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The Labour Market Effects of Unemployment Compensation in Brazil

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ABSTRACT

This paper analyses the impact of unemployment insurance and severance pay on the duration of non-employment and transitions from non-employment to formal salaried employment, informal salaried employment and self-employment. It makes use of panel data from the *Pesquisa Mensal de Emgrego,* a monthly survey for six large cities in Brazil, for the period 2002M3 to 2010M10. The impact of income support to job losers is identified by means of a difference-in-differences approach that exploits eligibility conditions for income support in combination with proportional hazard models that take account of the spell-based nature of the data. A key aspect of the analysis is that it attempts to assess the role of moral hazard while controlling for the role of liquidity effects. The aggregate results indicate that income support has an important impact on the duration of non-employment. This largely appears to be driven by liquidity effects, while the role of moral hazard is limited. By contrast, the analysis by destination state suggests that moral hazard effects dominate liquidity effects associated with income support. The apparent inconsistency between the two sets of results is due to the fact that the aggregate analysis only accounts for moral hazard effects that increase the duration of non-employment, while the analysis by destination state captures both moral hazard effects in the form of reduced work incentives *per se* and those in the form of increased incentives to work informally during the period of benefit receipt. In practice, the latter effect may reflect the tendency for firms to employ benefit recipients informally until their benefits expire.

RÉSUMÉ

Ce document analyse l'impact de l'assurance chômage et des indemnités de licenciement sur la durée du chômage et la transition vers un emploi salarié dans le secteur formel ou informel, ou vers un emploi indépendant. L'analyse repose sur des données de panel comprises entre M3 2003 et M10 2010 tirées de l'enquête mensuelle sur l'emploi *Pesquisa Mensal de Emprego* qui concerne six grande zone urbaines du Brésil. Le test de l'incidence du soutien de revenu pour les chômeurs s'appuie sur la méthode de la différence des différences, exploitant les conditions d'éligibilité aux indemnités de soutien de revenu en combinaison avec des modèles de risque proportionnels qui tiennent compte de la nature épisodique des données. Un point essentiel de l'analyse est de tenter d'évaluer le rôle de l'aléa moral tout en tenant compte du rôle des effets de liquidités. Les résultats au niveau agrégé indiquent que le soutien des revenus a un impact important sur la durée du chômage. Il semble que ce résultat soit largement dû aux effets de liquidités, le rôle de l'aléa moral étant limité. En revanche, l'analyse par type d'emploi retrouvé suggère que les effets d'aléa moral dominent les effets de liquidité associés à la garantie de revenu. Cette contradiction apparente entre les deux groupes de résultats s'explique par le fait que l'analyse au niveau agrégé ne prend en compte que les effets d'aléa moral qui augmentent la durée du chômage, alors que l'analyse par destination capture à la fois les effets d'aléa moral qui se manifestent sous la forme d'une incitation réduite à reprendre un emploi, mais aussi ceux associés à l'incitation plus forte à travailler dans le secteur informel pendant la période d'indemnisation. En pratique, ce dernier effet pourrait refléter une tendance des entreprises à employer de manière informelle les bénéficiaires de prestations jusqu'à ce que leurs droits à indemnisation cessent.

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THE LABOUR MARKET EFFECTS OF UNEMPLOYMENT COMPENSATION IN BRAZIL

1. Introduction

1. Informational problems in the provision of unemployment insurance provide an important justification for the public provision of unemployment insurance (UI). Adverse selection arises when workers have information on their own risk of job loss that is not available to insurance providers. Moral hazard arises because UI reduces worker incentives to avoid job loss or find a new job once unemployed. In principle, governments can improve welfare by making UI mandatory, thus precluding the possibility of adverse selection. To the extent that governments are also better placed to ensure that benefit recipients actively engage in job search, this may help to alleviate problems of moral hazard, but is unlikely to remove them entirely. Indeed, there is a large literature for developed countries that analyses the role of UI for moral hazard by focusing on its effects on the duration of unemployment. Most studies either concentrate on the elasticity of the duration of unemployment with respect to benefit generosity or the spike in the exit rate from unemployment around the time benefits expire. Most conclude that moral hazard tends to be quite important (Krueger and Meyer, 2002).[1] In order to limit the role of adverse incentive effects, researchers and policy-makers have increasingly become interested in how governments can condition benefits on search effort (OECD, 2006; Boone *et al.*, 2007).

2. In emerging economies, the provision of UI is further complicated by weak administrative capacity and widespread informal work, limiting the ability of public insurance providers to contain informational problems. Mandatory requirements in emerging economies are unlikely to completely rule out the problem of adverse selection when large parts of the workforce operate outside the reach of the law. Moreover, moral hazard is more difficult to control when benefit beneficiaries have the possibility of working in the informal sector whilst claiming benefits. While there is no direct evidence in support of this mechanism, the relatively large spike in the re-employment hazard observed by Van Ours and Vodopivec (2006) for Slovenia may reflect the possibility that benefit recipients work informally and wait until their benefits expire to return to the formal sector (Card *et al.*, 2007a). As a result of these problems, it may not be optimal to provide income support to formal-sector job losers in the same form as in advanced economies. This may explain why emerging economies rely on severance pay (SP) as the main source of income support (Heckman and Pages, 2004; OECD, 2011) as well as the recent interest in developing alternative UI designs that reduce adverse incentive effects by combining traditional UI with self-insurance (Vodopivec, 2009).

3. This paper contributes to the literature on unemployment compensation in emerging economies by focusing on a major emerging economy, namely Brazil. A key aspect of the present paper is that it attempts to assess the role of moral hazard while controlling for the role of liquidity. Chetty (2008) shows that a positive association between UI eligibility and the duration of non-employment does not just reflect a welfare-reducing moral-hazard effect, but may also reflect a welfare-enhancing liquidity effect, *i.e.* the reduced need to return to work quickly to limit the impact of job loss on consumption, allowing for greater job search and a better subsequent job match. Given the importance of financial market imperfections and

1 . However, Card *et al.* (2007a) suggest that the spike around the point of benefit exhaustion may not be as be as important as sometimes suggested due to problems with the measurement of transitions from unemployment to work.

relatively low levels of wealth, one may expect liquidity effects to be particularly important in emerging economies (Chetty and Looney, 2006). However, of the few papers that analyse the role of UI in emerging economies, none accounts for the potential role of liquidity effects.[2] To identify the role of both moral hazard and liquidity effects in Brazil, this paper conducts two sets of experiments that, respectively, involve comparing the impact of SP on the duration of unemployment with that of unemployment insurance and comparing the impact of UI on unemployment duration across households with liquidity-constraints and those without.[3]

4. Brazil provides a particularly interesting case for such an analysis thanks to the rich institutional set-up of its unemployment compensation system based on the combination of individual severance pay accounts (*Fundo de Garantia po Tempo de Servico*) with a system of public unemployment insurance (*Seguro Desemprego*), the relative generosity of unemployment compensation and high coverage among formal-sector job losers (OECD, 2011). Another advantage of focusing on Brazil is that rich panel data are available that allow one to follow job losers through time in the form of the *Pesquisa Mensal de Emgrego* (PME), a monthly panel survey of six large cities with detailed information on individuals, including on tenure and employment status in the last job. The analysis focuses on data for the period 2002M3 to 2010M10. The impact of income support to job losers is identified by means of a difference-in-differences approach that exploits the fact that eligibility to SP and UI depends on tenure in the previous job and is restricted to formal-sector job losers in combination with proportional hazard models that take account of the spell-based nature of the data. The analysis looks both at aggregate re-employment hazards and re-employment hazards by destination state: formal salaried employment, informal salaried employment and self-employment.

5. The remainder of this paper is structured as follows. Section 2 provides a detailed discussion of the unemployment-compensation system in Brazil. Section 3 provides a brief overview of the empirical literature on the effects of unemployment compensation on job turnover, unemployment duration and re-employment outcomes. Section 4 discusses the data, the econometric methodology and presents some descriptive statistics. Section 5 presents the results. Section 6 discusses the main policy implications, while Section 7 concludes.

2. The unemployment-compensation system in Brazil

6. This section provides a detailed discussion of the two main components of the Brazilian unemployment compensation system in terms of both the level of income support available to job losers and coverage.

2.1 The two components of the unemployment compensation system

7. The Guarantee Fund for Length of Service (*Fundo de Garantia po Tempo de Servico*, FGTS) combines mandatory savings accounts with a firing penalty upon unfair dismissal. The FGTS - established in 1967 – represents a fund that can be used for special occasions, including dismissal without just cause; the acquisition of a home; and retirement. Withdrawals in the case of unfair dismissal account for about two-thirds of FGTS expenditure (Caixa Economia Federal, 2009). Every Brazilian worker with a formal employment contract governed by the Brazilian Labour code (*Consolidação das Leis do Trabalho, CLT*) is eligible to FGTS. To constitute this fund, the employer deposits 8% of the worker's monthly earnings into a saving account in the

2 . Recent studies that look at the role of UI in emerging economies include Cunningham (2000) and Margolis (2008) for Brazil, Hartley *et al.* (2011) for Chile, and Vodopivec and Tong (2008) for China.

3 . Chetty (2008) finds using data for the US that liquidity effects may account for up to 60% of the marginal effect of UI benefits on the duration of unemployment. Card *et al.* (2008) and Basten *et al.* (2011) present similar findings for Austria and Norway, respectively.

worker's name (2% for fixed-term workers). Moreover, workers with more than three months of tenure are entitled to an indemnity based on the total amount deposited by the employer in their name in the FGTS. This indemnity, or firing penalty, was initially set at 10% of the amount deposited, but was increased to 40% in 1988. In 2001, the firing penalty was increased further to 50%, although the indemnity to the worker remained unchanged as the additional 10% is to be paid to the government instead of the employee.[4]

8. Universal unemployment insurance (*Seguro Desemprego)* was established in 1986 as part of the Cruzado plan of macro-economic stabilization and has operated in its current institutional structure since 1994. Eligibility is restricted to formal-sector job losers in the private sector with at least 6 months of contributions during the past three years.[5] Unemployment benefits are means-tested. To receive benefits, insured job losers must lack other resources to support themselves or their families and must not receive other social insurance benefits. The benefits range from 1 to 1.87 times the minimum wage, depending on the level of previous earnings. The maximum duration of benefits depends on the length of time worked in a formal job during the previous three years and is three months for 6-12 of work; 4 months for 12-24 months of work; and 5 months for more than 24 months of work. Under special conditions, the benefit may be extended for an additional 2 months. UI is financed by the government through earmarked taxes. The law that instituted UI also mandated the Public Employment Service (SINE) with the task to help workers back into work and provide training to the unemployed as appropriate.

2.2 The value of income support

9. Figure 1 compares the total value of income support from SP (FGTS) and UI that is available to eligible job losers in terms of multiples of their previous monthly wage. In the case of UI, this assumes that benefits are received for their maximum permissible duration. For comparison purposes, it is further assumed that job losers have not accumulated any rights to SP or UI from job spells before their last job. The value of SP for eligible job losers depends on whether the last job was fixed-term or open-ended and the number of months spent in the last job. The figure therefore separately documents how the value of SP evolves with the number of months spent in the last job for eligible workers with temporary and open-ended contracts. The value of UI depends on the number of months spent in the last job and the previous wage as it is means-tested. UI is not available to workers whose temporary contract has expired. The figure provides information on the maximum value of UI available to formal-sector job losers earning respectively one, two or three times the minimum wage in their previous job.[6] The figure provides the following insights:

- Income support available to formal-sector job losers with a fixed-term contract in their last job is very small. Workers on fixed-term contracts are not eligible to UI and the value of SP is very small compared with the value of income support available to permanent workers with the same

4 . It is worth noting that the 2001 reform effectively introduced a layoff tax, *i.e.* a mandatory contribution of employers in the case of layoff payable to governments. This appears to be the only country with a system of pure layoff taxes in place. Employer contributions in the US system of experience-rated UI are sometimes referred to as layoff taxes, but are quite different from those in the Brazilian system. Experience-rating involves linking employers social security contributions to the layoff *history* of the firm and using the amount collected to cover the cost of UI for laid-off workers. As a result, the impact of experience-rating on dismissal behaviour may not be as strong as it would be when UI contributions take the form of pure layoff taxes.

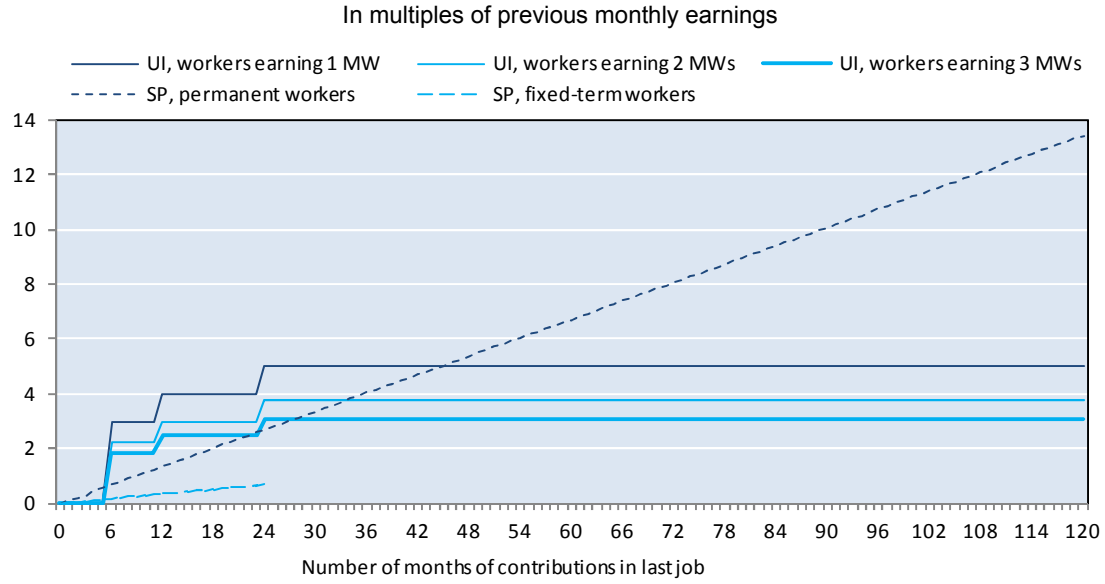
5 . UI is also available to certain types of fishermen, employees rescued from a forced labour regime and unemployed domestic servants enrolled in FGTS who been dismissed without just cause. Moreover, there exists a possibility of using the UB as a scholarship for training for workers whose employment contract has been suspended.

6 . The average wage in 2009 was 2.3 times the minimum wage.

level of tenure in their last job. Fixed-term contract workers with less than six months of tenure in their last job are eligible to only a quarter of the income support available to their counterparts with open-ended contracts. The difference is even larger for fixed-term workers with more than 6 months of tenure in their last job, since they not receive UI while their counterparts on open-ended contracts do.[7]

- The relative importance of SP and UI for formal-sector workers dismissed from an open-ended contract depends on the number of months spent in the last job and their previous earnings. For workers with low levels of previous earnings or relatively short previous tenure, UI provides the most important source of income support available. However, for workers with high levels of previous earnings and tenure, SP tends to be much more important than UI. This illustrates the importance of UI to protect the most vulnerable. Moreover, the negligible role of UI for formal-sector job losers with high levels of previous earnings and job tenure suggests that it may make sense to limit insurance to insured job losers that lack other resources to support themselves or their families. This already appears to be the case, but it is not clear how and to what extent this condition is applied in practice.

Figure 1. **The maximum value of income support available to eligible job losers by tenure in last job**[a]



a) It is assumed that job losers have not accumulated any rights to FGTS or SD from job spells before their last job.

b) The legal maximum of the total duration of fixed-term contracts in Brazil is 24 months, including extensions.

Source: Author's calculations.

10. Table 1 below provides information on the actual value of income support received by eligible job losers under both systems. It shows that the average monthly payment to unemployment benefit (UB) recipients under UI equals just above 0.5 times the average wage in 2009, although the value of an average monthly payment has increased significantly during the past decade. The latter reflects the gradual rise in the minimum wage and the indexation of UBs with respect to the minimum wage. The average number of UB payments per unemployed is somewhat above four. This is actually quite large since a substantial number of job losers only qualify for three or four months of UB (see Table 2 below). This suggests that

7 . Note that the legal maximum of the total duration of fixed-term contracts in Brazil is 24 months, including extensions.

the majority of UB recipients tend to exhaust their entitlements and only few workers have their benefits stopped because they start a new job. It is not possible with the present data to determine to what extent this reflects the possibility that only few job losers find a new job during the period of benefit receipt or whether this reflects problems with benefit administration.

11. The value of an average FGTS withdrawal is considerably larger than an average UB payment: it is over three times as high. However, this does not mean that FGTS represents a much more important source of income support for formal-sector job losers than UI. The main reason for this is that job losers may be entitled to up to five months of UB, while FGTS funds may be withdrawn in one go.[8] A more appropriate comparison of the value of income support under both systems is obtained by multiplying the value of a typical payment/withdrawal by the average number of payments/withdrawals per dismissed worker.[9] Doing so suggests that the total value of FGTS per dismissed workers relates to that of UI by a ratio of three to two. According to Figure 1, this also implies that the average tenure of job losers was close to four, considerably higher than the actual level of average tenure of dismissed formal workers, which is likely to be between one and two years (see Table 2). The most likely explanation for this discrepancy is that in practice many dismissed job losers accumulate savings in their personal FGTS accounts over several previous employment spells and not just the last one as was assumed for the purposes of Figure 1.

Table 1. **Average values of unemployment benefits and severance payments**

	Average number of payments/withdrawals[a] per beneficiary[a]		Average payment/withdrawal				Total value of income support			
	Unemployment benefits	Severance pay	Unemployment benefits		Severance pay		Unemployment benefits		Severance pay	
			% AW	*% MW*	*% AW*	*% MW*	*% AW*	*% MW*	*% AW*	*% MW*
2002	4.4	1.7	46	143	177	551	200	623	298	930
2003	4.3	1.7	48	138	171	490	205	589	283	813
2004	4.3	1.6	50	139	171	474	217	600	268	741
2005	4.3	2.1	50	136	164	440	215	579	336	902
2006	4.1	2.3	52	131	145	363	217	543	336	838
2007	4.3	2.2	53	129	150	369	226	554	337	825
2008	4.1	1.9	53	128	161	391	217	528	303	736
2009	4.3	1.9	55	128	165	387	235	550	313	734
2010	4.2	..	..	126	..	..	..	530	..	..

AW: average wage; MW: minimum wage

a) Per beneficiary in the case of UB and per dismissal in the case of FGTS.

Source: Unemployment benefits and dismissals: *Sistema de Acompanhamento Estatístico-Gerencial do Seguro-Desemprego* (SAEG); Severance pay: FGTS; Average wage: *Pesquisa Nacional por Amostra de Domicílios* (PNAD).

8 . Indeed, given the previous earnings of UB recipients such a differences implies a rather long level of average tenure. Consequently, it seems plausible that in practice job losers can rely on savings in their FGTS accounts from several employment spells in the formal sector.

9 . According to Table 1, the average number of FGTS withdrawals per dismissal is about two. This seems somewhat surprising. One reason for this is that FGTS withdrawals can also be made by temporary workers whose contract has expired and who are not included in the number of dismissals. This is likely to explain some of the increase since 2005, the year in which the FGTS was extended to temporary workers. However, it may also reflect the possibility that job losers make several smaller withdrawals instead of withdrawing their entire balance in a single time.

2.3 Coverage of unemployment compensation

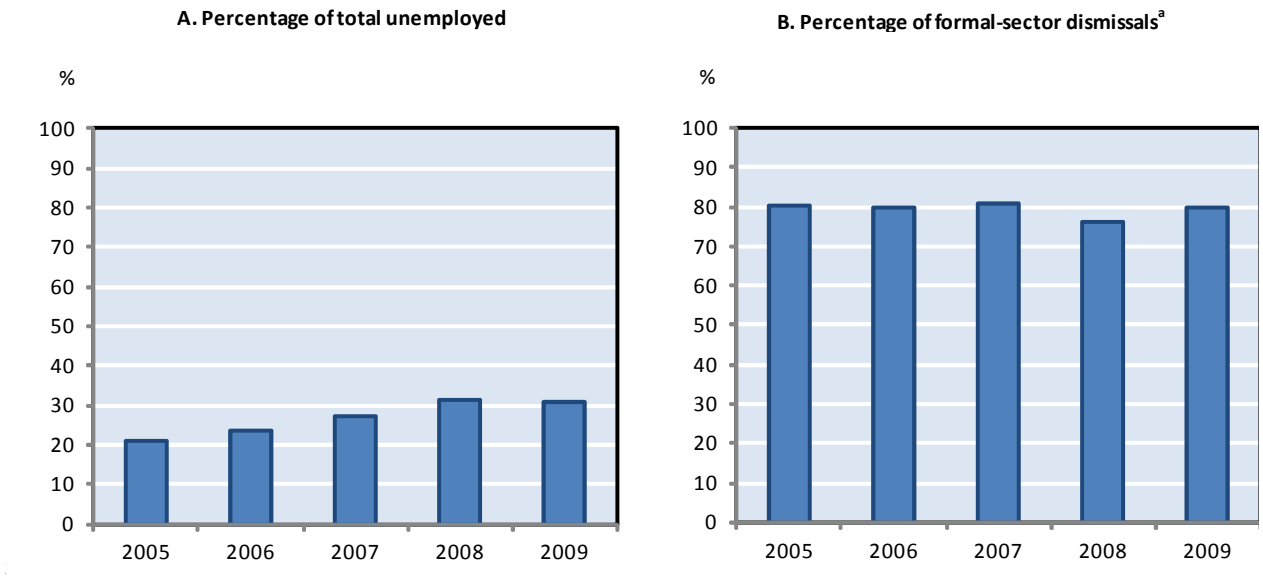
12. Given that income support to the unemployed in Brazil is restricted to formal workers who are dismissed without just cause and workers who lost their job as their firm closed down, the majority of unemployed do not have access to unemployment-related benefits. This includes those who were previously informal workers, labour-market entrants and individuals not dismissed unfairly. Panel A of Figure 2 shows the number of UB recipients as a share of the total number of unemployed (according to the labour force survey and based the ILO of definition unemployment, *i.e.* not employed but available and actively looking for work). It shows that the coverage rate was just above 30% in 2009. While this is relatively low by OECD standards, it is considerably higher than in most other emerging economies (OECD, 2011). The substantial increase in the coverage rate since 2005 most likely reflects the decline in the share of ineligible unemployed due to a gradual reduction in informal work and the incidence of long—term unemployment. As FGTS withdrawals are not made periodically during the time of unemployment but the entire balance can be withdrawn at once upon dismissal, it is not possible to present a comparable measure for the number of FGTS beneficiaries in terms of the number of unemployed.

13. Take-up of UI and FGTS among eligible job losers tends to be high. Panel B of Figure 2 provides information on the average monthly number of new UB beneficiaries over the average monthly number of unfair dismissals in the formal sector. This shows that take-up among new job losers tends to be around 80%. There are two reasons why coverage is less than 100%. First, some job losers may not be eligible for UI because they have been employed for less than 6 months in the formal sector during the past three years. Second, eligible job losers do not apply for UI because they immediately find a new job or because the cost of applying outweighs the benefits. For FGTS, the ratio of withdrawals over the number of dismissals is close to 200% (see Table 1). One reason for this is that FGTS withdrawals can also be made by temporary workers whose contracts have expired and who are not included in the number of dismissals. However, it may also reflect the possibility that job losers make several smaller withdrawals instead of withdrawing their entire balance in a single time. As a result, it is difficult to draw strong conclusions about coverage. However, it is worth noting that there is no reason why job losers would not receive FGTS. Unlike traditional severance pay systems in emerging economies that tend to be associated with widespread "non-performance", *i.e.* the tendency of firms to renege on their severance pay commitments at the time dismissal, FGTS largely represents a system of mandatory savings accounts, which are not subject to non-performance.[10] To the extent that formal job losers do not make any use of their FGTS funds, this is most likely to be a voluntary decision.[11] Perhaps, the most important observation to make is that formal sector job losers tend to receive both FGTS and UI.

10 . This is not to say that non-performance is entirely absent in the Brazilian system as severance pay not only consists of mandatory savings but also of a firing penalty. The firing penalty may be subject to the inability or unwillingness of firms to pay just as in the case of traditional severance pay systems.

11 . Previous studies suggest that take-up of FGTS is very high. Domeland and Fiess (2006) report that during the period 1982-1998 85% of dismissals in the six largest metropolitan regions (PME) received FGTS and there is some evidence that this share has tended to increase over time from about 80% in the early 1980s to about 90% in the early 2000s (Gonzaga, 2003). It is not possible to analyse how this share has evolved after 2002 as the PME adopted a new methodology and the question on FGTS recipiency has been removed from the questionnaire.

Figure 2. **Unemployment benefit recipiency rates**



a) Formal-sector dismissals without just cause. Does not include temporary workers whose contract has expired and is not extended.

Source: OECD's calculations based on SAEG and PNAD.

14. Table 2 provides more detailed information on UB recipiency according to different worker characteristics. The following characteristics are considered: age, education, tenure in previous job and the level of previous earnings relative to the minimum wage. The table provides information on the distribution of UB recipiency and formal-sector dismissals across groups, the relative overrepresentation of UB beneficiary groups relative to the distribution of formal-sector dismissals and the UB take-up rate which is measured by the number of UB recipients over the number of formal-sector dismissals.

- *Age*. Young individuals aged 14-24 account for about a quarter of all UB recipients, prime-age individuals aged 25-49 account for about 65% of UB recipients, and older individuals (50+) account for the remaining 6%. Take-up is highest among prime-age job losers and young job losers. Take-up among older workers may be relatively low because such workers may be able to count on more substantial savings from their FGTS accounts.

- *Education*. Approximately 45% of recipients UB only have primary education, a similar share has some form of secondary education (lower or upper secondary) and less than 10% have higher education. Take-up is highest among job losers with low levels of education. This may reflect the greater need for income support for such workers or the lesser importance of potential stigma effects associated with UB recipiency.

- *Tenure*. Almost 5% of UB recipients had less than six months of tenure in their last job. These workers still qualify for UB as they have been formally employed for more than six months during the past three years.[12] However, the majority of job losers with less than 6 months of tenure do not qualify resulting in low take-up. Job losers with between 6-12 months,

12 . In the data used for the econometric analysis only information for the length of the last employment spell is available. Consequently, job losers with less than six months of tenure in their last job are assumed not to be eligible to UI. This leads to a slight underestimate of the impact of income support.

12—24 months and those with more 24 months of tenure in their previous job each account for about a third of UB recipients.[13] Take-up is over 90% for those entitled to three months of UI and close to 100% for job losers entitled to four or five months of UI.

- *Earnings*. UB recipiency is concentrated among individuals with low levels of previous income, but above the minimum wage. The tendency for the previous wage to be above the minimum wage reflects the fact that compliance with the minimum wage in the formal sector is very high (99.3% in 2008). The concentration of previous earnings close to the minimum wage suggests that the redistributive impact of UI may be quite strong. Take-up follows a hump-shaped pattern with respect to previous earnings. This may reflect the differential role of a variety of factors including minimum eligibility requirements, stigma effects and liquidity.

Table 2. **Descriptive statistics on UB recipiency by workforce group**[a]

in 2009

	By age group				
	All	14-24	25-49	50-64	65+
Share of the total UB beneficiaries (A)	100.0	27.3	66.4	6.2	0.1
Share of the total dismissals (B)	100.0	27.9	64.7	7.0	0.3
Ratio of (A) over (B) *100	100.0	97.9	102.6	88.5	22.7
Take-up	80.1	78.4	82.1	70.9	18.2
	By education[b]				
	Total	Primary	Lower secondary	Upper secondary	Higher education
Share of the total UB beneficiaries (A)	100.0	44.6	10.2	36.5	8.7
Share of the total dismissals (B)	100.0	41.1	10.2	39.8	8.9
Ratio of (A) over (B) *100	100.0	108.3	100.3	91.8	97.8
Take-up	80.1	86.6	80.2	73.4	78.1
	By length of employment in previous job				
	Total	Up to 6	6 to less 12	12 to less 24	24 and more
Share of the total UB beneficiaries (A)	100.0	4.6	31.0	29.0	35.3
Share of the total dismissals (B)	100.0	21.3	27.1	22.8	28.7
Ratio of (A) over (B) *100	100.0	21.8	114.3	127.1	122.8
Take-up	80.1	17.5	91.6	101.8	98.3
	By previous earnings level relative to the minimum wage				
	Total	Up to 1 MW	1 to 2 MWs	2 to 3 MWs	3 MWs and more
Share of the total UB beneficiaries (A)	100.0	7.8	63.6	17.4	11.2
Share of the total dismissals (B)	100.0	9.4	67.4	12.8	10.3
Ratio of (A) over (B) *100	100.0	82.4	94.4	135.5	108.9
Take-up	80.1	65.9	75.5	108.5	87.2

a) Take up is measured as the number of UB beneficiaries over the number of formal-sector sector dismissals. It is not clear why take-up exceeds 100% is some cases. One possibility is that this due the combination of different data sources for dismissals (*Cadastro Geral de Empregados e Desempregados,* CAGED) and the Unemployment Insurance Fund.

b) Primary: Up to 8e serie completed; lower secondary: 2e grau incompleta; upper secondary: 2e grau completa; higher: superior incompleto/completo.

Source: OECD's calculations based on SAEG.

13 . Note that as job losers eligible for a longer duration of UB also receive UB for longer, the distribution of job losers across tenure groups is likely to be biased towards higher tenure groups.

3. Existing evidence on the role of unemployment compensation for individual labour market outcomes

15. Unemployment compensation systems may affect individual labour market outcomes through various channels. This section discusses the potential implications of unemployment compensation for worker turnover; the duration of unemployment; wages and job quality along with the existing empirical evidence for Brazil. The emphasis is on the effects of unemployment-compensation systems on individual labour outcomes in partial equilibrium, in line with much of the evaluation literature.

3.1 Unemployment compensation systems and the risk of unemployment

16. The primary objective of severance pay systems is to increase job security through the use of a firing penalty and the existing empirical evidence confirms that severance pay tends to reduce worker turnover (Micco and Pages, 2006; Bassanini *et al.*, 2010). Reducing "excessive" layoffs helps to preserve match-specific capital and to strengthen incentives to invest in firm-specific skills, but strict employment protection may also have important unintended labour market consequences, including on the level of unemployment and employment, the perceived level of worker security and labour market segmentation (OECD, 2006; OECD, 2011). By contrast, unemployment compensation systems in the form of UI or individual savings accounts should not have any direct effects on the risk of unemployment, but can have indirect effects. By redistributing resources from low-risk to high-risk jobs, standard UI promotes the creation of high-risk high-productivity jobs, increasing job turnover (Acemoglu and Shimer, 1999).[14] However, it may also promote match efficiency which tends to reduce worker turnover (Marimom and Zilbotti, 1999). Individual saving accounts may affect worker turnover by creating incentives for workers to induce their own dismissal in order to gain access to their saving account.

17. The literature on the role of unemployment-compensation systems for worker turnover in Brazil has tended to concentrate the on the question whether the system of individual severance savings accounts (FGTS) has encouraged worker turnover since it may have provided incentives for workers to try to induce their own dismissal in order to gain access to their funds. In the past, such incentives are likely to have been quite strong due the size of the amounts involved and low or even negative returns to the fund.[15] Barros *et al.* (1999) exploit the 1988 reform that increased the firing penalty from 10 to 40% to analyse the impact of FGTS on worker turnover. More specifically, they adopt a difference-in-differences approach that exploits the differential impact of the reform between workers that are eligible to an indemnity upon dismissal and those who are not (informal sector workers, formal-sector workers with less than three months of tenure and quits). They find that an increase in firing costs reduces worker turnover, presumably reflecting the increased risk for firms that they enter in a collusive agreements with an employee and the worker does not return the firing penalty or because it reinforces ex post incentives for workers to take firms to court for non-payment of the firing penalty. Gonzaga (2003) uses a similar approach to analyse both the role of the 1988 reform and that of the 2001 reform which increased the firing penalty by another 10%. Moreover, in contrast to the existing firing penalty which is paid directly to the worker, the increase in the firing penalty in the 2001 reform is paid to the government. He finds that both changes significantly reduced turnover, including the probability of fake dismissals (quitters receiving FGTS). He concludes that the 2001 reform was a step in the right direction but that it would better if the entire fine were to be paid to the government as this would discourage workers from inducing their own layoff to gain access to the FGTS.

14 . To the extent that such jobs entail higher growth and workers are risk-averse, this provides an efficiency justification for UI (Acemoglu and Shimer, 1999).

15 . For example, in 2001, funds were reduced by 2/3 thirds (Gonzaga, 2003).

3.2 The impact of unemployment compensation systems on unemployment duration

18. There exists a large literature that analyses the impact of UI on the duration of unemployment in developed countries. The general finding is that UI increases the duration of unemployment. First, most studies find a positive and significant elasticity of the duration of unemployment with respect to the level or the maximum duration of benefits. Krueger and Meyer (2002) survey the literature and conclude that an increase in the generosity of benefits of 1% increases the duration of unemployment by 1%.[16] The positive impact of UI on unemployment duration is typically interpreted as a labour-supply disincentive effect or a moral-hazard effect: by increasing the value of not-working relative to working, UI reduces the marginal benefit of job search and increases the reservation wage. Second, many studies have shown that the exit rate from unemployment exhibits a spike around the time benefits expire. The spike at benefit exhaustion, in principle, suggests that recipients tend to wait until their benefits run out before returning to work.

19. However, there are a number of reasons to suggest that the evidence on the labour-supply disincentives of UI needs to be qualified, particularly in the context of emerging economies (OECD, 2011). First, the spike around the point of benefit exhaustion may not be as important as sometimes suggested. Card *et al*. (2007b) argue that the spike has often been exaggerated due to problems with the measurement of transitions from unemployment to work.[17] Moreover, moral-hazard effects due to UI receipt are likely to take a somewhat different form in emerging economies, since UI not only increases the value of not working but also that of working in the informal sector. Consequently, the impact of UI on work incentives *per se* may be weaker in emerging economies, reducing the potential spike at the point of benefit exhaustion. Second, in contrast to conventional wisdom, a positive association between UI eligibility and the duration of non-employment does not just reflect a welfare-reducing moral-hazard effect, *i.e.* the reduction in search intensity due to the subsidy for leisure, but may also reflect a welfare-enhancing liquidity effect *i.e.* the reduced need to return to work quickly to limit the impact of job loss on consumption (Chetty, 2008). Recent studies for developed economies show that liquidity effects are empirically important, accounting for up to 60% of the marginal effect of UI benefits on the duration of unemployment (Chetty, 2008; Card *et al.*, 2007b).[18] Given the importance of financial market imperfections and relatively low levels of wealth, one may expect liquidity effects to be particularly important in emerging economies (Chetty and Looney, 2006).

20. While the discussion above suggests that the unemployment-duration effects of UI may differ in important respects in emerging and developed countries, very few empirical studies have analysed the impact of UI on unemployment duration in emerging economies and no attempts have been made to analyse to what extent the duration-increasing effect of UI is due to liquidity or moral-hazard effects. An interesting study on the effects of UI in Brazil is provided by Cunningham (2000) who employs a

16 . OECD (2006) reviews the more recent micro-econometric studies for European countries and reaches similar conclusions.

17 . Card *et al.* (2007a) show, using administrative data for Austria, that the exit rate from unemployment rises by over 200% at expiration of benefits, while the transition rate from unemployment to employment rises only by 20%. Their findings imply that fewer than 1% of jobless spells have an ending date that is manipulated to coincide with the expiration of benefits. Consequently, they conclude that the vast majority of job seekers do not wait until their UI benefits are exhausted to return to work.

18 . This estimate is based on two alternative experiments that show, respectively, that the impact of UI on unemployment duration is greater in liquidity-constrained than in unconstrained households and that SP also increases the duration of unemployment, despite not being conditional on being unemployed (Chetty, 2008). Similarly, Card *et al.* (2007b) show that SP equal to two months of previous earnings reduces the job-finding rate by about 10%. Moreover, an extension of the maximum duration of unemployment benefits from 20 to 30 weeks lowers the job-finding rate in the first 20 weeks of search by 5-9%.

difference-in-differences approach that exploits the relaxation in eligibility rules and the increase in the maximum duration of benefits that was introduced in 1994. In contrast to the findings presented below, she did not find any impact for UI on the duration of unemployment. This may not be surprising as the increase in the generosity of UI was very small. Indeed, the changes in the law are of similar magnitude to the differences in eligibility between different tenure groups, which also in the present case are associated with rather small and typically insignificant differences in the job-finding rate.[19] Domeland and Fiess (2006) find that receiving SP reduces the re-employment hazard of formal workers. As they do not control separately for the role of UI and most workers eligible for SP are also eligible for UI, the authors argue that the negative estimated impact reflects the role of UI on moral hazard. While these results are, in principle, consistent with those presented below, the present analysis further suggests that SP receipt has an independent effect on the duration on employment. As SP is not conditional on being unemployed, this cannot be attributed to a moral-hazard effect, but is more likely to reflect a liquidity effect.

3.3 The role of unemployment compensation for re-employment outcomes

21. Since unemployment compensation allows jobseekers to be more discriminating with respect to job offers, one might expect the provision of cash-on-hand to liquidity-constrained job losers to contribute to better re-employment wages.[20] In the context of emerging economies, having access to unemployment compensation may also play an important role in avoiding that formal-sector job losers are being pushed back into informal work. Despite the importance of liquidity constraints in emerging economies, there is little evidence on the effects of unemployment-compensation systems on the re-employment outcomes of job losers. Cunningham (2000) finds for Brazil that UI has no impact on post-unemployment wages or the probability of finding a formal job, but increases the probability of becoming self-employed for men. In principle, this is consistent with the view that labour markets are well integrated and that UI provides the necessary capital for credit-constrained men to start working for themselves. In a recent paper for Brazil, Margolis (2008) analyses the role of SP and UI for transitions in the formal and informal sector. He finds that income support reduces the probability of exiting to the informal sector and speeds the exit rate to the formal sector. He concludes that unemployment compensation systems help some formal-sector job losers from being pushed into the informal sector. A potential drawback of his analysis is that he does not explicitly control for the independent role of having been employed in the formal sector or that of tenure in the previous job.[21] As a result, it is not clear to what extent the higher (lower) probability of previously formal-sector workers to find a new job in the formal (informal) sector can be attributed to benefit eligibility.

19 . There are at least two other important differences with the analysis presented below. Cunningham (2000) focuses on the average difference over the entire unemployment spell whereas the analysis here is non-parametric in the sense that it analyses the impact of UI at each point in the non-employment spell. Second, she uses annual data for the 1990s from the PNAD that are representative for Brazil as a whole, whereas the current analysis makes use of monthly data from the PME for six major urban areas for the period 2002M3-2010M11.

20 . There are many studies on the effects of unemployment compensation for the re-employment outcomes of job losers in developed countries, but also here the evidence is rather mixed. Card *et al.* (2007a) for Austria and Van Ours and Vodopivec (2008) for Slovenia do not find an impact of UI on job quality or job stability, while Caliendo *et al.* (2009) for Germany and Tatsiramos (2009) for a number of European countries find positive effects.

21 . However, the analysis carefully controls for unobserved individual heterogeneity.

4. Data sources, econometric methodology and descriptive statistics

22. This section discusses the data used for the econometric analysis, sets out the econometric methodology to assess the impact of unemployment compensation on labour market outcomes and provides some descriptive statistics.

4.1. Data description

23. The econometric analysis makes use of data for the period 2002M3 to 2010M11 from the Monthly Employment Survey (*Pesquisa Mensal de Emprego*, PME), a monthly survey for six major urban areas. The PME has a rotating panel that tracks households over time. Households are interviewed each month during four consecutive months and then interviewed again, after an eight-month break, during four consecutive months. After this cycle, households are permanently dropped from the sample. The survey does not explicitly track individuals over time, but individuals who stay in the same household can be followed over time using personal information on date of birth (month and year), gender and race. The PME provides rich information on the unemployed, including on the nature of their last job. This allows one to determine whether individuals are eligible for SP and the number of monthly payments of UI (*e.g.* 0, 3, 4 or 5) by using information on whether the person had a work card (*carteira de trabalho)* and the number of months spent in the last job. The sample consists of 302 994 observations and 102 997 unemployment spells of which 30 849 result into a transition to employment.

24. The analysis focuses on the duration of non-employment spells of employees in the private sector who lost their job as a result of dismissal or firm closure. The analysis concentrates on involuntary job losers as eligibility to unemployment compensation is restricted to this group only. Moreover, the analysis does not differentiate between job losers who actively search and are available for work, the unemployed, and those that do not actively search or are not available for work, the inactive. This motivated by the fact that in Brazil job losers frequently move between unemployment and inactivity.[22] This is likely to reflect the fact that unemployment compensation is not conditional on searching for a job and being available for work as in most OECD countries, but just on not-working. As result, the boundaries between unemployment and inactivity are not well defined. The focus on non-employed job losers is quite different from previous studies that have tended to focus on the unemployed only, irrespective of the reason of job separation. This is not ideal when exploiting the eligibility rules of the unemployment compensation system as in the current paper.

25. One drawback of the data is that they do not provide information on actual take-up of either UI or SP. However, this is unlikely to be a major problem as take-up is reasonably large. In 2009, on average every month about 760 000 individuals were dismissed from a formal job in the private sector without just cause, while on average every month about 600 000 entered into the UI system, suggesting that take-up among eligible unemployed persons is close to 80% (see also Figure 2). A further shortcoming is that the employment history of unemployed individuals is limited to the last job only. As a result, one is likely to underestimate the maximum number of monthly UI payments to which unemployed individuals are eligible or the amount that an individual has accumulated in his/her savings account. In principle, this problem should be most severe for unemployed job losers who spent only a short period in their last job. Administrative data from the Ministry of Labour, however, indicate that less than 5% of unemployment benefit recipients were employed for less than six months in their last job, while they would be classified as ineligible to UB in the present analysis (see Table 2).

22 . However, job losers returning to full-time education are excluded from the sample.

4.2 Econometric methodology

26. In order to analyse the role of unemployment-compensation systems for labour markets, this paper makes use of a difference-in-differences approach in combination with proportional hazard models that take account of the spell-based nature of the data. The difference-in-differences approach exploits the fact that eligibility to SP and UI depends on tenure in the previous job and is restricted to formal-sector job losers. As already mentioned in Section 2.1, while SP is, in principle, available to all formal-sector job losers who have been dismissed from their job, the duration of UI benefits further depends on the number of months they have been employed in the formal sector during the past three years. In order to analyse the role of SP, the analysis distinguishes between workers eligible to the maximum number of months of UI with 24 to 48 months of tenure in their previous job and workers with more than 48 months, who are also eligible for the maximum number of months of UI, but are likely to have accumulated more savings into their FGTS accounts.

27. The difference-in-differences approach used here identifies the impact of unemployment compensation by comparing the hazard ratio of retuning to employment (log $h(t)$) of job losers in the formal sector f with those in the informal sector i in the same tenure group $j \neq 1$ relative to the difference in outcomes between job losers in the formal and informal sector with less than six months of tenure in the previous job ($j = 1$).

$$[1]\quad \Delta\Delta \log h_{j\neq 1}(t) = \left[\log h^{f}_{j\neq 1}(t) - \log h^{i}_{j\neq 1}(t)\right] - \left[\log h^{f}_{j=1}(t) - \log h^{i}_{j=1}(t)\right]$$

28. The difference-in-differences approach controls for any unobserved differences in characteristics between formal and informal-sector job losers that are common across tenure groups and differences between jobs losers with more than six months of tenure in the previous job and those with less than six months of tenure that are common between formal and informal-sector workers. It also involves making two assumptions. First, it is assumed that the average value of SP among formal-sector job losers with less than six months of tenure in their previous job is negligible. This is reasonable given the short average level of tenure and the high incidence of temporary workers for whom monthly contributions are much smaller.[23] However, it may lead to a slight underestimation of the impact of unemployment-compensation systems on labour market outcomes. Second, it is implicitly assumed that characteristics that vary simultaneously across sector of job loss and tenure group do not affect the outcome of interest. In order to control for any such differences, the econometric analysis also controls for a wide range of observable characteristics.

29. The difference-in-difference framework is implemented using the group-specific hazard ratios.[24] The hazard ratios for each group are estimated using a complementary log-log model with group-specific baseline hazards that control for a wide range of observable characteristics as well as for unobserved random effects:

23 . This is reasonable as a substantial part of these formal-sector job losers are employed on temporary contracts for which monthly contributions are only 2% of monthly earnings instead of 8% for permanent workers. Moreover, given their average level of tenure of slightly less than 3 months, they would only be eligible to a quarter of previous monthly earnings, even if they had been employed on a permanent contract. Moreover, workers with less than three years of previous tenure are not eligible for the firing penalty (40% of total savings).

24 . The main advantage of implementing the difference-in-differences approach in this way rather than through the inclusion of interaction terms is that it avoids problems related to the interpretation of interaction terms in non-linear models (Ai and Norton, 2003; Buis, 2010).

[2] $$\log h_j^{i,f}(t) = \log h_{0,j}^{i,f}(t) + \beta' X + u$$

where $u \equiv \log v$ with normal distribution and mean zero. The baseline hazard for each tenure group, $\log h_{0,j}^{i,f}(t)$, is approximated using piecewise constants for the following intervals: [1-2>, [2-3>, [3-4>, [4—5>, [5-6>, [6-8>, [8-9>, [10-12>, [13, 27]. The model includes the following observable characteristics: 5 region dummies (omitted: Sao Paolo); 4 education dummies (omitted: more than 10 years of education); age at dismissal as deviation from the sample average; age at dismissal squared as deviation from the sample average; a dummy for being female; 2 dummies for the first two terciles of the household income distribution; 4 race dummies (omitted: white); the log regional unemployment rate as a deviation from the sample mean.

4.3 Descriptive statistics

30. In order to analyse the independent effect of SP, the analysis distinguishes between workers eligible to the maximum number of months of UI with 24 to 48 months of tenure in their previous job and workers with more than 48 months. The difference in the value of SP available to these two groups is considerable (see Table 3). Since the average level of tenure of job losers in the former is 29 months and in the latter 96 months and the average monthly wage is about 25% higher for job losers with over 48 months of tenure, the simulated value of SP is more than four times higher for job losers in the latter category. For workers with between 24 to 48 months of tenure in their previous job, the simulated value of SP amounts to 3.2 times the monthly wage, while for workers with over 48 months of tenure in their last job SP amounts to 10.8 the average monthly wage. Moreover, differences in the value of UI between the two groups are negligible compared with the difference in SP. Both groups are eligible to five months of UB, although the simulated value of UI for workers with over 48 months of previous tenure is slightly larger than that for job losers with between 24 and 48 months of previous tenure because of their somewhat higher average wage. SP accounts for just below 95% of the difference in income support between the two groups.

31. It is less straightforward to identify the independent effect of UI. While, in principle, one could try to exploit discontinuities in the number of months of UI with respect to tenure in the last job, this is unlikely to yield clear-cut results due to the importance of measurement error in the tenure variable. The present paper therefore does not attempt to identify the independent effect of UI on labour market outcomes. However, it is worth noting that among formal-sector job losers with between 6 and 48 months of tenure, UI accounts for the bulk of income support available and the importance of UI decreases with tenure. This is consistent with the observation made above that UI tends to be more important for more vulnerable job losers, while SP tends to be the main form of income support for formal-sector job losers with relatively long levels of previous tenure.

Table 3. **The simulated value of income support to formal-sector job losers by tenure group**

Tenure in last job	Average tenure in last job (months)	Monthly wage	Monthly UI	Max UI duration	Total UI	FGTS	Total value of income support	Share of UI in total
Less than 6	3	758	0	0	0	216	216	0
6 to less than 12	8	773	618	3	1,854	676	2,530	0.73
12 to less than 24	15	790	632	4	2,528	1,357	3,885	0.65
24 to less than 48	29	824	659	5	3,295	2,631	5,927	0.56
48 or more	96	1,013	776	5	3,878	10,864	14,741	0.26

Source: Author's calculations based on *Pesquisa Mensal de Emprego*.

32. Table 4 reports the mean values for a large set of observable characteristics of non-employed job losers by tenure and employment status in the last job. It suggests that for some characteristics differences across groups can be large. Informal-sector job losers tend to be less educated, younger, are more likely to be female and have lower previous earnings, consistent with the stylised facts from the literature on informality (Perry *et al.*, 2007). There is no obvious relationship between the level of household labour income and labour market status or tenure in the previous job. All variables except previous earnings (and previous tenure) are included as controls in the regression analysis.[25] Previous earnings are not included as this would lead to a substantial loss in the number of observations. As one would expect, formal-sector job losers earned substantially more than individuals who were previously employed in the informal sector and previous earnings increase with previous tenure. Importantly, the tenure profile of previous earnings by job losers from the formal and informal sector is quite similar. This suggests that the difference-in-differences framework should account for the role of previous earnings on the duration of non-employment even though this is not explicitly controlled for in the regression analysis.

Table 4. **Mean characteristics of job losers by labour-market status and tenure in last job**

Based on first observation during the spell

	Informal						Formal					
	Number of months of tenure in last job						*Number of months of tenure in last job*					
	6-	6+	6-12	12-24	24-48	48+	6-	6+	6-12	12-24	24-48	48+
Region: Recife	0.19	0.19	0.19	0.19	0.21	0.21	0.14	0.14	0.14	0.14	0.15	0.15
Region: Salvador	0.13	0.11	0.11	0.12	0.10	0.11	0.11	0.10	0.11	0.11	0.10	0.09
Region: Recife	0.22	0.21	0.22	0.20	0.19	0.19	0.25	0.23	0.26	0.24	0.21	0.20
Region: Rio de Janeiro	0.08	0.09	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10
Region: Porto Alegre	0.13	0.14	0.13	0.14	0.15	0.16	0.22	0.19	0.19	0.18	0.19	0.19
Region: São Paulo	0.25	0.26	0.27	0.26	0.25	0.25	0.18	0.24	0.20	0.23	0.25	0.27
Education: >one year	0.03	0.03	0.03	0.02	0.02	0.05	0.01	0.02	0.02	0.01	0.01	0.02
Education: 1 - 3 years	0.07	0.05	0.05	0.04	0.05	0.09	0.04	0.04	0.04	0.03	0.03	0.05
Education: 4 - 7 years	0.29	0.25	0.26	0.21	0.24	0.30	0.22	0.22	0.24	0.21	0.21	0.24
Education: 8 - 10 years	0.26	0.23	0.25	0.23	0.23	0.20	0.25	0.22	0.24	0.22	0.21	0.19
Education: >10 years	0.36	0.44	0.42	0.50	0.47	0.37	0.47	0.51	0.46	0.52	0.54	0.50
Age at start spell	28	30	29	29	31	37	29	32	29	30	32	37
Age at start spell squared	918	1,024	923	938	1,081	1,542	911	1,135	962	985	1,102	1,497
Women	0.45	0.49	0.49	0.51	0.49	0.44	0.45	0.43	0.42	0.44	0.43	0.41
Men	0.55	0.51	0.51	0.49	0.51	0.56	0.55	0.57	0.58	0.56	0.57	0.59
Blacks	0.12	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.11	0.10	0.10
Asian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brown	0.48	0.44	0.45	0.43	0.44	0.42	0.42	0.41	0.43	0.43	0.41	0.38
Indian	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
White	0.40	0.45	0.43	0.46	0.45	0.47	0.46	0.48	0.46	0.46	0.48	0.52
Regional unemployment rate	0.11	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Log real hourly wage [a]	0.29	0.49	0.40	0.53	0.52	0.65	0.53	0.70	0.57	0.63	0.70	0.89
Equivalized monthly household labour income	222	276	271	303	278	237	239	245	238	250	248	244
Tenure (in months) [a]	2	22	7	14	28	96	3	37	8	15	29	96
Number of observations												
-excluding wage	22,088	21172	9,686	5,422	3,717	2,347	11,123	48,614	11,486	12,425	12,831	11,872
- with non-missing wage information	6,948	6933	2,932	1,833	1,318	850	3,462	15,360	3,485	3,919	4,066	3,890

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

33. As a first step toward the analysis of the impact of income support on the duration of non-employment, Table 5 provides information on the raw job-starting probability by employment status and tenure group in the last job. It provides two interesting insights. First, there is some indication that the aggregate job-starting probability declines with tenure in the previous job for formal-sector job losers, but

25 . Household income is included using dummies for each tercile of the household income distribution.

not for informal sector job losers. As income support to formal-sector job losers increases with job tenure in the previous job, this may provide a first indication that income support tends to increase the duration on non-employment. Second, formal-sector job losers have a higher probability of starting a job in the formal sector than job losers in the informal sector, while informal sector job losers have a higher probability of starting a job in the informal sector than job losers in the formal sector. These differences are not just apparent for job losers with more than six months of tenure in their last job, but also for workers with less than six months of previous tenure. This suggests that labour market status in the last job has an independent effect of income support that needs to be controlled for in the econometric analysis. Not doing so may lead one to overstate the positive impact of income support on preventing formal-sector job losers from having to accept a low-quality job in the informal sector.

Table 5. **Raw job-starting probabilities by labour-market status and tenure group in last job**

	Informal						Formal					
	Number of months of tenure in last job						*Number of months of tenure in last job*					
	6-	6+	6-12	12-24	24-48	48+	6-	6+	6-12	12-24	24-48	48+
	Probability											
Agregate employment	0.11	0.10	0.10	0.10	0.10	0.11	0.11	0.10	0.10	0.10	0.10	0.09
Formal employment	0.02	0.03	0.03	0.03	0.03	0.03	0.05	0.04	0.04	0.05	0.05	0.04
Informal employment	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
Self-employment	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02
	Number of observations											
Agregate employment	6,794	6,385	2,910	1,607	1,099	769	3,531	14,139	3,470	3,647	3,707	3,315
Formal employment	1,499	1,649	705	456	304	184	1,598	6,447	1,521	1,689	1,754	1,483
Informal employment	3,263	2,853	1,374	710	475	294	1,129	4,420	1,121	1,172	1,148	979
Self-employment	1,621	1,458	633	340	255	230	623	2,617	662	604	648	703

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

5. Econometric analysis of income support

5.1 Aggregate analysis

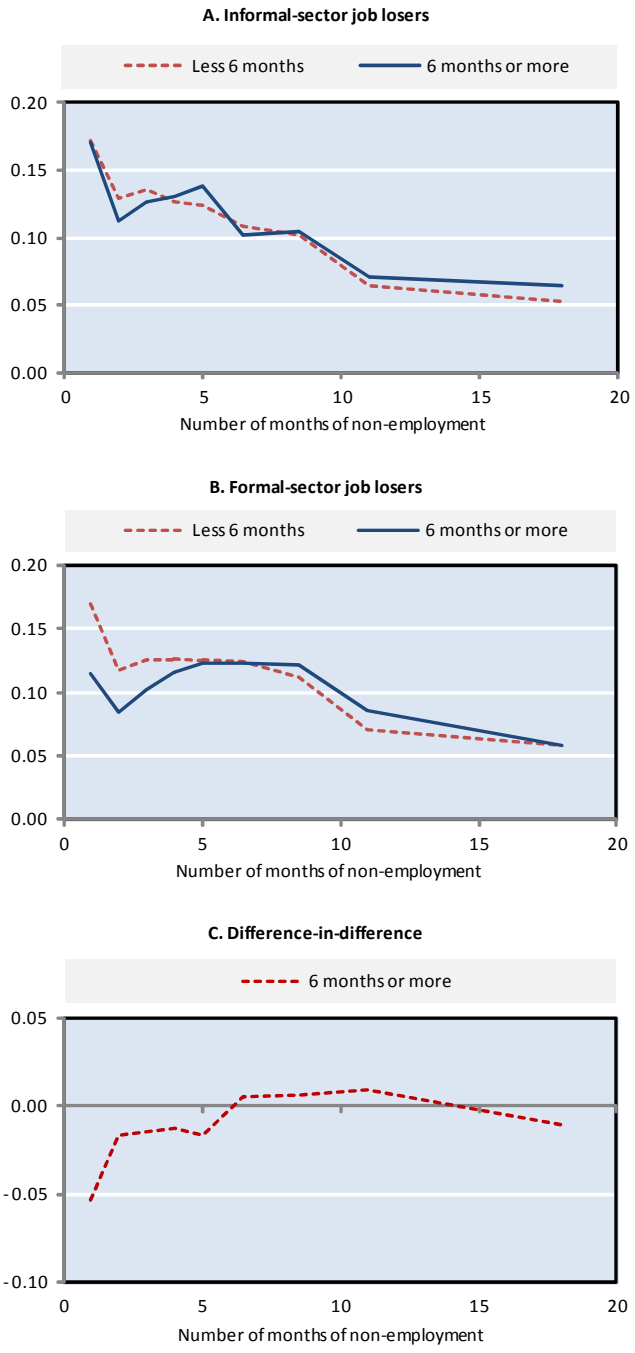
34. As set out in Section 4.2, the impact of income support is identified by calculating the difference-in-difference effect from the group-specific hazard ratios, which in this case refer to the number of individuals starting a job over the number of individuals staying out of work. The results are presented graphically in Figure 3 using two tenure groups (more or less than 6 months of previous tenure) and Figure 4 using five tenure groups. Panels A and B of each figure present the estimated hazard ratios for starting a job by tenure group for informal-sector and formal job losers, respectively, while the difference-in-differences estimates are presented in Panel C. In order assess the statistical significance of the results, Table 6 presents the difference-in-differences estimates along with the corresponding standard errors.

35. The hazard ratios of starting a job for informal and formal-sector job losers in Panels A and B of Figures 3 and 4 provide useful background information for the interpretation of the difference-in-differences results. The size of hazard rations in Panels A and B allow one to assess the quantitative importance of income support. The hazard ratio for informal-sector job losers of starting a job declines strongly with the time in non-employment, starting from between 15 to 25% at the beginning of the spell to between 5 and 10% after one year. The hazard ratio of formal-sector job losers shows a more hump-shaped pattern. At the start of job loss, the hazard ratio ranges between 10 and 20% depending on one's previous tenure. In order to understand the qualitative impact of income support, it is important to note that the tenure-profile between formal and informal-sector job losers is markedly different. While the hazard ratio for re-employment for formal and informal-sector job losers with less than six months of tenure in their last job is about the same, the re-employment hazard of informal-sector job losers stays constant (Figure 3) or increases (Figure 4) with tenure during the initial period of non-employment (Panel A), whereas it

decreases with tenure for formal-sector job losers (Panel B). This implies that the difference in the re-employment hazard between formal and informal-sector job losers declines with tenure.

36. The difference-in-difference estimates in Panel C are obtained by comparing the hazard ratio for returning to work of job losers in the formal sector with those in the informal sector in the same tenure group relative to the difference in outcomes between job losers in the formal and informal sector with less than six months of tenure in the previous job. It shows that income support, in the form of either SP or UI, tends to increase the duration of non-employment. The economic impact of the estimates is large. Figure 3, Panel C shows that income support reduces the hazard ratio of starting a job relative to staying non-employed by about five percentage points at the start of non-employment. Comparing this to the hazard ratio of formal-sector job losers in Panel B, this suggests that the hazard ratio of returning to work may be about 50% higher in the absence of income support. Consequently, understanding why income support raises the duration of non-employment should be of great interest to policy-makers. This question will be addressed in two different ways. First, the role of SP for the duration of non-employment will be analysed. Since SP is not conditional on work status it does not provide any disincentives to work. However, by providing cash-on-hand to liquidity-constrained job losers it provides flexibility to job losers in terms of their labour market choices. Second, the impact of income support is analysed across job losers which are likely to differ in the importance of liquidity constraints.

Figure 3. **Aggregate job-finding hazard of dismissed workers, two tenure groups**[a]



a) Difference-in-differences estimates derived from the hazard ratios for each group, which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. The baseline hazard for each tenure group is approximated using piecewise constants for the following intervals: [1-2>, [2-3>, [3-4>, [4-5>, [5-6>, [6-8>, [8-9>, [10-12>, [13, 27]. The model includes the following observable characteristics: 5 region dummies (omitted: Sao Paolo); 4 education dummies (omitted: more than 10 years of education); age at dismissal as deviation from the sample average; age at dismissal squared as deviation from the sample average; a dummy for being female; 2 dummies for the first two terciles of the household income distribution; 4 race dummies (omitted: white); the log regional unemployment rate as a deviation from the sample mean.

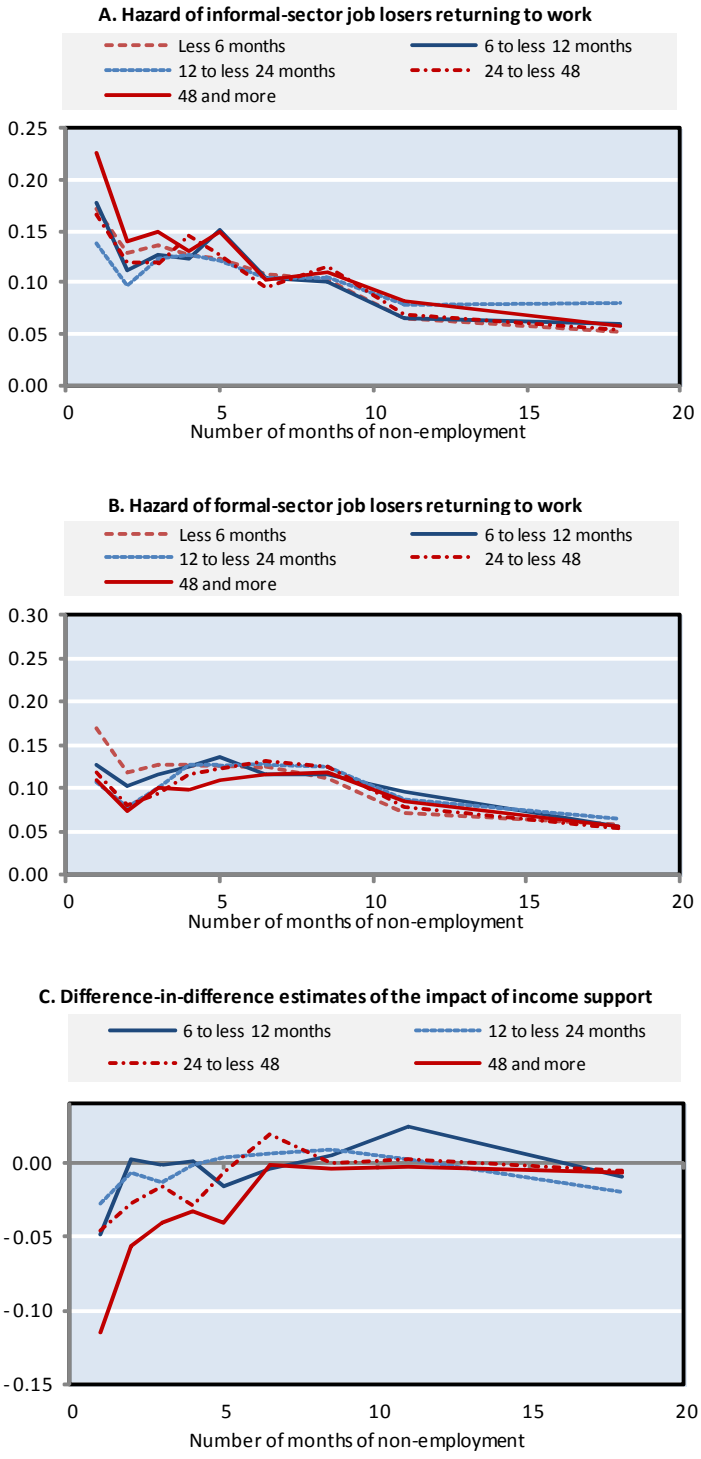
Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

37. The independent impact of SP on the duration of non-employment can be assessed by comparing the difference-in-differences estimates in Panel C of Figure 4 for job losers with 24 to 48 months of tenure in their last job with those with more than 48 months of tenure in their last job. While formal-sector job losers with 24 to 48 months in the previous job and those with over 48 months are all eligible for 5 months of UI, the job-finding rate is significantly lower for formal-sector job losers in the latter group. This difference is attributed to the role of SP in insuring liquidity since SP is estimated to be over four times as large for this group as for formal-sector job losers with between 24 and 48 months of tenure in their previous job, while the value of UI is fairly similar for the two groups (Table 3). The quantitative impact of SP appears to be large. The difference in the hazard ratio due to SP at the start of non-employment (the difference between job losers with between 24 and 48 months and more than 48 months of previous tenure) is about 8 percentage points which suggests that the hazard ratio of returning to work would have been about 1.7 times as high in the absence of severance pay. Although the differences in the hazard ratio of returning to work between job losers with more or less than 48 months of previous tenure decline quickly over time, it tends to remain statistically significant up to the fifth month of non-employment. This suggests that liquidity effects are empirically important.

38. The reduction in the hazard ratio of returning to work for workers with less than 48 months of tenure is likely to reflect a combination of liquidity and moral-hazard effects. There are two pieces of information that suggest that the relative importance of reduced work incentives is small. First, the reduction in the hazard ratio of returning to work appears to fall more or less proportionally with the total value of income support available, despite the fact that the relative importance of severance pay increases (Table 3). If the rise in the duration of non-employment reflected purely a moral-hazard effect, it should increase substantially less than proportionally with the total value of income support. This also suggests that the increase in the duration of non-employment due to UI largely reflects the role of liquidity constraints. Second, there is no evidence that job losers wait until their benefits have expired with searching for a new job. At the time of benefit exhaustion, the probability of returning to employment is not statistically different from the counterfactual outcome without UI. In sum, there is little evidence that UI reduces work incentives overall, although it is possible that it reduces incentives for work in the formal sector that are offset by incentives to work informally.[26]

26 . In order to address this issue, one needs to distinguish the hazard ratios of returning to a job in the formal sector and those of starting to work informally. This is carried out below.

Figure 4. **Aggregate job-finding hazard of dismissed workers, five tenure groups**[a]



a) Difference-in-differences estimates derived from the hazard ratios for each group which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. See notes below Figure 3 for further details.

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

Table 6. **The impact of income support on job-starting hazard of dismissed workers**[a]

Selected coefficients

Number of month of tenure in previous job	Number of months of non-employment				
	6+	6-12	12-24	24-48	48+
Months of non employment = 1	-0.053	-0.048	-0.028	-0.046	-0.115
	(0.010) ***	(0.013) ***	(0.015) *	(0.017) ***	(0.023) ***
Months of non employment = 2	-0.018	0.001	-0.007	-0.028	-0.056
	(0.008) **	(0.010)	(0.011)	(0.013) **	(0.017) ***
Months of non employment = 3	-0.016	-0.003	-0.014	-0.017	-0.040
	(0.009) *	(0.011)	(0.012)	(0.013)	(0.017) **
Months of non employment = 4	-0.013	0.000	-0.001	-0.030	-0.034
	(0.010)	(0.012)	(0.014)	(0.016) *	(0.018) *
Months of non employment = 5	-0.017	-0.017	0.003	-0.007	-0.041
	(0.010)	(0.014)	(0.014)	(0.016)	(0.020) **
Months of non employment = 6 or 7	0.004	-0.005	0.006	0.018	-0.003
	(0.008)	(0.010)	(0.010)	(0.011)	(0.013)
Months of non employment = 8 or 9	0.005	0.005	0.010	0.000	-0.004
	(0.010)	(0.012)	(0.013)	(0.015)	(0.016)
Months of non employment = 10 to 12	0.009	0.025	0.004	0.003	-0.002
	(0.008)	(0.010) **	(0.011)	(0.011)	(0.013)
Months of non employment = 13 to 27	-0.011	-0.008	-0.019	-0.004	-0.007
	(0.006) *	(0.007)	(0.009) **	(0.008)	(0.010)

a) Difference-in-differences estimates derived from the hazard ratios for each group which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. See notes below Figure 3 for further details.

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

39. An alternative way to analyse the relative importance of liquidity and moral-hazard effects is to compare the impact of income support across job losers that differ in their liquidity constraints. Table 7 provides econometric evidence that compares the impact of unemployment compensation on the hazard ratio of job losers returning to work across households with different levels of income. Household income is measured as total labor income by other household members at the start of the non-employment spell divided by the square root of household size (OECD, 2008). This is the most appropriate measure of liquidity-constrained households that can be constructed with the present data. Ideally, one would like to measure liquidity constraints using household wealth or total household income (and not just that from labour). If liquidity constraints contribute to the impact of unemployment compensation on increasing unemployment duration, one would expect a larger impact among the poorest individuals. For simplicity, it is assumed that household income only affects the level of the group-specific baseline hazard over the relevant domain and not its shape. This is a standard assumption in most applications using proportional hazard models. However, to somewhat relax this assumption, the model is estimated separately for the first six months of non-employment and for more than six months of non-employment.

40. The results suggest that the negative impact of unemployment compensation on the hazard ratio of returning to work during the first six months since dismissal is larger among poorer households consistent with the conjecture set out above. Unemployment compensation is associated with a hazard ratio of starting a new job that is more than five percentage points lower in households with little or no alternative source of labour income (*i.e.* in the first two terciles of the household-income distribution) and by two percentage points among households with alternative labor income worth over two full minimum wages (*i.e.* in the third tercile of the household income distribution). These differences are most pronounced among job losers eligible for the maximum level of unemployment compensation, *i.e.* five months of UI plus generous SP. Moreover, there is no obvious pattern in the hazard ratio of returning to work across household groups for those who start a job more than six months after having been dismissed.

These estimates thus, provide further evidence that liquidity effects account for a substantial part of the positive impact of unemployment compensation on the duration of non-employment.

Table 7. **The impact of income support on job-starting hazard by tercile of the household income distribution**[a]

Within six months of dismissal

Household income group	Tenure in previous job	Previous job status		
		Informal	Formal	Difference-in-difference
1st tercile	Less than 6 months	0.147	0.140	
		(0.003)***	(0.005)***	
	6 to 11 months	0.153	0.130	-0.015
		(0.005)***	(0.004)***	(0.009) *
	12 to 23 months	0.125	0.118	0.001
		(0.007)***	(0.004)***	(0.010)
	24 to less than 48 months	0.142	0.116	-0.019
		(0.008)***	(0.004)***	(0.011) *
	48 months and more	0.169	0.105	-0.056
		(0.011)***	(0.004)***	(0.013) ***
2nd tercile	Less than 6 months	0.133	0.140	
		(0.003)***	(0.005)***	
	6 to 11 months	0.126	0.130	-0.015
		(0.005)***	(0.004)***	(0.008) *
	12 to 23 months	0.113	0.118	-0.014
		(0.006)***	(0.004)***	(0.009)
	24 to less than 48 months	0.126	0.116	-0.027
		(0.008)***	(0.004)***	(0.011) **
	48 months and more	0.144	0.105	-0.054
		(0.011)***	(0.004)***	(0.013) ***
3rd tercile	Less than 6 months	0.122	0.140	
		(0.003)***	(0.005)***	
	6 to 11 months	0.107	0.130	0.001
		(0.005)***	(0.004)***	(0.008)
	12 to 23 months	0.106	0.118	-0.001
		(0.006)***	(0.004)***	(0.009)
	24 to less than 48 months	0.104	0.116	-0.002
		(0.007)***	(0.004)***	(0.010)
	48 months and more	0.115	0.105	-0.018
		(0.011)***	(0.004)***	(0.013)

a) Difference-in-differences estimates derived from the hazard ratios for each group which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. See notes below Figure 3 for further details.

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

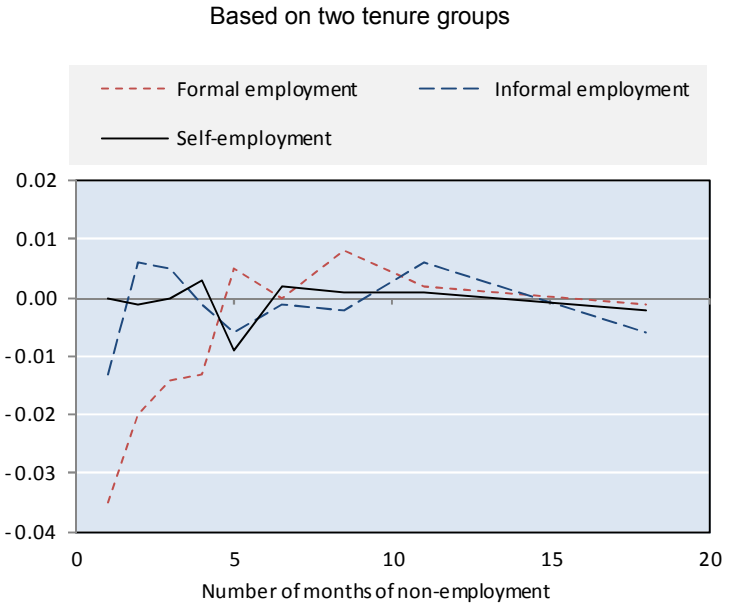
5.2 Competing risks analysis

41. The analysis so far suggests that reduced work incentives as a result of income support to job losers do not appear to be very important, while liquidity effects appear to play an important role in enabling workers to make better labour market choices. The analysis is now extended by distinguishing between three different re-employment destinations: formal salaried employment, informal salaried employment and self employment. This is of interest for two reasons. First, it allows one to assess to what extent UI may reduce incentives to work formally and increase incentives to work informally during the period of benefit receipt rather than focusing on work incentives *per se*. Second, it allows one to assess whether income support to liquidity-constrained job losers improves job matching and prevents them from being pushed into informal work. Thus, while the liquidity effect is expected to slow transitions to informal work, the moral hazard effect may speed such transitions. The net effect of income support on transitions to informal jobs is therefore ambiguous. The impact of income support on the composition of employment depends on the relative magnitudes of its effects on formal and informal employment. The impact of unemployment compensation on transitions to formal jobs is unambiguously negative as both moral hazard and liquidity effects have a tendency to slow such transitions.

42. The results based on two tenure groups, *i.e.* less than 6 months and 6 months or more, (Figure 5) suggest that, in contrast to the aggregate analysis, moral hazard is potentially important. There are two reasons for this. First, income support reduces the job-finding rate in the formal sector by more than that in the informal sector, at least at the start of the non-employment spell.[27] This suggests that the moral hazard effect of not working formally tends to offset the liquidity effect of income support that allows job losers to wait for a job offer in the formal sector. Second, while there is some indication of a positive spike at five months for the re-employment rate in the formal sector, this is not statistically significant. The absence of a significant effect around the spike of benefit exhaustion could, in principle, indicate that the negative impact of income support on the composition of employment is due to job losers taking up informal jobs during the period of benefit receipt. This is also consistent with the findings from the aggregate analysis that suggest that moral hazard does not have a major impact on the average duration of non-employment.

27 . While previously (in)formal workers have a much higher chance of returning to (in)formal work, consistent with the findings reported in Margolis (2008), this difference disappears and even gets reversed when controlling for employment status in the previous job.

Figure 5. **Difference in job-finding hazard of dismissed workers due to income support by destination**[a]



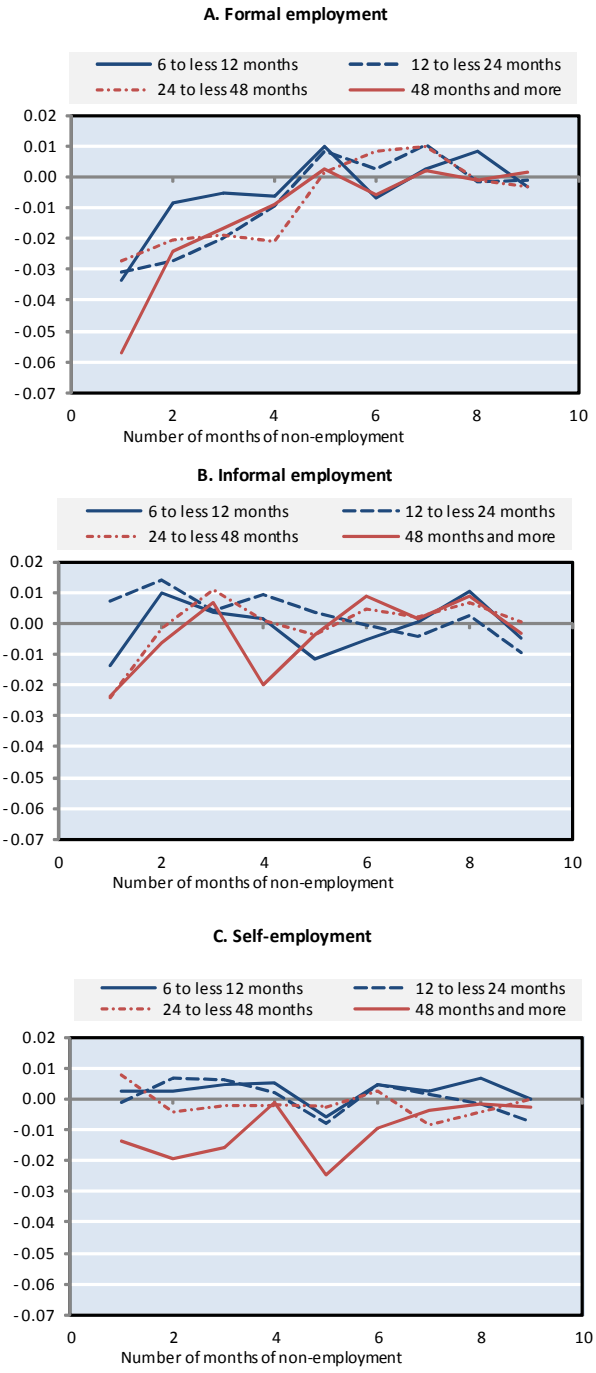
a) Difference-in-differences estimates derived from the hazard ratios for each tenure group (less than 6 months, 6 months or more) which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. See notes below Figure 3 for further details.

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

43. The results that distinguish five tenure groups (Figure 6) are broadly consistent with the results for two tenure groups as far the overall impact of income support is concerned, while the results with respect to the role of SP are somewhat ambiguous. For job losers with less than 48 months of tenure in their last job, the impact of income support on the hazard of finding a job in the formal sector is more negative than that of finding a job in the informal sector. Moreover, the spike at the point of benefit exhaustion is more positive for job losers eligible to UI, the lower the level of tenure in their job and the higher the value of UI in total income support (see Table 3). However, it is never statistically significant. The results for SP are not clear-cut. Since SP provides liquidity but does not provide any disincentives for working formally, one would expect the difference in the hazard ratio for returning to formal work between formal-sector job losers with between 24 and 48 months of tenure and with over 48 months of tenure to be smaller than the difference in the hazard ratio for starting a job in the informal sector. However, this is not obvious from Figure 6. The difference is larger at the start of non-employment but smaller in subsequent months. This could reflect the possibility that the role of liquidity-constraints in forcing formal-sector job losers into low quality jobs becomes more important over time.

Figure 6.**Difference in job-finding hazard of dismissed workers due to income support by destination, five tenure groups** [a]

Difference in the job-starting rates by destination due to income support for workers with different tenure in the last job



a) Difference-in-differences estimates derived from the hazard ratios for each tenure group which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. See notes below Figure 3 for further details.

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

44. Finally, Table 8 presents results on the impact of income support on the re-employment hazard by destination state and household income group.[28] There does not appear to be a strong relationship between household income and the speed with which job losers return to work, irrespective of their destination states. This suggests that moral hazard largely explains the impact of income support on the reduced rate of starting a formal job. It is not straightforward to determine to what extent moral hazard takes the form of staying non-employed longer or taking up informal work while non-employed in the formal sector. One may get some idea of this by looking at the impact of income support on the transitions to informal work (informal salaried or self-employed) of job losers in relatively well-off households since the liquidity effects of income support for such job losers are likely to be very small. The estimated impact of income support on such transitions is consistently positive and the coefficients for transitions to informal salaried employment are sizeable (up to two thirds of the absolute impact on transitions to formal jobs). However, in none of the cases, the positive coefficient is statistically significant. While one should be careful drawing strong conclusions based on these estimates, it is interesting to note that the impact of income support on transitions to informal work is largest in the case of informal salaried work. It is not inconceivable that UI provides incentives for workers and firms to collude by employing workers informally during the period of benefit receipt. A similar form of moral hazard has been widely debated in Brazil in the context of the FGTS and its potential to encourage dismissals (see Section 3.3).

45. While moral hazard effects certainly appear to be more important when differentiating between destination states than in the aggregate analysis, liquidity effects are likely to be far from negligible either. This can be best seen by looking at the role of SP by comparing the hazard ratios for job losers with between 24 and 48 months of tenure in their last job and those with over 48 month of tenure in their last job. A substantial part of the reduction in the hazard ratio of starting a formal job is associated with SP (up to 50% depending on the tercile of the household income distribution) which therefore cannot be due to moral hazard. Moreover, the impact of SP across household income groups on the transition to formal jobs and to self-employment is more important for job losers with low levels of household income. Indeed, for the lowest income group, the negative effect of SP on the transition to self-employment exceeds that on the transition to formal employment ($0.018 + 0.001 = 0.019$ versus $0.020 - 0.013 = 0.007$). This, thus, provides evidence that income support does prevent some job losers from being pushed into self-employment. The reason why this impact does not show up more generally is that it tends to be offset by moral hazard effects associated with UI.

28 . Consistent with the discussion above, income support slows the transition from non-employment to formal salaried employment, while there is little evidence that income support affects the transition from non-employment into informal work. To the extent there is an effect of income support on transitions to informal work, this tends to be limited to slowing transitions to self-employment for job losers with more than 48 months of tenure in their last job.

Table 8. **Impact of income support on job-starting hazard by destination state and household income group**[a]

Within six months of dismissal

Difference-in-difference	Tenure in previous job	Destination		
		Formal employment	Informal employment	Self-employment
1st tercile	More than 6 months	-0.014	0.000	-0.001
		(0.004) ***	(0.004)	(0.003)
	6 to 11 months	-0.008	-0.001	0.001
		(0.005) *	(0.005)	(0.004)
	12 to 23 months	-0.012	0.011	0.006
		(0.005) **	(0.006) *	(0.005)
	24 to less than 48 months	-0.013	-0.001	0.001
		(0.005) **	(0.007)	(0.005)
	48 months and more	-0.020	-0.003	-0.018
		(0.006) ***	(0.007)	(0.006) ***
2nd tercile	More than 6 months	-0.015	-0.002	-0.001
		(0.004) ***	(0.004)	(0.003)
	6 to 11 months	-0.012	-0.002	0.005
		(0.005) ***	(0.005)	(0.004)
	12 to 23 months	-0.017	0.008	0.000
		(0.005) ***	(0.006)	(0.004)
	24 to less than 48 months	-0.012	-0.001	-0.008
		(0.006) **	(0.007)	(0.005) *
	48 months and more	-0.025	-0.013	-0.010
		(0.006) ***	(0.008)	(0.006)
3rd tercile	More than 6 months	-0.013	0.006	0.002
		(0.004) ***	(0.004)	(0.002)
	6 to 11 months	-0.009	0.006	0.002
		(0.005) *	(0.005)	(0.003)
	12 to 23 months	-0.014	0.008	0.002
		(0.006) **	(0.005)	(0.003)
	24 to less than 48 months	-0.015	0.008	0.004
		(0.006) **	(0.006)	(0.003)
	48 months and more	-0.015	0.009	-0.009
		(0.007) **	(0.007)	(0.006) *

a) Difference-in-differences estimates derived from the hazard ratios for each tenure group which are estimated using a complementary log-log model with group-specific baseline hazards that controls for random effects. See notes below Figure 3 for further details.

Source: Author's calculations based on *Pesquisa Mensal de Emprego* microdata.

6. Policy discussion

46. For policy purposes, the unemployment compensation system should be considered as a whole rather than its individual components. However, most previous studies on unemployment compensation in Brazil and elsewhere have tended to focus on either UI or SP. The studies by Robalino *et al.* (2009, 2011) provide two interesting exceptions which take a more comprehensive approach to the unemployment compensation system in Brazil. Robalino *et al.* (2009) provide simulations of different reform options to the unemployment-compensation and pension systems with respect to contribution rates (*i.e.* formal employment rates) and the retirement age. Robalino *et al.* (2011) provide simulations on the role of reforms to SP and UI for the duration of unemployment and the degree of informality. They conclude that a greater coordination between SP and UI would be desirable and that the labour market effects of unemployment compensation depend to an important extent on its design. This section discusses some

reform options on the basis of the preceding analysis of the unemployment compensation system and its labour market effects.

47. First, the analysis suggests that the impact of unemployment compensation is more important for workers in households that are liquidity constrained. This implies that welfare could be enhanced by ensuring that unemployment compensation is targeted at those job losers who need it most. This first of all requires that those who need it most are covered by the system. While coverage is low in Brazil by OECD standards, it is among the highest in the group of emerging economies. It is not straightforward to increase the coverage of the unemployment compensation system as this requires reaching out to those in the informal sector. Reducing the rather high level of mandatory contributions of formal firms to FGTS could in principle help lowering disincentives for informal firms to become formal, but in practice is unlikely to make a major difference as FGTS only accounts for a relatively modest share of total employer social security contributions. It may also be worth considering ways in which UI could be made available to the self-employed on a voluntary basis. Beyond coverage, targeting also requires unemployment compensation to be sufficiently redistributive among those eligible for income support. However, the redistributive nature of the current system is limited due to its emphasis on FGTS. Since FGTS is not redistributive, while UI is strongly redistributive, a more targeted unemployment-compensation system is likely to require a shift in emphasis away from FGTS toward UI. Depending on the way the shift in emphasis is achieved, this may also contribute to increased labour market flexibility and worker security.

48. Second, moving towards a targeted unemployment-compensation system requires a greater coordination between FGTS and UI, and it may even be desirable to integrate the two systems altogether. At present, there appears to be essentially no coordination between FGTS and UI in terms of their design as well as their implementation. Coordinating reforms of the two systems may be attractive from a political-economy perspective as it may help one to more effectively compensate some of the potential losers. Coordination may also allow one to better exploit potential complementarities between the two systems and thereby increase the cost-effectiveness of the unemployment compensation system. For example, it may be possible to make UBs conditional on the number of monthly wages worth of SP as in Canada in order to free up resources for job losers who are more likely to face important liquidity constraints.[29] The integration of the two systems may also yield important benefits with respect to the financing and operational management of the two programmes. For example, the revenues from layoff taxes may be used to finance UI, which would effectively transform UI into the second experience-rated UI system in the world. A promising reform option in this context may be to reduce severance pay (the firing penalty paid to workers) while increasing layoff taxes (the firing penalty paid to the government). Such a reform has the potential to reduce the scope for collusion between workers and firms to access FGTS accounts (Gonzaga, 2004), while increasing the targeting of the unemployment compensation system on liquidity-constrained job losers.

49. Third, the analysis also shows that UI may involve important costs to society by prolonging the duration of non-employment after job loss or by providing incentives to work informally during the period of benefit receipt. Moreover, these costs are likely to become even more important when a greater weight is placed on UI as a source of unemployment compensation without any accompanying changes to its design. In order to limit the role of moral hazard effects, it will be important to accompany any investments in UI with investments in benefit administration and activation policies.[30] The essence of activation is the

29 . Alternatively, it may be possible to make SP conditional on eligibility for UBs. This is effectively the case in Chile, where employers are allowed to subtract their contributions for unemployment made in the account of a worker from severance pay. This means that severance pay is relatively more important for job losers with low levels of UBs.

30 . An alternative possibility would be to pay UI as a lump sum upon dismissal instead of as a monthly payment conditional on not working formally. This effectively removes the distortion associated with UI. It

principle of "mutual obligation" where, in return for paying benefits and offering re-employment services, the government requires recipients to register with the public employment services (PES), search actively for a new job or participate in active labour market programmes to improve their employability. The government can enforce this requirement with the help of moderate benefit sanctions.[31] However, in Brazil, job losers are not required to register with the Public Employment Service (SINE) in order to be able to apply for unemployment benefits. Moreover, UI does not impose any behavioural requirements on benefit recipients. Such requirements are not only standard practice in advanced economies, but are also present in most comparable emerging economies, although such conditions are not always effectively enforced (OECD, 2011). An obvious first step in Brazil would therefore be to require job losers to register with SINE in order to be able to claim benefits. The main role of SINE would be to administer initial benefit eligibility and to act as a job broker by providing vacancy information.[32] Moreover, there should at least be an explicit expectation that benefit eligibility is conditional on being available for work, actively engaging in job search and not refusing suitable job offers. As the weight of UI increases, it will also be increasingly important to invest in the monitoring of continued benefit eligibility and engage in the development of individual action plans. In general, this is likely to require a greater coordination of benefit administration and re-employment services.[33]

7. Concluding remarks

50. This paper contributes to the literature on unemployment compensation in emerging economies by focusing on Brazil. The Brazilian unemployment compensation systems consists of two components: individual severance pay accounts (*Fundo de Garantia po Tempo de Servico*) and public unemployment insurance (*Seguro Desemprego*). The large majority of formal-sector job loser receive both SP and UI. On average, the total value of support is about 50% larger for FGTS than for UI. However, the relative importance depends to an important extent on the tenure and wage in the previous job. For job losers with low levels of previous earnings or short tenure, UI provides the most important source of income support available, while for job losers with high levels of previous earnings and tenure, SP tends to be more important.

51. This paper analysed the impact of unemployment compensation for formal-sector job losers on the duration of non-employment in the aggregate as well as transitions from non-employment to formal

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differs from SP as the risk of job loss is insured collectively and the redistributive nature of UI is maintained. Such a design is more appropriate when uncertainty over the duration of non-employment is small and adverse incentives effects are large (Baily, 1978). Given the short maximum duration of UBs, the effective uncertainty over the duration of benefit is limited in the case of Brazil. Consequently, transforming UI into a lump sum payment for dismissed workers may well be an optimal strategy for Brazil. However, given the sophisticated nature of its current unemployment compensation system, this would also be a step back and is unlikely to be consistent with the long-term view that the Brazilian government has of its unemployment compensation system. However, UI in this form may be an interesting idea for emerging economies that are considering establishing an OECD style UI system for the first time.

31 . Over the past decade, many OECD countries have introduced or reinforced strategies to "activate" the unemployed. Evidence suggests that, if well-designed, such strategies can contribute to better labour market outcomes by ensuring that benefit recipients have a better chance of getting a job and minimising the risks that generous benefits reduce work incentives (OECD, 2006).

32 . However, available data for Brazil suggest that the number of job seekers who get a job through SINE is rather low. The ratio of the number of placements to the number of newly registered job seekers is about one in six, while the ratio of placements to the number of new job vacancies is about one half (Gonzalez, 2010).

33 . In Brazil, about a third of benefit applications are handled by SINE (Gonzalez, 2010).

salaried employment, informal salaried employment and self-employment. The aggregate analysis and the analysis by destination state (*e.g.* formal salaried employment, informal salaried employment and self-employment) yield quite different results. The aggregate results indicate that income support has an important impact on the duration of non-employment. Moreover, this largely appears to be driven by liquidity effects, while the role of moral hazard appears to be limited. Severance pay (FGTS) accounts for the bulk of the rise in the duration of non-employment even though it is not conditional on work status. Moreover, the increase in the duration of non-employment is concentrated among job losers in liquidity-constrained households. By contrast, the analysis by destination state suggests that moral hazard effects dominate the liquidity effects associated with income support. The two sets of results can be reconciled by noting that the aggregate analysis only accounts for moral hazard effects that increase the duration of non-employment, while the analysis by destination state captures both potential moral hazard effects in the form of reduced work incentives *per se* and those in the form of increased incentives to work informally during the period of benefit receipt. In practice, the latter may reflect the tendency for firms to employ benefit recipients informally until their benefits expire. A somewhat similar moral hazard problem has been intensely debated in Brazil in the context of the severance pay system (FGTS).

52. The analysis also suggests that the welfare implications of Brazil's current unemployment compensation system may be enhanced by targeting it more effectively to job losers with important liquidity constraints, while minimising the adverse incentives effects associated with the provision of UI. In principle, targeting of unemployment compensation can be increased by extending its coverage to informal sector workers and increasing the redistributive nature among those eligible for income support. Since the current system relies on FGTS as the main source of income support, and FGTS is not redistributive by nature, increasing its redistributive nature is likely to require a shift in emphasis away FGTS towards UI. A better coordination between the two systems in terms of design and delivery is also likely to be helpful in this respect and it may even be desirable to integrate the two systems altogether. Any adverse incentive effects associated with the provision of UI could be mitigated by making additional investments in benefit administration and activation policies. An obvious first step would be to require job losers to register with the Brazilian PES (SINE) in order to be able to claim benefits. The main role of SINE would be to administer initial benefit eligibility and to act as a job broker by providing vacancy information. Moreover, there should at least be an explicit expectation that benefit eligibility is conditional on being available for work, actively engaging in job search and not refusing suitable job offers.

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