notwithstanding, Chetty (2008) identifies the presence of a liquidity effect on traditional UIs, which is why this research attempts to identify which effect is predominant on the unemployment spells durations differences Preliminary calculations show that more than half of the total effect would be driven by liquidity effects.

This paper is organized as follows: following this introduction, we provide a brief description of the features of the Chilean UI system, after that, section three presents a summary of the researches made about the Chilean case which evaluates the existence of moral hazard. The fourth section describes the data, identification strategy and the methodology used for the empirical analysis. Section five discuses the results and finally section six concludes.

2 Features of the Chilean UI

Chilean UI is mandatory for private employees who joined the labor market or started a new job on October 2002 or thereafter. The design mixes mandatory individual savings with social insurance. On the one hand, the individual savings component is addressed by the CIC which, in the case of permanent contracts is funded with contributions from both employee and his employer, and for fix-term contracts, contributions are solely from the employer. On the other, the social insurance component, delivered through the FCS, is funded by employers and the State.

---

[5](Chetty, 2008).

Assets accumulated both in the CIC and in the FCS, are managed by the Unemployment Funds Manager (AFC)[6]

In may 2009, after almost seven years since its introduction, a reform of the UI widened the access to the SF so it would attend in a better way Chilean labor-market dynamics, as well improve protection for unemployed workers.

2.1 UI Funding

The UI funding rules depend on the workers type of contract. Contributions of workers with permanent contract are 0.6% and 1.6% of their covered earnings for employee and employer, respectively. Additionally, the employer is mandated to contribute 0.8% of the employee's covered earnings to FCS. In the case of workers with fix-term contracts, the total contribution to the system is made by the employer and rises up to 3% of covered earnings (0.2% to FCS and 2.8% to the CIC) [7].

Besides of workers and employers contributions, the State makes an annual contribution to FCS equivalent to UTM 222,792[8], ie. about USD 18,89 millions[9].

2.2 Individual Unemployment Saving Account (CIC)

2.2.1 Access requirements and benefits

Accessing CIC benefits also depends on the type of contract the worker has upon termination. In order to have access to CIC benefits, each type of contract requires a different minimum number of contributions to the CIC account. However, CIC access does not depends on the causation of contract termination, i.e. is an all event benefit.

---

[6]Administradora de Fondos de Cesantía. The management is awarded as by means of a public bidding process for a period of ten years. The bidding is awarded to the competitor who offers the lowest commission rate. Until today, there have been two public biddings, the first of them in 2001 and the second in 2012 which will take effect in November 2013

[7]Note that before may 1 of 2009, workers with fix-term contracts did not have access to the FCS.

[8]Monthly Tributary Units. By march 27 of 2013 UTM 1 = CLP 40,085

[9]By march 27 of 2013 USD 1 = CLP 472.61

The amount of benefits that are funded exclusively from the CIC depend on the workers CIC's accumulated balance[10].

2.3 Solidarity Unemployment Fund

2.3.1 Access requirements and benefits

In order to have access to FCS's payments, members have to fulfill the following requirements: (i) to have a minimum contributions density; (ii) that the contract did not terminated either for causes attributable to the worker, mutual agreement of both parts or voluntary resignation of the worker; (iii) not to have enough resources to be able to self finance FCS payments in terms of amounts, replacement rates and number of payments indicated by law; and (iv) to be unemployed at the time of the application and staying in that state while receiving the benefit[11] [12].

The FCS delivers benefits for a maximum of five months, with decreasing in time replacement rates and maximum values for the amount of benefits[13].

The worker who is eligible for FCS benefits can decide whether to use the benefit or not. In the former case, benefits are firstly funded by the CIC and once its depleted by the FCS. If the eligible worker chooses not to use the FCS, the benefits will be funded exclusively with his CIC and thus following the payment structure that was described in the preceding section.

It is important noticing that, in order to avoid opportunistic behavior and to promote a sensible use of the social insurance component, access to the FCS is limited to a two times use within a five years pe-

---

[10]Before the 2009 reform, the number and amount of benefits depended on the number of months contributed by the employee with a maximum of five withdrawals for permanent contract workers and one withdrawal for fix-term contract workers. After the reform payments structure follows a descending pattern and the payments mounts are calculated as a replacement rate using employee's last twelve months monthly average income. Replacement rates percentages are defined by law (see ? (?) for more details). This type of benefit does not depend on the workers' contract type.

[11]Fix-term contract workers have access to FCS's benefits starting 2009's reform.

[12]For more details on the requirements for accessing the benefits see Superintendencia de Pensiones (2010).

[13]Starting 2009's reform, the law increases the number of payments by two in the case that finding a job becomes specially hard, measured as an increase of the unemployment rate above its trend.

riod. This way, the worker who has positive expectations on shortly finding a job will prefer to reject using this benefit, so not to lose the chance to use the benefit in a future unemployment event with possible longer duration.

In respect of the benefits' amounts, the monthly payments structure follows a decreasing pattern established as a replacement rate on the worker's average monthly income within a window of twelve months of contributions (the last twelve), with higher and lower bounds set by law. The payment bounds are adjusted yearly[14].

As FCS benefits are delivered only to those workers who stay unemployed, the beneficiary has to attend monthly to the closets Local Government Offices of Labor Intermediation (OMIL) to certify his condition. Further, he needs to be available to attend to training courses or to take job offerings[15]. The AFC also certifies that the member continues unemployed through the absence of contributions to the system.

3   Literature review

UI's main objective is to protect workers who suffer of unemployment spells by allowing them to smooth consumption while unemployed. Notwithstanding, benefit payments changes the price of leisure which, through substitution effect, disincentives job seeking. Since the social planner can not observe the worker's real effort for finding a job (information asymmetry), moral hazard may arise.

Some countries have incorporated individual savings accounts as an alternative to mitigate moral hazard in traditional UI schemes. [16]. In this case workers save in an individual account, to which they can access in the case of loosing their jobs. This mechanism allows workers to internalize the cost of extending their unemployment spells, since the benefits funding is made through their own savings. Lined up with this theory, the Chilean UI introduces unemployment individual saving accounts, which are complemented by the FCS.

---

[14]The values are adjusted every February 1st accordingly to the evolution of the Consumer Price Index (IPC) and the Real Income Index during the last twelve months. Before the 2009's reform these were adjusted only by IPC.

[15]If the member rejects a training course scholarship or a job offering in a unjustified way UI benefits are suspended. In the case of job offering, it is considered as a justified rejection if the income offered is less than 50% of the worker's last reported income.

[16]Vodopivec and Raju (2002).

As far as the authors know, there are three studies that have attempted to empirically evaluate the existence of moral hazard in the Chilean UI. The first of them is Reyes et al. (2010), who use administrative data of unemployed workers that, by the time of loosing their jobs, had a permanent contract and did fulfill the access requirements of CIC's benefits. Their results support the idea that CIC's existence increases job-seeking incentives for those workers who access to it as compared to FCS beneficiaries, where the authors find that the job-seeking rate over unemployment spell durations is consistent with moral hazard.

After that study, Huneeus et al. (2012) takes advantage of the 2009's reform to the UI to develop a difference in difference analysis and study the effect of increasing benefits and insurance coverage over unemployment spells duration. Using administrative data, once again the results show differences between FCS and CIC beneficiaries. CIC beneficiaries who by the time of contract termination were eligible for FCS benefits but did not take the latter showed a bigger unemployment exit rate than FCS beneficiaries and, at the same time, show a better unemployment exit rate than CIC beneficiaries that do not fulfill the requirements to access FCS benefits. The latter result could be the result of self-selection among FCS eligible unemployed who choose only to have CIC benefits, as they may have thought that they would have better chances of finding a job.

As opposed to the mentioned two studies, Castillo and Sanhueza (2008) uses data from the 2004's Social Protection Survey (EPS) to evaluate the effect of UI in workers job-seeking effort. The authors find that individuals who get access to UI benefits or those who are just UI members have less chances of been unemployed relative to be employed, and show shorter unemployment spells than workers who are not members. The authors read these results as a reflection of Chilean labor market's segmentation, where workers who are beneficiaries of the UI are the ones who have higher employability. Adding to this the fact that payments' amounts are discrete turns into an incentive to staying in job-seeking process. Even though EPS data richness allows to control by sociodemographic characteristics, individuals have to be classified among those who are members or not and among those who have received benefits UI or not based on individuals' self-reports. Considering the poor knowledge on UI[17], this results can be biased.

This paper follows the same line of the previous researches, but

---

[17]Explained by the fact that at the time the survey was conducted the UI had only two

this time, rather than comparing incentives generated by individual accounts *against* those of solidarity component, we focus in evaluating the UI's *introduction* impact over unemployment spells duration. Particularly, due to our identification strategy and features of available data (see section 4), we focus on individual saving accounts' introduction effect over the duration of the first unemployment spell. In this context, we attempt to give a first look to its decomposition (total effect) between moral hazard and liquidity effect.

4 Data and Methodology

4.1 Data

We use a representative sample of an administrative dataset of members of the Pensions System (AFP System), named HPA[18]. The sample includes around 24.000 observations corresponding to members of the system between 1981 and 2004. This dataset keeps demographical information such as birth date, gender as an addition to contributions records (date and income amount) and members cumulate balance among different pension savings accounts (mandatory, voluntary and agreed deposits). The HPA tracks individuals until December of 2009.

HPA allows us to identify those individuals over who we are making our analysis; those who entered the formal labor-market for the first time between April 2001 and may 2004, in other words, 18 months before and after UI's implementation (October 2002). While those who entered just before the threshold date are not members of the UI (and not covered by it), the ones who entered the labor-market just after were compulsorily affiliated to the UI; individuals in the latter group are potentially beneficiaries of the UI, therefore, unlike non- members, UI could have affected their behavior. In other words, this research uses UI's starting date as the natural experiment which provides the exogenous variation to properly identify causality.

The analysis is restricted to those who entered the labor-market while having between 18 and 25 years old such as to minimize differences among treatment and control groups on variables such as expe-

---

years of operation and that affiliation is mandatory and made by the employer. Additional to this, surveyed workers may have confused UI's benefits with Unemployment Subsidy, which had both a significantly lower coverage and benefits level.

[18]Historial de Pensionados y Afiliados.

rience in the labour market and previous unemployment episodes. In the same line, our research focuses on the first unemployment spells of each individual in order to avoid biases due to potential experience gains during the first unemployment spell.

When facing the first unemployment spell, individuals in our sample should fulfill contributions requirement in order to have access to UI benefits, 6 months in this study. We chose this threshold instead of 12 months required for contributors with permanent contracts for two reasons: In first place, after having worked twelve months with the same employer, the employee has the right to receive severance payment when he has been fired for reasons not attributable to him, so that UI's effect over workers with twelve months of contributions may be confounded with compensations effects. In second place, the characteristics of the selected sample (high labor-market rotation, specially among young people, see Reinecke and Ferrada (2005)), turns into that the majority of individuals entering labor-market do it through fix-term contracts, this way the six months threshold is consistent with UI's eligibility requirements for the selected group.

This way, treatment group will be composed of UI members (they entered to the labor-market after October 2002) who have at least 6 contributions (months), which makes them eligible for CIC benefits[19]. The control group is composed of UI non members (because they entered labor-market just before October 2002) but that face their first unemployment shock having at least six contributions , so that if they were UI members they would have been eligible to have access to CIC benefits[20]. This definition allows us having rather homogeneous groups on their observable characteristics and both with a real option of claiming UI's benefits if unemployed and are eligible.

Table 1 presents some control variables characteristics of the sample by group. Our sample size is of 227 individuals, of which 135 are in the control group and 92 are in the treatment group[21].

---

[19]The idea of choosing this group is that the UI could potentially have an impact in the behavior of its members. If having less than six contributions is similar to not be covered by the UI thus, even though members of the UI, individuals would face unemployment events just like no-members.

[20]Additionally, UI membership is verified through administrative data for both, treatment and controls.

[21]At first, even though they fulfilled the requirements of membership of the UI, 72 individuals were not assigned to neither of the groups. Due to these individuals entered labor market before October 2002, but after that they joined the UI, so they were part of

Descriptive statistics plus t-test results are shown for both groups, for which, after analyzing these statistics, there are no significative statistical differences between both groups.

Table 1: Mean test

	Control $\bar{X}$	Treatment $\bar{X}$	Difference	t statistic
Male	0.474	0.511	-0.0368	-0.542
Labor market entering age	20.51	20.49	0.0220	0.0716
1st job Avg. income	170459.0	178291.4	-7832.4	-0.453
Mandatory pension savings (10 months)	542.9	322.6	220.3	1.743
1st employment duration	20.31	21.73	-1.417	-0.590
1st unemployment spell duration	9.630	8.152	1.477	0.890
Avg. reemployment salary (6 months, no gaps)	180809.7	188165.8	-7356.0	-0.320
Reemployment duration	16.47	16.28	0.191	0.0688
N	135	92		

Given the results presented in table 1, it is statistically feasible to estimate duration models with the labor market entry date as our treatment.

4.2 Methodology

The objective of this work is to estimate the introduction effect of the UI over workers' unemployment spells durations. For that we use duration analysis, which assumes that the time an individual stays unemployed behaves as a non-negative random variable ($T \geq 0$), which is distributed in a certain manner within the population.

In duration models, at least two function are important: survival function and cumulative risk function. The first expresses the probability of exiting or staying in a state (surviving) after certain time, and the second explains the number of times an individual is going to switch states (failures) after certain time t[22]

Figure 1 shows the Kaplan-Meier survival function, i.e. the chance of staying unemployed conditional on having t unemployment periods.

---

the control group; we later assigned them to the control group. Considering this, we choose using the following criteria: *(i)* Individuals who joined UI after their first unemployment event (uncover by the UI at the time of the event) were assigned to the control group; *(ii)* Individuals who joined UI without showing any unemployment events until affiliation date, showed having more than six contributions before joining UI and at least 6 contributions as UI members, were assigned to the treatment group; *(III)* Individuals having less than six contributions as no UI members and as UI members were assigned to control group

[22]To get a clear description of this method, see (Castillo & Sanhueza, 2008)

Distributions of members and non-members of UI are presented. As we can see, until the fifth month, unemployment duration's median is greater for UI members, what in a first look suggests that we are in presence of moral hazard. Meanwhile, figure 2 shows the Nelson-Alen cumulative risk function. Consistent with the survival function, until the fifth month, UI members have a lower cumulative probability of exiting unemployment; numeral that after the fifth month increases overpassing UI non-members' probability. For both groups, unemployment duration expectancy is seven months[23].

Figure 1:
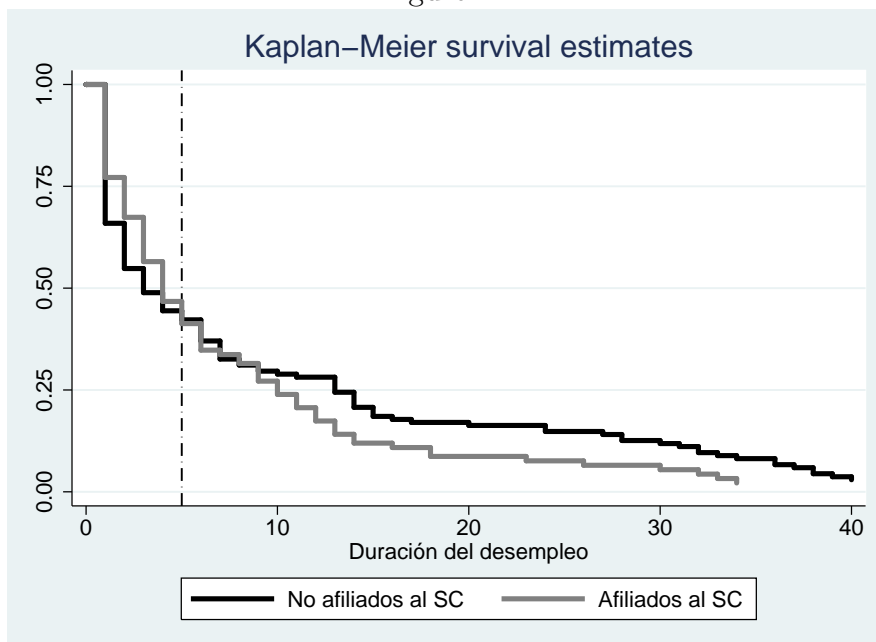
There are several methods to estimate parameters linked to the functions described earlier in this document. This time we will use Cox's semi-parametric model, which allows multivariate analysis without making assumptions on the durations distributions. The model to estimate is:

$$h_i(t/x) = \lambda_0(t)exp(\gamma_0 SC + \gamma_1 tSC + X\beta) \tag{1}$$

---

[23]While the data used to construct these graphs includes all observations, in order to easy visualization we only show individuals with a maximum of forty months of unemployment spells.

Figure 2:

Nelson–Aalen cumulative hazard estimates
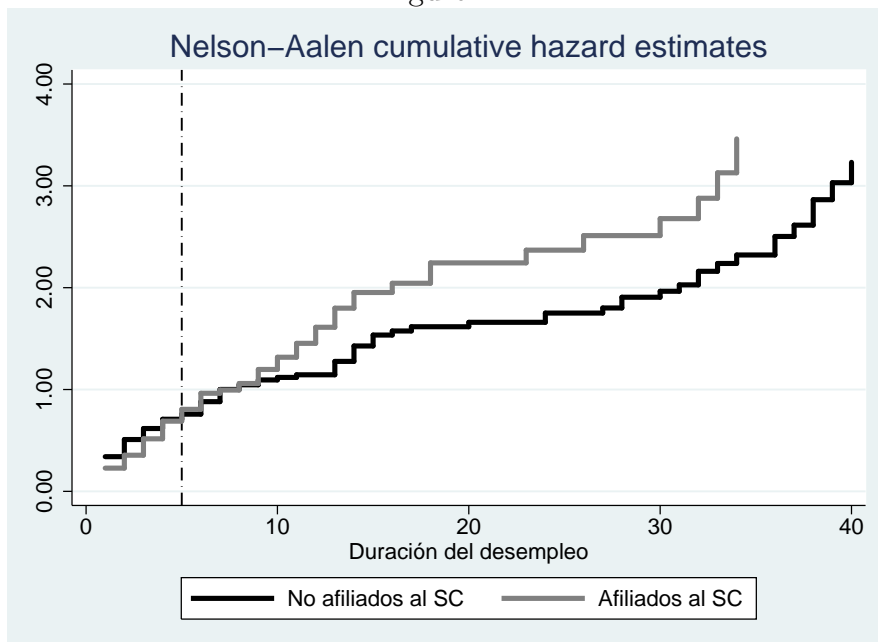
where $\lambda_0(t)$ is the *baseline hazard*, which is different for each individual and it is unknown. Cox methodology's key assumption is that the *baseline hazard* is constant among individuals, implying that the proportional *hazard* is to individual i relative to j just depends on observables.

Our key parameter is γ_0. If $\gamma_0 < 1$ it would imply that been UI member increases unemployment duration for individuals in our study, in other words, young UI members, raging from 18 to 25 years old, who entered formal labor market around October 2002 and who by the moment of facing their first unemployment spell are potential CIC beneficiaries. In this sense, $\hat{\gamma}_0$ represents the *intention to treat*.

Control variables included in vector X are gender, age, age by the time of affiliation, average income of the first job, duration of the first job, trend on the entering date of the first job and dummies for the month when unemployment starts. Note that we also included interaction terms of UI membership with time in order to capture UI's time trend.

Considering that a big number of UI User Service Offices are within Fund Managers' offices, we stratified data along Fund Managers using

12

individuals Fund Manager as the one to which the member is affiliated by the time of unemployment. Standard error are robust. Meanwhile, *tied failures* are treated using Efron's approximation, which is more precise than Breslow's when the number of *tied failures* is important. As a last thing, observation threshold (until November 2009) is sufficiently extensive so that every individual who entered his first unemployment spell was able to exit from it; in other words, we have uncensored data and thus less worries.

5   Results

Table 2 show the estimated coefficients for unemployment spell duration. The estimated *hazard rate* suggests that the treatment (been a young UI member and a potential CIC beneficiary), keeping all the other variables constant, reduces unemployment exit rate in a 55%.

As we can see, unemployment exit rate is greater for female individuals than for males, unexpected result considering that males have lower employment-salary elasticity which should turn out into a lower reserve salary and, thereby, lower unemployment spell duration. These results could be suggesting that young woman in the sample have better expectations in labor market. Moreover, *hazard rate* seem to be decreasing along age at the time of entering unemployment, but increasing with age at entering formal labor market. While average income of the first reemployment does not affect unemployment duration (except for the restricted sample of the second model), there is a positive relation between duration of the last job and unemployment exit rate.

Figure 3 shows estimated survival functions for both, treatment and control groups[24]. Both curves were estimated at the means of the rest of explicative variables. It is observed that young UI members who are potential payments beneficiaries have greater survivorship in unemployment for each one of the durations.

It is possible to evaluate goodness of the fit using Cox-Snell residuals. If the model has a good fit on the data, then the function of true cumulate risk, conditional on control variables, has exponential distribution with a *hazard rate* of one. In visual terms, if the estimated Cox-Snell based risk function follows a 45 degrees straight line,

---

[24]Just like Kaplan-Meier and Nelson-Aleen graphs, only individuals with unemployment spell durations lower than 40 months are included.

Table 2: Estimated *Hazard rates* for unemployment exit rate

	(1)	(2)	(3)
UI Member	0.52***	0.53**	
	(0.12)	(0.15)	
Female	1.47***	1.45**	1.47***
	(0.20)	(0.23)	(0.20)
Age	0.17***	0.16***	0.17***
	(0.02)	(0.02)	(0.02)
Age at the first formal job	5.58***	6.05***	5.57***
	(0.63)	(0.79)	(0.63)
Income of the last job	1.00	1.00*	1.00
	(0.00)	(0.00)	(0.00)
Duration of the last job	1.17***	1.18***	1.17***
	(0.01)	(0.01)	(0.01)
Trend	1.02**	1.03*	1.02**
	(0.01)	(0.02)	(0.01)
log of income			0.94***
			(0.02)
Observations	227	169	227
ll	-858.9	-589.3	-858.8

All specifications include treatment interaction with trend and dummies for the month
of starting unemployment.
Robust Standard Errors in parenthesis
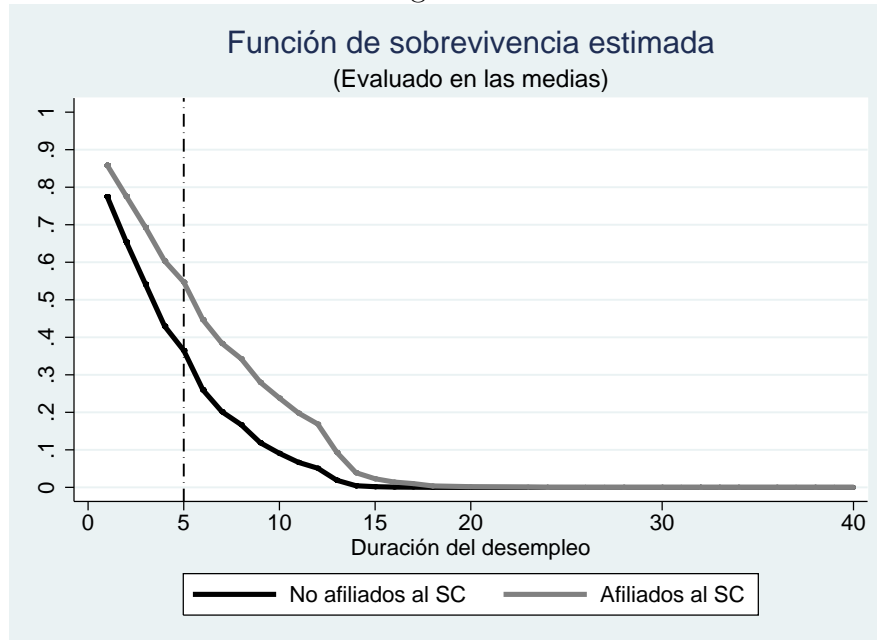*** p<0.01, ** p<0.05, * p<0.1

then we know that its distribution approaches an exponential. Figure
4 shows that the model fits is fairly good, specially for the smallest
values, which is the most populated segment of the distribution.

As a robustness check, column two of the table 2 shows results only
considering individuals entering labor market twelve months around
the introduction of the UI (versus an eighteen months diameter thresh-
old in column one). It is observed that estimators are robust for mag-
nitude as for significance; which is why we choose to use the wider
threshold in order to have more observations.

Mentioned earlier, Cox's semi-parametric model is based in the
assumption that *baseline hazard* is constant among individuals. In
the appendix Schoenfeld' scaled residuals are presented for each of
the control variables. Parallel lines point out that proportionality as-
sumption is not violated. Additionally, Schoenfeld test is run without
rejecting null hypothesis of proportionality for non of the predictors.

Traditional interpretation of UI diminishing unemployment exit
rate is that there is *moral hazard*. In other words, information asym-
metry between individual and social planner in context of UI as an
incentive towards reducing job-seeking efforts given that leisure price

Figure 3:

Función de sobrevivencia estimada
(Evaluado en las medias)

Duración del desempleo

No afiliados al SC — Afiliados al SC

diminishes (substitution effect). In other view, Chetty (2008) proposes that increments in unemployment durations may also be a consequence of liquidity restrictions. The author argues that individuals with liquidity restrictions or without credit access can not optimally smooth their consumption during unemployment shocks. In this case, UI benefits, particularly CIC, are paid only once, and of the time period considered in this paper, might allow keeping a certain consumption level and reducing pressure towards job-seeking. Even though both effects reduce unemployment exit rates, wellbeing implications are different. While unemployment duration increase due to prices distortions generated by subsidies are socially suboptimal, liquidity effects on unemployment durations are a socially optimal response for credit market failures.

Considering that is highly probable that individuals included in this study may have restricted credit access (young people just entering labor market) and that in the case of been eligible to UI benefits, these are given through a single payment (*lump-sum*)[25], we try to

---

[25]Although with our data it is not possible to distinguish contract scheme, CIC benefits are pay in-one-time to individuals with fix term contracts and, with a high probability, in

Figure 4:
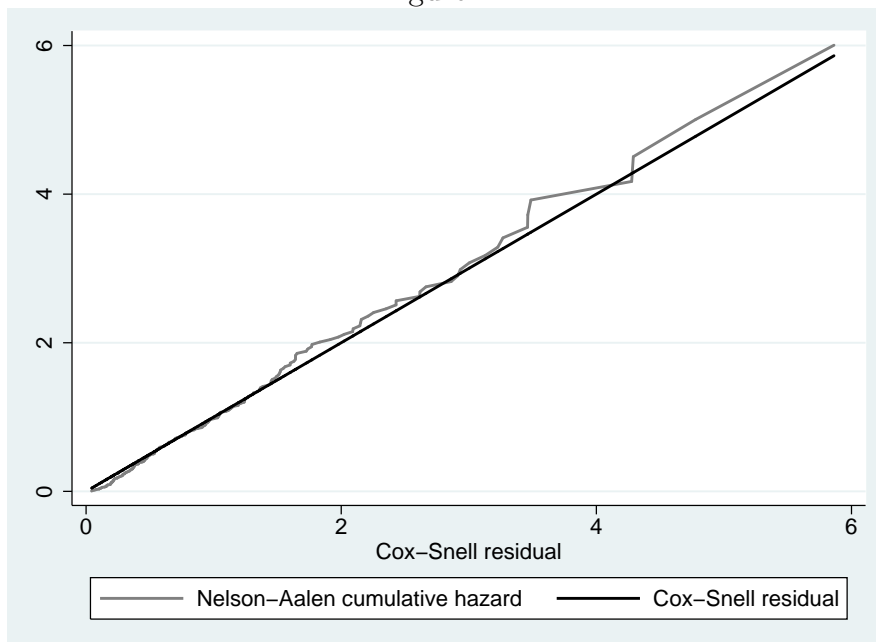
isolate liquidity effects from moral hazard effect. Even though the ideal way of measuring liquidity effects would be comparing negative income shocks effects over individuals' consumption patterns between those with and without liquidity restrictions, available data does not allow us to do such benchmark. Alternatively, at model number three of the table 2, unemployment duration is estimated using the same control variables but, instead of using UI membership as treatment, our interest variable is the amount of CIC's cumulate balance, which is the potential lump-sum payment. The estimated coefficient for the logarithm of the salary is 0.06^{26}, which powered to the average of CIC's cumulate balance results in that *hazard rate* diminishes in 31%. Following the model in Chetty (2008), where total duration effect is composed in two parts, liquidity and moral hazard, the first effect would represent a $31\%/55\% = 56\%$ of the total effect; in other words, less than a half of the total unemployment duration effect would be set by the liquidity effects that CIC's lump-sum payment would deliver. The rest of the effect should be a result of moral hazard.

the same way to individuals with long term contracts.

[26] $1 - 0.94 = 0.06$

6   Conclusions

Country's economic development and economic context where the key of introducing the UI in Chile, which design mixes individual savings account with colective insurance. This research tries to measure how much did the introduction of the UI system, and particularly individual accounts, impacted on unemployment durations. This through a combined analysis based on a natural experiment (date of entering labor market) and a duration model. The analysis focuses in the first unemployment spell of young workers.

Results point out that potential UI beneficiaries have an unemployment exit rate of 55% lower than those who do not have access to these benefits. Preliminary computations show that more than half of this effect is set by liquidity effects and, therefore, the rest by moral hazard.

This research's main weakness is the impossibility of exactly identifying individuals' eligibility for UI benefits. Additionally, even though our results seem to be robust in all three specifications, external validity is not clear enough due to reduced size of our data. In other words, results are not directly extensible to individuals with other characteristics such as older population or individuals who have live the process of unemployment more than once under UI system.

References

Castillo, J. L., & Sanhueza, C. (2008). *Parte I: Factores de riesgo individual del desempleo y seguro de desempleo* (Tech. Rep.).

Chetty, R. (2008, April). *Moral hazard vs. liquidity and optimal unemployment insurance* (NBER Working Papers No. 13967). National Bureau of Economic Research, Inc. Retrieved from http://ideas.repec.org/p/nbr/nberwo/13967.html

Gatica, J., & Romaguera, P. (2005). El Mercado Laboral en Chile: Nuevos temas y desafíos.

Huneeus, C., Leiva, S., & Micco, A. (2012). Unemployment Insurance and Search Effort in Chile.

Reinecke, G., & Ferrada, C. (2005). Creación y destrucción de empleo en Chile: Análisis de datos longitudinales de la ACHS.

Reyes, G., Van Ours, J. C., & Vodopivec, M. (2010). Incentive Effects of Unemployment Insurance Savings Accounts: Evidence from Chile.

Superintendencia de Pensiones. (2010). *Seguro de cesantía.* Retrieved September, from http://www.spensiones.cl/portal/orientacion/580/w3-propertyvalue-6106.html

Vodopivec, M., & Raju, D. (2002, May). Income support systems for the unemployed : issues and options [Social Protection Discussion Papers]. (25529). Retrieved from http://ideas.repec.org/p/wbk/hdnspu/25529.html
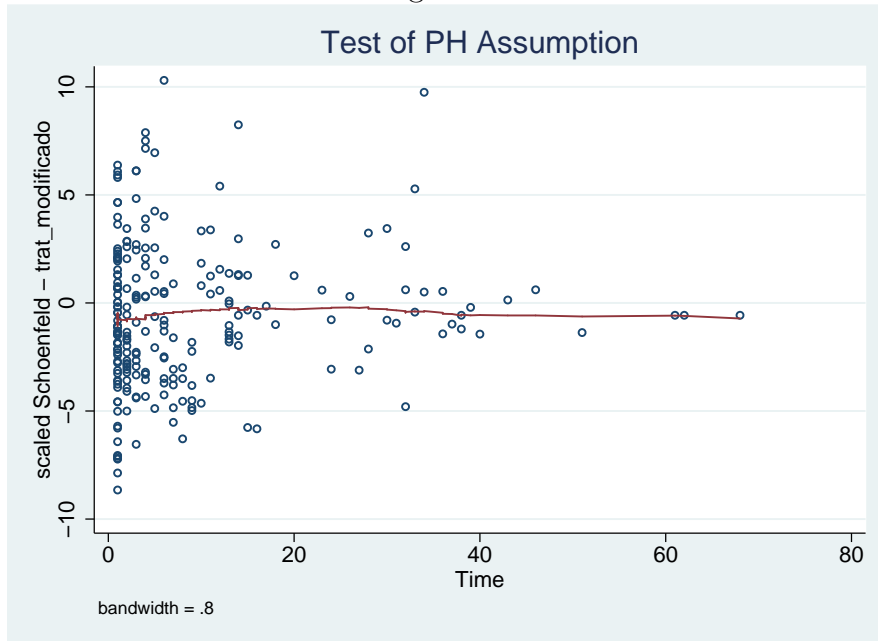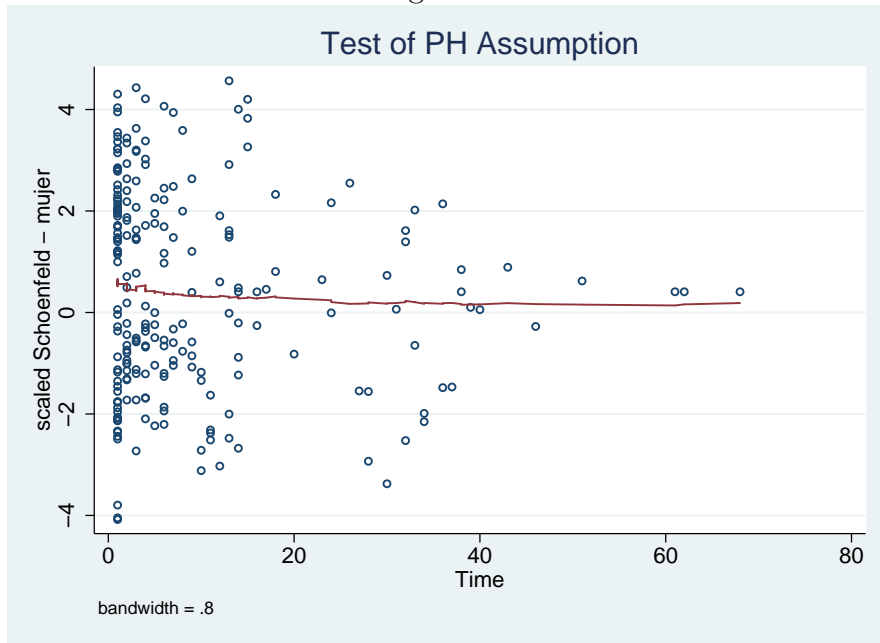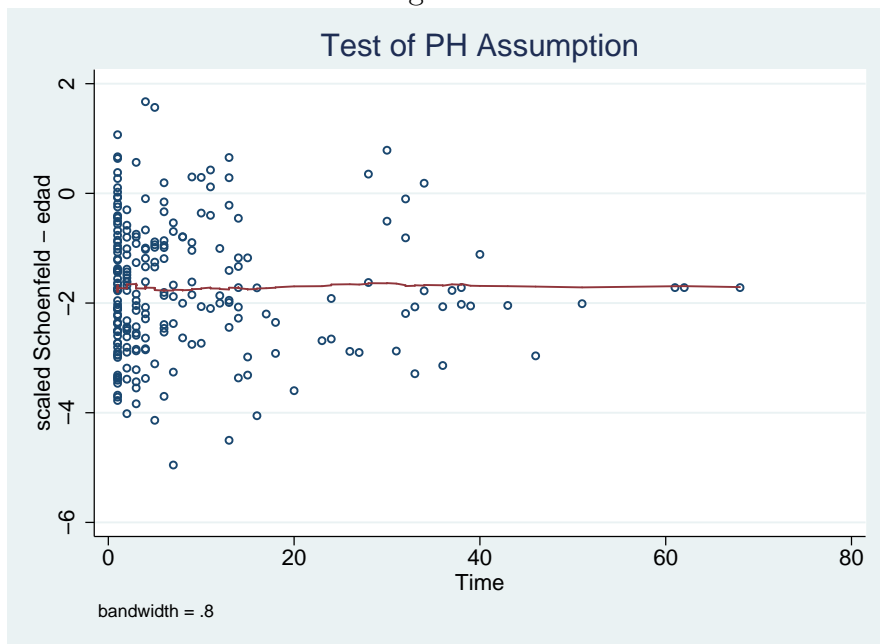
A   Appendix: Proportionality assumption
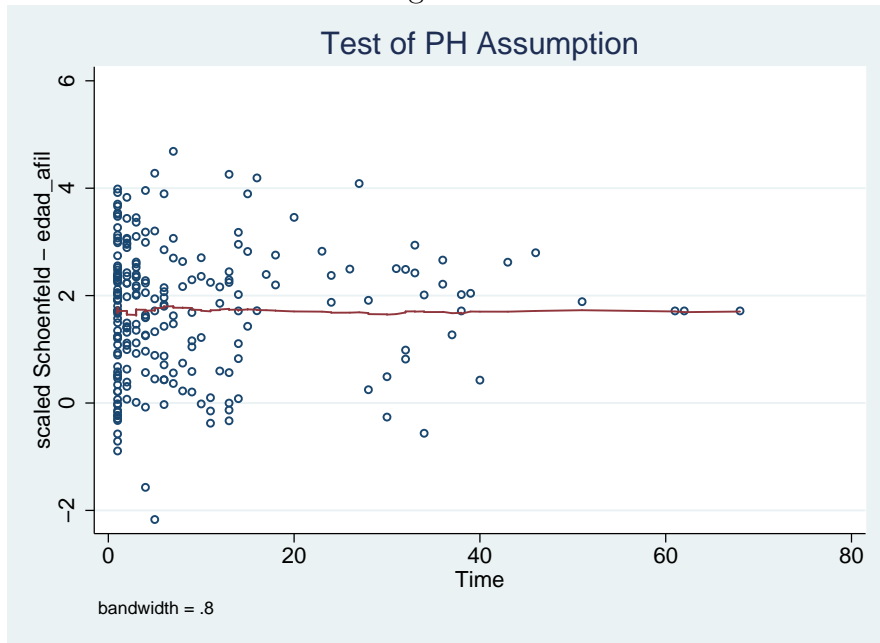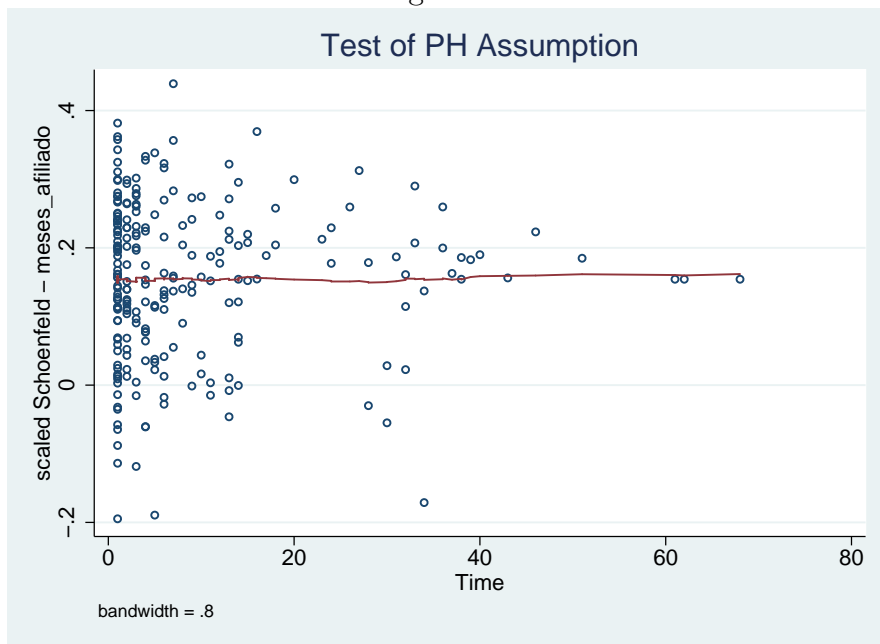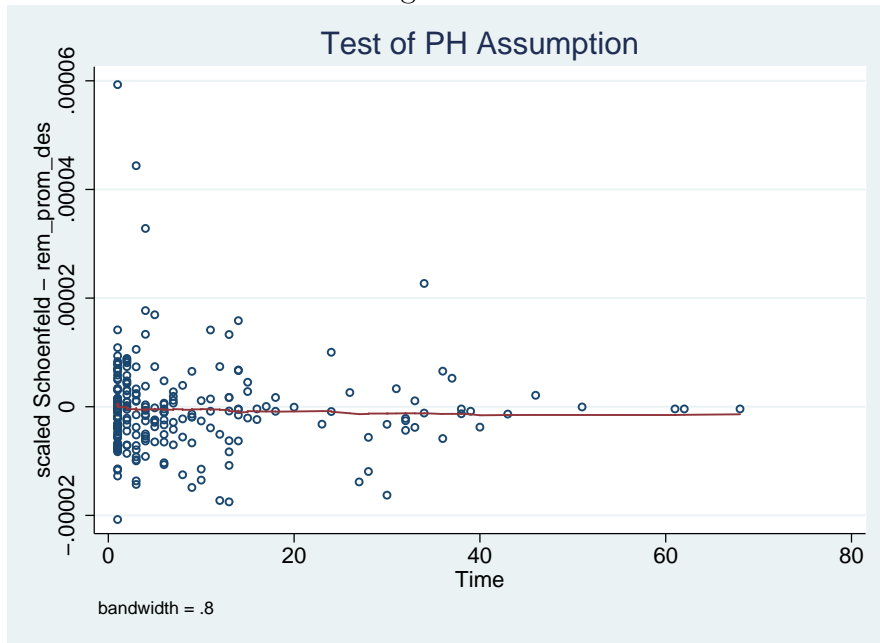
Figure 5:

Figure 6:

Figure 7:

Figure 8:

Test of PH Assumption

bandwidth = .8

Figure 9:

Test of PH Assumption

bandwidth = .8

21

Figure 10:

Figure 11: