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The Incentive Effects of Sickness Benefit for the Unemployed – Analysis of a Reduction in Potential Benefit Duration

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ABSTRACT
In Hungary, employees could claim sickness insurance benefit within 3 days of job-loss, which would enable them to extend their benefit duration by up to 90 days. The maximum number of days of this 'passive sickness benefit' was halved in 2007. We first investigate whether claiming passive sickness benefit was related to the monetary advantage relative to claiming unemployment insurance benefits. Then, we explore the effect of potential benefit duration on the transitions to stable employment relying on the variation induced by the policy change. Relying on high quality longitudinal matched administrative data we can estimate these relationships while using controls for employment histories and healthcare spending. On the one hand, we find that passive sickness benefit claiming behavior was indeed correlated with the financial gains. On the other hand, we find only a very small and insignificant immediate effect on transitions to employment when maximum benefit duration was cut by 45 days. However, we find that job finding hazard on the week after benefit exhaustion increased more for individuals who were not on sick leave just prior to job-loss. Our finding is suggestive that a non-negligible proportion of this group were subject to moral hazard.

JEL codes: I18; J22; J32
Keywords: sickness absence; statutory long-term sick pay; difference-in-difference methods

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Az nem-dolgozóknak folyósított keresőképtelenségi ellátás ösztönzési hatása– hogyan hatott a passzív táppénz maximális hosszának csökkentése

CSILLAG MÁRTON – MÁRK LILI

ÖSSZEFOGLALÓ
Magyarországon a munkavállalók a munkahely elvesztésétől számított 3 napon belül igényelhették a betegbiztosítási ellátást, ami lehetővé tette számukra, hogy a táppénz ellátás időtartamát akár 90 nappal is meghosszabbítsák. Az úgynevezett "passzív táppénz" maximális hosszát 2007-ben a korábbi felére csökkentek. Tanulmányunkban először azt vizsgáljuk, hogy a passzív táppénz igénybevétele összefüggésben állt-e a munkanélküli biztosítási ellátások igénybevételéhez viszonyított pénzbeli előnnyel. Ezután, a szabályozásváltozás következtében történt időtartam csökkentést kihasználva megvizsgáljuk, hogy a passzív táppénz maximális hosszának kurtítása felgyorsította-e a foglalkoztatásba való visszatérést. Kiemelkedő minőségű, kapcsolt longitudinális adminisztratív adatokra támaszkodva tudjuk megvizsgálni ezeket az összefüggéseket, miközben figyelembe vesszük az egyének munkatörténetét és egészségügyi kiadásaikat is. Egyrészt azt találjuk, hogy a passzív táppénz igénylését valóban befolyásolták a pénzügyi szempontok. Másrészt amikor az ellátások időtartamát 45 nappal csökkentették, csak nagyon kis mértékű és inszignifikáns azonnali hatást találtunk a munkába való visszatérésre. Ugyanakkor, ha csak azokra szűkítjük a mintát, akik közvetlenül a munkahely elvesztése előtt nem voltak betegszabadságon, a táppénz lejáratát követő héten erősebb hatást találunk a munkába való visszatérésre. Eredményeink összességében arra utalnak, hogy e csoport nem elhanyagolható hányada esetében felmerült a morális kockázat a táppénz igénylésénél.

JEL: I18; J22; J32
Kulcsszavak: táppénz; biztosított munkanélküli ellátás; különbségek különbsége módszer

The Incentive Effects of Sickness Benefit for the Unemployed – Analysis of a Reduction in Potential Benefit Duration*

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Abstract

In Hungary, employees could claim sickness insurance benefit within 3 days of job-loss, which would enable them to extend their benefit duration by up to 90 days. The maximum number of days of this 'passive sickness benefit' was halved in 2007. We first investigate whether claiming passive sickness benefit was related to the monetary advantage relative to claiming unemployment insurance benefits. Then, we explore the effect of potential benefit duration on the transitions to stable employment relying on the variation induced by the policy change. Relying on high quality longitudinal matched administrative data we can estimate these relationships while using controls for employment histories and healthcare spending. On the one hand, we find that passive sickness benefit claiming behavior was indeed correlated with the financial gains. On the other hand, we find only a very small and insignificant immediate effect on transitions to employment when maximum benefit duration was cut by 45 days. However, we find that job finding hazard on the week after benefit exhaustion increased more for individuals who were not on sick leave just prior to job-loss. Our finding is suggestive that a non-negligible proportion of this group were subject to moral hazard.

Keywords: *sickness absence; statutory long-term sick pay; difference-in-difference methods*
JEL Classification: *I18; J22; J32.*

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1 Introduction

Understanding how workers react to incentives inherent in the design of social insurance programs is of paramount importance to sketching benefit systems that both protect employees in case of unexpected negative shocks, but also nudge them to return to work. We have growing evidence that there are important interactions between unemployment insurance benefits and those benefits which provide compensation in case of prolonged sickness or temporary disability (see for example Hall, 2011; Hall & Hartman, 2010; Henningsen, 2008; or OECD, 2018). Furthermore, workers might use the latter type of benefit if they are more generous (e.g. Larsson, 2006), or they come with less severe behavioral rules (e.g. Van Den Berg, Hofmann, & Uhlendorff, 2019) and eligibility can be leniently granted, and hence will take up sickness (or temporary disability) benefits more in times of recession (e.g. Andersen, Markussen, & Røed, 2019; Bratsberg, Fevang, & Røed, 2013).

We examine a case from Hungary where the risk of misuse was pronounced: employees were eligible for long-term sickness benefits for up to three months after the end of an employment spell, if a doctor certified their sickness within 3 calendar days after job-loss. In fact, this was the only form of going on sickness benefits during a spell of unemployment (as opposed to many other European countries). Thus, workers could substantially prolong the duration of social insurance benefits in case of certified sickness using this form of sickness benefit, which is called 'passive sickness benefits' (PSB). Furthermore, due to differences between UI benefits and the long-term sickness benefits in the eligibility conditions and benefits schedules, workers with relatively short employment histories and relatively high earnings had a particularly high incentive to claim sickness benefits. Thus, in our paper we first estimate whether displaced workers were responsive to the financial incentives, and whether claiming long-term sickness benefit (prior to or instead of UI benefits) was related to the relative gains. We indeed find that claiming behavior is motivated by financial gains, conditional on a host of proxies for health status.

Second, we take advantage of a policy change which halved the maximum number of days that passive sickness benefit can be claimed (following a layoff), but otherwise left rules unchanged. We use this radical change to estimate the effect of claiming sickness benefits on the duration of non-employment. In principle, the reduction in the duration of social insurance benefits could encourage job search and hence increase the hazard of finding a job. Contrary to much of the international literature on UI benefits(e.g. Nekoei & Weber, 2017; J. C. van Ours & Vodopivec, 2008), we cannot reject that non-employment was unresponsive to potential benefit duration. This is consistent with at least some of the long-term sickness benefit recipients having health conditions (as opposed to purely fraudulent claiming) as well as with previous studies from Hungary. However, we do show that groups of passive sickness benefit claimants who were the most prone to moral hazard (those who did not have a spell of sickness benefit close to the end of their employment spell) did find a job significantly quicker.

The interest of looking at this benefit and its reform is threefold. First, it is indicative of how workers might behave if they lose the rights to go on sickness allowance once they become non-employed, thus workers have a particularly high incentive to claim sickness benefits at the end of their employment spell. Second, we examine a case where eligibility rules encourage displaced workers to potentially complement (or substitute) UI benefits with other, sickness-related benefits, and look at the role of financial incentives in claiming sickness benefits. Third, we can estimate whether cutting back the potential length of benefits leads to the swifter return to work of persons who likely suffer from long-term health conditions. Indeed, passive sickness benefits represented roughly 11 percent of all (long-term) sickness absence days in the years prior to the policy change discussed, so

curbing potential moral hazard was not a negligible goal [1].

Our paper is structured as follows. After providing a brief literature overview in Section 2, we describe the sickness and unemployment insurance system benefit system in Hungary, as well as the policy change analyzed in Section 3. This is followed by by an exposition of the dataset and an explanation of the construction of our variables of interest in Section 4. We detail our empirical strategy as well as present our results in Section 5; Section 6 concludes with a brief discussion.

2 Existing evidence and literature

Our work is related to two strands of literature. First, there has been a large amount of work dedicated to estimating the effect of potential UI benefit duration on non-employment (and re-employment wages). Much of the literature in Europe finds a moderate elasticity of unemployment to the potential benefit duration, however, there is large variation between the findings (see Filges, Jonassen, and Jørgensen (2018) for a review). In Eastern Europe, the early work studying reforms of UI benefit systems in the 1990s found very moderate responsiveness of the transition rate to regular employment to potential benefit duration – which could potentially be explained both by the fact that the changes in potential benefit duration studied were relatively small, and also that during the period studied, there was high (structural) unemployment in the aftermath of the transition from socialism. However in times with economic growth, there seemed to be a marked difference between the effect of benefit shortening in Slovenia, as reported by J. van Ours and Vodopivec (2006)[2] which greatly speeded up job-finding and in Hungary, studied in Galasi and Nagy (2002) who did not find any positive effect of a shortening of UI benefit entitlement duration on the outflow to work.

Second, there is growing attention on the moral hazard related to sickness-related social insurance benefits, as there has been pronounced rise in the number of claimants of temporary disability benefits and long-term sickness absence[3]. A large number of studies have shown that the duration of long-term sickness is responsive to the sick pay, however, the estimated elasticity of number of days spent on long-term sick leave to sick pay range from -0.9 in Finland (Böckerman, Kanninen, & Suoniemi, 2018) , through –0.45 in Hungary (Csillag, 2019) to close to zero in Germany (Ziebarth, 2013). A number of papers have investigated temporary disability benefits. In particular, Fevang, Hardoy, and Røed (2017) show that the return to work of temporary disability benefit recipients are responsive to economic incentives, however, to a lesser extent than UI benefit claimants. Andersen et al. (2019) also show that temporary disability claims are similarly responsive to local labour demand conditions as UI benefit claims. Finally, Bratsberg et al. (2013) show that mass layoffs leads to an increase in disability benefit claims, and that up to one-fourth of all disability claims are possible to attribute to job loss. In similar vein in Hungary, Bíró and Elek (2019) document a 50% increase in transitions to disability pension following job-loss due to mass layoffs. From the time-path of health expenditures, they conjecture that this might be due to the diagnosis of previously undetected chronic diseases.

There is growing attention devoted to the interplay between unemployment insurance

[1] In contrast, only less than a quarter of the registered unemployed in Hungary were UI benefit recipients in 2006-2007. Unfortunately, these are calculated based on stocks, and not inflows into registered unemployed status.

[2] It needs to be noted that the Slovenian reform not only meant larger reductions in potential benefit durations, but more activation and stricter job search monitoring was also introduced.

[3] This was pronounced in some countries, such as in the Netherlands and Norway, and during the Great Recession in the US (see Maestas, Mullen, & Strand, 2021).

benefits and sickness insurance benefits in Sweden (Hall, 2011; Hall & Hartman, 2010; Larsson, 2006 and Norway (Henningsen, 2008). These papers analyze settings where sickness benefits are explicitly used as an alternative to unemployment benefit. Henningsen (2008)shows that hazard rates to transit from unemployment to sickness insurance peak before the exhaustion of the UI period in Norway. She interprets this pattern as sickness insurance being used to prolong unemployment insurance duration. Hall (2011) analyzes the 2013 reform in Sweden when the gap between the maximum amount of SI and UI was eliminated, and she finds that indeed fewer unemployed people reported sick however the job finding rates did not improve much. Van Den Berg et al. (2019) estimate that in Germany a small fraction of those reporting sick during an unemployment spell likely do so to avoid job referrals.

3 Sickness and unemployment insurance benefits in Hungary

3.1 Sickness benefit eligibility and rules

All employees in Hungary are covered by the Statutory Health Insurance, which covers absences due to both work-related and work-unrelated illnesses. Sick leave is comprised of two components: short-term and long-term sick leave. The first component (short-term sick leave) covers up to 15 working days in a calendar year, and it is mandatory for the employer to pay the sick pay[4]. It is important to emphasize that this paper is about a version of the second, long-term sick leave. Upon having exhausted her short-term sick leave, a person can enter long-term sick leave, under the condition that the she has contributed to (mandatory) health insurance (to the Hungarian National Health Insurance Fund). Long-term sick leave is co-financed by the employer (1/3 part) and social security (2/3 part). Similarly to the short-term sick pay, a general practitioner (GP) or a specialist needs to certify the health condition and there is no 'waiting period' for the sickness benefit. The person applying for sickness benefits (in general) needs to be working in an employment relationship entailing sickness insurance[5]. However, persons whose employment relationship recently ended were eligible for a specific version of long-term sickness benefit during the period studies (the so-called 'passive sickness benefit', or PSB later on in the text), given that the person still had sick leave days remaining. The person could apply for 'passive' sickness benefit in two cases. First, if there was an ongoing sickness benefit spell at the end of the employment relationship. Second, if there was an onset of a sickness immediately after, within three calendar days after the end of the employment spell.

A health-impaired worker is entitled to long-term sickness pay for a maximum of one year, unless she was (continuously) insured for less than a year, in which case the length of the entitlement is equivalent to the duration of the insurance relationship. This means that the number of sick leave days used by the worker during the 365 days prior to applying for a (new) long-term sickness leave is subtracted from the length of maximum entitlement period. As for the 'passive' sickness benefit, it could be granted for up to 90 days after the end of an employment spell, under the condition that the person had at least that many sickness benefit days remaining.[6] The number of 'passive days' was reduced to 45 for

[4]Short-term sick leave is paid only if the person's own health condition does not allow one to work, which needs to be certified by a general practitioner (GP). There is no waiting period, and the employee receives 80 percent of her earnings as sick pay, which is fully paid for by the employer. All employees are entitled to employer-financed short-term sick leave, however self-employed, owners of companies, and those working under a civil law contract are not.

[5]This includes a much wider array of employment relationships (for example: self-employed) than for the short-term sick leave.

[6]Thus, this means that the person had a (prior) employment relationship that lasted at least 90 days. In

spells starting after the 1st of April, 2007[7].

This sickness benefit depends on insurance history and its replacement rate is lower than that of the short-term sickness benefit.[8] The sickness benefit received during a long-term sickness spell depends on the employee's work (insurance) history and her previous earnings[9]. The starting point of calculating sick pay is finding the 'reference period' for previous earnings, which in essence, is a 180-day paid employment spell that can be anywhere between the starting day of the long-term sick leave and January 1st of the previous calendar year. As a rule, previous earnings are calculated based on work income during the past calendar year. More precisely, if the employee had at least 180 paid working days (for which she received earnings) in the previous calendar year, then the sick pay is based on the daily average earnings during this period. Otherwise, the 'reference period' for calculating previous earnings is the last employment spell where the employee was paid for 180 continuous days. For those without such an employment spell, sick pay is based on statutory minimum wages.

The second building block for calculating sick pay is the replacement rate. The general rule is that those with at least two years of continuous work histories face higher replacement rates. Work (insurance) histories that had breaks of no more than 30 days count as being 'continuous', where breaks are those periods when the individual's health care insurance is 'suspended' or the person is not insured (i.e. unpaid leave, periods of employer initiated or unlicensed absences for work, incarceration, non-employment)[10]. Those with at least two years of continuous work histories had a replacement rate of 70 percent, while those with shorter work histories faced a replacement rate of 60 percent; with no cap on the maximum benefit.

3.2 Unemployment insurance benefit eligibility and rules

Similarly, all employees are also eligible for Unemployment Insurance benefit (or UI later on in the text), which however was significantly less generous for high-earners. Eligibility for UI benefits was based on the number of days worked (insured) during the last 4 calendar years; with a minimum of 1 year work during this period. In essence, for each 5 calendar days in an employment relationship, the worker earned the rights to 1 day of UI benefit. Thus, during the period 2006-2010, the duration of UI benefit eligibility could be between 72 and 270 days. It is also important to note that persons who quit their jobs voluntarily had a 90 day waiting period imposed. Finally, UI benefit recipients were not eligible for sickness benefit.

The UI benefit entitlement period was divided into two equal-length sub-periods, when during the first period the jobseeker received an earnings-related benefit, and during the second period the person received a flat-rate payment. As a general rule, the UI benefit during the first period replaced 60 percent of the persons' prior earnings. This latter was

other words, the length of the employment relationship minus the number of sickness absence days exceeded 90.

[7]Please note that the number of passive days was originally 365 days when introduced in 1996, which was later reduced to 180 days in 2003, then to 90 days in 2004. After the change of 2007, that we analyse, it was further reduced to 30 days from the 1st of August, 2009. Finally, 'passive sickness leave' was abolished from July 1st, 2011.

[8]In this respect, the sickness insurance system is very similar to that of a number of European countries, such as Austria or Germany.

[9]It is worth pointing out that there is no distinction between full- and part-time jobs in terms of health insurance: every day a person is insured counts, regardless of the hours of work. Likewise, there is no possibility to take up part-time sickness leave.

[10]Note that periods of licensed sickness leave, and parental leave and periods on UI benefits do not count as a 'break'.

calculated as the average earnings over the last full calendar quarter. However, there were relatively tight lower and upper caps on the UI benefits: this could not be less than 60 percent of the going minimum wage, and could not be more than 60 percent of twice the minimum wage. Twice the minimum wage was around 73 percent of the average earnings of male full-time employees. In effect, roughly 43 percent of male full-time employees were affected by the maximum rule, and around 15 percent had earnings below the minimum rule. We need to emphasize that – as opposed to the practice of many other European countries – UI benefit recipients' health insurance is covered by the state, but they are not eligible for sickness leave. Thus, for a long-term sick person, the only possibility was to apply for (passive) sickness benefit prior to or instead of UI benefits.[11]

3.3 Comparison of sickness benefit and unemployment benefit

Comparing the incentives to take up 'passive sickness benefit' and/or UI benefit, some general conclusions emerge. It was financially beneficial for everybody, who was sick at the time of the job-loss to first take up sickness benefits and only thereafter UI benefits. Thus, the person could extend the total period of social insurance benefit receipt. However, there are three groups who had a particularly high incentive to take up sickness benefits. First and foremost those, who had short employment spells, and thus were not eligible for UI benefits. Second, voluntary job quitters, who would not be able to immediately have access to UI benefits. [12]. Finally, those whose relative gain from taking up long-term sickness benefits were high – those whose total value of UI benefits was relatively low. Table 1 shows a comparison of the benefit rules.

In Figure 1, below, we illustrate this for the period after the change in the length of long-term sickness benefits, and we display the difference between the total value of sickness benefits and UI benefits as a fraction of the previous earnings – thus a value of 0.5 means that the person gained an additional half months' earnings worth, if they chose sickness benefit rather than UI benefits. In the graph we display three groups of persons. First, those with relatively short employment history — they worked one full year (370 days) prior to non-employment, but did not work more during the last four years -– and who were hence eligible for 74 days' UI benefits. Second, those with intermediate employment history -– they worked two years (730 days) continuously before job-loss – and were hence eligible for 148 days' UI benefits. Finally, a group with long employment history, those who would qualify for the maximum potential UI benefit entitlement – 270 days.

The following insights can be gained from the figure. First, that those with shorter employment had more to gain from the sickness benefit — given that the length of the sickness benefit was quasi-fixed while the length of the UI benefit entitlement was directly proportional to the number of insured days - this is particularly important for those who did not work long enough to be eligible for UI benefits. Second, that the gains to claiming sickness benefits increases with (previous) earnings, and this is particularly the case above

[11] It is worth noting that at the time, there was no 'temporary disability benefit' (or similar) in Hungary. If a person's work capacity was seriously limited due to illness or accident (who lost at least 67% of their work capacity) could apply for disability pension (lasting until pension retirement age). This system was overhauled starting from the 1st of January, 2008, with the introduction of the 'rehabilitation benefit' which applied to persons who lost 50-79 percent of their work capacity, but could in principle return to work (following vocational rehabilitation). This benefit had significantly higher replacement rates than the disability pension, but could be claimed for up to 3 years.

[12] It is important to note that in our data, we cannot distinguish between voluntary quits and involuntary job-loss. Card, Chetty, and Weber (2007b) exclude voluntary job quitters by restricting their sample to those who take up unemployment benefits before the end of the waiting-period. We cannot follow the same strategy since anyone could be on passive sickness benefit for 90 days after quitting a job, which is also the waiting period for UI benefits.

the UI benefit earnings cap (which in fact affected a significant portion of workers). Finally, one can see that the gains to be had were economically significant – for example for those earning average wages and with an intermediate employment history this amounted to about half a months' of earnings (despite the fact that passive benefits were only available for 90 days). We need to note however that UI benefits could be used after sickness benefits have been exhausted, thus there was strictly speaking no trade-off between claiming the two benefits[13].

3.4 The use of (passive) long-term sickness benefit in Hungary

Overall, about 3.5 percent of employees were on sickness benefit on average on an day in 2006. Of these, about 11 percent were passive sickness benefit days (KSH, 2014). The decrease in the maximum duration of passive sickness benefit from 90 to 45 days is reflected in the decreased share of days spent in passive sickness leave relative to all sickness benefit days in 2007 – about 9% in 2007.

We compare PSB takers to employees who face job endings but do not take up the passive benefit and report descriptive statistics in the Appendix. In Figure A2, we show that typically employees at larger firms take up the benefit. As shown in Figure A3 PSB takers are also more likely to have worked at foreign owned companies and state-owned companies. Public officials and public servants are more likely to take up passive sickness benefit. In Table A1 we show some further statistics. PSB takers are somewhat older, tend to have longer employment histories, higher earnings and tend to work at higher paying firms. Interestingly, PSB takers seem to be very similar to non-takers in terms of their past health spending and usage of inpatient and outpatient care. The only significant difference is in their sickness benefit take-up in the previous year.

Figure 2 shows the distribution of passive sickness benefit spells starting within 2.5 months before and 2.5 months after April 2007. In both periods the typical spell lasts the maximum duration: around 32% of spells last 90 days before, and around 51% of cases last 45 days after the change.

The percentage of persons on sick leave relative to the last day of the employment spell is displayed in Figure 7. The first phenomenon to note is that there is a small increase in the proportion of those on sick leave in the first 3 days after the end of an employment spell relative the the very last day of the employment spell.[14] The second interesting phenomenon is that there are individuals leaving PSB before the maximum potential duration, which might be due to having found a job even before they have exhausted the PSB.

In Figure 4 we illustrate the percentage of people in four different states one week after job loss separately for those who were and who were not on sick leave at the end of their job spell. Being on sick leave already before job ending is suggestive that someone might have been truly sick as opposed to gaming the system. The four figures correspond to the four groups in our difference-in-differences analysis, which are the 5-months periods preceding and following the reform date April 1, 2007 and the same periods one year before. Although it would be a natural assumption that people who are already on sick leave are likely to continue to be on sick leave once they end their jobs, what we see is that only 32-39% of them take up passive sickness benefit. Still, this share is much higher than the take-up of those who are not on sick leave already (3%). The figures suggest some seasonal pattern in the take-up of UI benefits, where a bigger share of people take

[13]Clearly, the threat of sanctions was the main deterrent from fraudulent claiming of passive sickness benefits. However, punitive legislation regarding fraudulent claiming was only significantly stiffened in 2012, from which date it could be treated as a felony

[14]Those on sickness leave are protected from firing by law in the sense that they can be laid off only after their sickness leave has ended.

up unemployment benefits soon after their job ending in the winter/early-spring months (November - March) than in the spring/summer months (April - August).

On Figure 5 we illustrate conditional probabilities the other way around. In other words, we show what percentage of those who took up passive sickness benefit (work, take up unemployment benefit or inactive) were on sick leave already before their job ending. We do see that the percentage of those already on sick-leave is indeed highest for those who are on passive sick leave one week after their job ending. However, only about 19-23% of PSB takers were on sick leave earlier. If we think that being on sick leave already before job ending is a good proxy for being truly sick, this suggests that the majority of PSB takers are taking up the benefit on false grounds.

4 Data and sample selection

Our analysis is based on a large linked employer-employee longitudinal administrative dataset that were compiled from several sources for research purposes for the Centre for Economic and Regional Studies of the Hungarian Academy of Sciences. The complete dataset contains a 50 percent sample of the adult population (coming from a simple random sampling procedure) of Hungary for the years 2003-2011.

Our primary source was the National Pension Insurance data, which contains detailed insurance (employment) histories.[15] All periods when the individual was insured – e.g. accumulated days that contribute towards pensions - were recorded (including the exact dates of the beginning and the end of a spell), as well as the 'title' of the contribution spell. It is important to note that long-term sickness absence spells[16], both 'active' and 'passive' are also indicated as an insured period, as well as spells of UI benefits.[17] This dataset thus allows us to calculate the number of continuously insured days for each individual (the determinant of the replacement rate), as well as defining the 'reference period' for calculating sickness benefits. The data also contains (labor) income data aggregated to monthly spells, which enables us to reconstruct both the earnings that serve as 'reference income' for sick benefits, and 'current' earnings. In similar vein, we are able to calculate the (potential) length of UI benefit eligibility, as well as the (potential) UI benefit for each individual. Finally, the person's gender, day of birth, detailed occupation codes (for employment spells) and the employer's identification number is recorded in the dataset.

The National Health Insurance Fund data provide important information on two aspects. First, we have information on yearly health-care spending on the individual (by categories: in-patient, out-patient, medications)[18], as well as the number of visits to the individual's general practitioner. Second, long-term sickness absence spells are recorded – but unfortunately the amount of sickness benefit is not contained in the dataset. The unemployment registers of the Hungarian PES also records the spells of registered unemployment, as well as the spells of UI benefit receipt, along with previous earnings and UI benefit amounts data.

[15]There are only negligible differences in what count as contributory days towards pensions and sickness insurance.

[16]We need to note that the data we use does not contain information about short-term sickness absence spells.

[17]More precisely: it is a period that contributes towards 'number of insured days', but no contributions (neither health nor pension) are deducted.

[18]Unfortunately, besides the sum spent on the health care of the individual, we know nothing about the person's illnesses or health status.

4.1 Sample construction

The unit of our data is a job ending. We consider job endings within a 10 months window (5 months prior to, and 5 months after April) [19] around the policy change in April 1, 2007, so our data includes all job endings between Nov 1, 2006 and August 31,2007, as well as the same periods relative to April 2006 (for robustness, we also estimate models with a 5 months window, i.e. 2.5 months before and after April). We restricted our sample to companies where there is at least one employee who takes up passive sickness benefit when leaving the job (over the period 2003-2011). We assume that there is a specific mechanism whereby the information about the possibility of using PSB is available at some firms, but not at others, for instance by the workers having access to a general practitioner who is lenient towards granting certificates for PSB. As we are interested in the individual determinants of claiming PSB, conditional on likely having information about its existence, we limit our sample to firms where PSB claiming occured.

We focus on larger firms, in specific those firms who had at least 100 employees (or 50 employees in our sample) in at least one month during our sample period. We do so, since (as we saw above) passive sickness benefits are extremely rare in smaller firms, as shown in Figure A1. Furthermore, having a sufficiently large number of observations for a given firm allows us to construct firm-level variables such as average wages, and average number (proportion) of days spent on sickness benefits. As passive sickness benefit is used relatively infrequently (about 3% of job endings), we keep all the cases when passive sickness benefit is taken up and we take a 20% random sample of all the other job endings. Thus, we use sampling weights accordingly in all our model specifications. We focus only on men, because sickness benefit is also a form of staying home with sick children and this is mostly done by women. We would like to avoid any complications of potential interactions with childcare.

In our estimations we focus only on those people who are eligible to take-up PSB for its pre-reform potential maximum period, 90 days. We do so, because the decrease in maximum potential duration is effective only for those people who could have received PSB for a longer time period and the effective decrease in potential duration is highest for the set of people who could have received the previous maximum duration. We exclude all persons who moved to another firm within one week, since we suppose that they already searched and found a job during their previous employment spell; hence, for them, the decision whether to claim benefits was not relevant. We also excluded persons who returned to their previous employer within one year after job-loss. This is done to not include 'recalls' which are clearly employer-employee pairs which are gaming the system — and thus ultimately return to work is not the outcome of a job search process. Finally, we only consider employment spells which lasted at least one month as stable, and as exits from non-employment.

5 Results

5.1 Descriptive evidence on identifying assumptions

Our main identifying assumption in all our estimations is that there are no irregular patterns in the number of job endings and PSB take-up around the cutoff day April 1 2007 compared to the trends in last year. We illustrate these in Figure 6 and Figure 7. Figure 6

[19] We also ran models with a 2 year time window for the period of Apr 1 2006 – Apr 1 2008. An advantage of that strategy is that we get rid of seasonality issues. However, as we go further from the cutoff date there is a higher bias in our estimations.

shows the number of job endings in the months in our sample period. We can see that there are slightly more job endings in 2007 than in 2006, but the seasonal patterns are similar in the two years, and we cannot see any bunching before and in April, 2007 suggesting that job endings were not strategically timed to be able to get the PSB for longer time. Figure 7 shows the share of job endings where person takes up PSB. The seasonal pattern looks similar in the two periods with minor differences overall, but no major differences around the reform date.

Another key assumption is that job endings are similar just before and after the cutoff date. We show this in Table A2 for the year 2006 and in Table A3 for the year 2007 for the sample that we use in our difference in differences models, i.e. only PSB takers. One of our key variables is the share of people who already took up sickness benefit before the end of their job. We consider this as a proxy for being truly sick, and find only a small, and insignificant difference across the two periods. One might expect that after the policy change this share might be higher because the passive sickness benefit became less generous so the opportunistic use of the benefit decreased. However, we should bear in mind, that this could also just reflect a feature of the sickness insurance system in Hungary (see Section 3) that the first 15 days of sick-leave, or short-term sick leave days are calculated per calendar year. As a result, when someone is sick in the beginning of the year they first use the short-term sick days, and as time goes on more and more people start using long-term sick leave days.

It is important to emphasize that there is seasonality present in (a) the proportion of workers on (long-term) sick leave and particularly in (b) the short-term re-employment prospects of individuals who lost their jobs, hence the need for difference-in-difference type of estimations to identify the effect of the PSB policy change. For sick leave, we can observe that in our sample both the incidence and the number of days on sick leave are slightly higher in October-December of each year. In terms of incidence, it rises to roughly 1.8 percent of employees (from 1.5 percent); while for number of days spent on sick leave it rises to 0.3 days/month (from 0.25 days). For re-employment prospects, we are particularly interested in short-term outcomes, the proportion re-employed within 1.5 - 3 months, as we expect that after the policy change, individuals were compelled to look for a job following the expiration of their PSB, after around 45 days posterior to job-loss. Indeed, among those who do not take up PSB in our sample, there is a very marked difference in rates of early job finding: those who lost their jobs in April-August have a 5.5 percentage points higher probability of re-employment within 45 days, relative to a baseline of 16 percent (for November - March job endings); and a 3.7 percentage point difference in the probability of finding a job within 90 days (relative to a baseline of 27 percent).

5.2 Financial incentives to take up passive benefit

Our first objective is to evaluate to what extent the take-up of (passive) long-term sickness absence instead of (or prior to) UI benefits was driven by economic incentives. We do this using cross-sectional analysis for the 1-year period before the policy change, April 2007. Given that we can observe the employment (earnings) histories of persons in our sample, we can calculate their potential sickness benefit and the potential length of their sickness benefit (UI benefit) duration. These are the key variables in our empirical analysis, as we have argued in the previous section that the (relative) economic gains to claiming passive sickness absence are proportional to previous earnings and inversely proportional to previous employment histories. Those persons whose UI benefit would be capped had a particularly large motivation to claim sickness benefit instead; furthermore claiming sickness benefits ought to be most pronounced for those likely not eligible for UI benefits (those

with less than one year worked in the past four years).

$$y_i = \alpha_i + \tau_1 UINonEligible_i + \tau_2 UIAboveCap_i + Z_i\phi + X_i\delta + \varepsilon_i \quad (1)$$

In the equation above, the outcome y_i is the passive sickness benefit claim status for the person whose employment recently ended, which is calculated at one week after the job ending. Our key variables of interest are $UINonEligible_i$ and $UIAboveCap_i$, which represent those persons not eligible for UI benefits and those who are eligible for UI benefits, but who are above the UI benefit cap. These are the two groups who have the highest incentive to claim sickness benefits. We initially estimate this equation for job endings prior to the policy change. We also estimate a model of sickness benefit take-up where we explicitly include the difference between (potential) passive sickness and UI benefits as a key explanatory variable.[20]

The second and third columns of Table 2 show the results of the logit models only for job endings for before the policy change: our objective is to test our predictions about the incentives to take up PSB. In the first specification we use categorical variables characterising incentives and find that those who are eligible for UI benefits but are above the benefit cap are significantly more likely to take-up passive sickness benefits. By contrast, those who are not eligible for UI benefits (those with a short recent employment history) are less likely to take-up the benefits relative to those who are eligible for UI benefits, but for whom sickness benefits are not particularly advantageous, albeit this result is not significant. In the second specification, we directly included the difference between potential sickness and UI benefits, and found that the financial incentives influence PSB take-up decisions.

Much of the parameter estimates on the control variables are in line with our expectations. We can see that those with higher earnings and longer employment histories are more likely to claim passive sickness benefits.[21] Interestingly, those whose last job was in the public sector also manage to claim, which might be a sign that these persons are better informed about entitlements to different benefits. We also find that those with higher prior spending on medicine, those who had outpatient treatment or visited the GP were all more likely to claimed PSB. Similarly, those who were already on sickness benefit at the end of their job spell ended up much more frequently on passive sickness benefits[22], and all these results confirm that health status is the key determinant of PSB claiming.

5.3 The effect of the policy change on the take-up of passive benefits

Our second objective is to evaluate the effect of the shortening of the duration of passive sickness benefits on the take-up of the PSB. Hence, we compare individuals who lost their jobs and claimed passive sickness benefits before the policy change with those who experienced similar events after the policy change. In order to isolate the effect of the policy change, we take persons whose jobs ended in a 5 month (or 2.5 month) 'ball' around the 1st of April 2007, thus the before group is composed of workers displaced between 1st of Nov 2006 and (or 15th of January 2007) and 31st of March 2007; while the after group contains workers displaced between the 1st of April and 31st of August (or June 15th of 2007).

These estimates can be considered the causal effect of the potential benefit duration decrease on claiming behavior under two assumptions. First, that the employers did not

[20] We included prior earnings as well as the length of the prior employment spell in all specifications, as we showed above that these directly affect the incentive to claim PSB.

[21] In principle, those with higher prior earnings have a larger incentive to claim PSB, while those with longer employment histories have a higher incentive to claim UI benefits.

[22] Note that while the take-up rate of passive sickness benefits in this group is very high (around 36 percent), they represent slightly less than 20 percent of all passive sickness benefit recipients.

strategically fire their workers (or employees leave their jobs) in order to take advantage of the longer sickness benefit duration. Furthermore, that the composition of passive sickness benefit recipients (in terms of observable and unobservable characteristics) did not change -– we will provide some evidence on this is Section 5.1. Second, that there are no additional changes which might have affected claiming behavior (in absence of the policy change). While there were no major regulatory changes for social insurance benefits, we cannot exclude that there might be seasonal variation in the patterns of job endings. In order to control for such seasonal effects, we also include data from the same periods in 2006. Thus, we will use a difference-in-difference type analysis.

Thus, in order to take these predictions to the data, we use a logit models on displaced workers of the form:

$$\begin{aligned} y_i = \alpha_i + \beta_1 AprilAugust_i + \beta_2 ReformYear_i + \beta_3 AprilAugust_i ReformYear_i + \\ \tau_1 UINonEligible_i + \tau_2 UIAboveCap_i + \\ Z_i\phi + X_i\delta + \varepsilon_i \end{aligned} \tag{2}$$

In the equation above, the outcome y_i is the passive sickness benefit claim status for the person whose employment recently ended, which is calculated at one week after the job ending. The setting is similar to that of equation (1), but now we cover a different time window: the sample in these estimates include all job endings for the period between November 2005 - August 2006 and November 2006 - August 2007. We study the policy change in a difference-in-differences framework, where we use the period one year before the policy change to control for seasonal patterns. $AprilAugust_i$ variable is 1 for the April-August months, and is 0 for November-March. $Reformyear_i$ variable is 1 for observations between November 2006 and August 2007 and is 0 for job endings during November 2005 - March 2006. We examine whether the policy change had lead to a substantial change in sickness benefit claiming behaviour – thus the variable of interest is the interaction between $Reformyear_i$ and $AprilAugust_i$ with the coefficient β_3.

It includes two possible states: passive sickness benefits versus all other outcomes. We exclude all persons who moved to another firm within one week, since we suppose that they already searched and found a job during their previous employment spell; hence, for them, the decision whether to claim benefits was not relevant.[23]

Two sets of estimates are presented in Table 3. Column (1) and (2) show a version where a three-level categorization of the value of UIB and PSB is included in the model: a dummy for persons, who are not eligible for UI based on their employment history; a dummy for persons, whose potential PSB value is above the UI benefit maximum. We treat these groups as more likely to take-up passive sickness benefit even when their health status does not imply it. The baseline consists of cases in between. In column (3) and (4) we include the difference between potential daily PSB and UIB value (values above the 99th percentile are left out). We find no significant effects. Overall, these results imply that for the small group of individuals who are in a position to successfully obtain a doctor's certificate, the gains from taking up the PSB outweighed the costs of obtaining the certificate, even if it was for a shorter duration.

[23]We also excluded persons who returned to their previous employer within one year after job-loss. This is done to not include 'recalls' which are clearly employer-employee pairs which are gaming the system – and thus ultimately return to work is not the outcome of a job search process.

5.4 Take-up of unemployment benefit

Clearly, whether the PSB policy change can have an immediate effect on re-employment also depends on insured unemployment benefit eligibility, and the willingness to take up these benefits. If the large majority of PSB claimants go on to claim UI benefits after they have exhausted the PSB, employment effects will be delayed. Indeed, about 55 percent of PSB claimants go on to also claim UI benefits after the sickness benefits have been exhausted. We first provide descriptive evidence on UI benefit claiming, and its timing in Figure 8. We clearly see in panel (a) large spikes in the take-up of UI benefits immediately after the 90th day following job loss prior to the policy change, while this spike moved to the 46th day after job loss, a clear indication of the mechanical effect of the shortening of the PSB duration. Panel (b) is even more informative. First, we see that the time to claiming UI benefits after job loss has significantly shortened after the policy change. Second, the cumulative hazards also provide further evidence on seasonal patterns, as those losing their jobs in April-August go on to eventually claim UI benefits in a higher proportion than those whose employment spell ended in November- March.

We also estimated the effect of the policy change on UI benefit claims using proportional hazard models of the form:

$$h_i(t|x) = h_0(t)exp(X_i(t)'\beta) \tag{3}$$

With $h_i(t|x)$ we denote the hazard of making a transition towards a UI benefits following a PSB spell [24]. Thus we specify (similarly to Johansson and Palme (2005):

$$X_i(t)'\beta = \alpha_0 + \beta_1 AprilAugust_i + \beta_2 ReformYear_i + \beta_3 AprilAugust_i ReformYear_i + X_i\delta + \varepsilon_i \tag{4}$$

In a more complex specification, we are also interested in the timing of making a transition to UI benefits, thus we allow the hazard rate to change in the week following PSB exhaustion, on days 46-52 and 91-97 after job loss. Furthermore, of particular importance is whether the timing of these transitions changed due to the policy change. Thus, in this specification we have:

$$\begin{aligned} X_i(t)'\beta = \alpha_0 &+ \beta_1 AprilAugust_i + \beta_2 ReformYear_i + \beta_3 AprilAugust_i ReformYear_i + \\ &\gamma_1 Days46\_52_i + \gamma_2 Days91\_97_i + \\ &\gamma_3 Days46\_52_i \cdot AprilAugust_i + \gamma_4 Days91\_97_i \cdot AprilAugust_i + \\ &\gamma_5 Days46\_52_i \cdot ReformYear_i + \gamma_6 Days91\_97_i \cdot ReformYear_i + \\ &\gamma_7 Days46\_52_i \cdot After_i ReformYear_i + \gamma_8 Days91\_97_i \cdot After_i ReformYear_i + \\ &X_i\delta + \varepsilon_i \end{aligned} \tag{5}$$

We are mainly interested in the coefficients γ_7 and γ_8, that show how the difference-in-differences interaction term is different in the weeks after the maximum duration of PSB before and after the reform. Indeed, our results in Table 8 show several important results. First, that the policy change increased the hazard to claim unemployment insurance benefits following a PSB spell. Second, the hazard to claim UI in the days 46-52 after job loss shot up in the period following the policy change. Third, in all other periods, the hazard increased on days 91-97 after job loss, while after the policy change, this spike disappeared. All of these results are consistent with the descriptive evidence above, and will nuance our understanding of the effect of the policy change.

[24] Note that we censored all observations at one year following job-loss.

5.5 Non-employment

Our third objective is to evaluate the effect of the shortening of the duration of passive sickness benefits in the return to work. Hence, we compare individuals who lost their jobs and claimed passive sickness benefits before the policy change with those who experienced similar events after the policy change. In order to isolate the effect of the policy change, we take persons whose jobs ended in a 5 month 'ball' around the 1st of April 2007, thus the 'before' group is composed of workers displaced between 1st of November 2006 and 31st of March 2007; while the 'after' group contains workers displaced between the 1st of April and August 31st of 2007.[25] Clearly, our estimates will only identify the causal effect of the policy change under similar assumptions as above. The results of the previous section seem to support this, as there was no pronounced change due to the shortening of potential benefit duration in the number and composition of those who actually took up the passive sickness benefits. Furthermore, to take into account potential seasonal patterns, we also add persons from similar periods in 2006 (thus, we pursue a diff-in-diff type strategy).

First, to be able to estimate the effect of the policy change on return to work at different intervals of time following job-loss, we estimated logit models:

$$y_i = \alpha_0 + \beta_1 AprilAugust_i + \beta_2 ReformYear_i + \beta_3 AprilAugust_i ReformYear_i + X_i\delta + \varepsilon_i \quad (6)$$

This model was estimated at 45 day intervals, from 46th, to the 361st day following job-loss, where the dependent variable was equal to one if the person return to work by the time interval specified.

We also estimated proportional hazard models of the form:

$$h_i(t|x) = h_0(t)exp(X_i(t)'\beta) \quad (7)$$

With $h_i(t|x)$ we denote the hazard of making a transition towards a stable job – one that lasted at least one month[26]. Thus we specify:

$$X_i(t)'\beta = \alpha_0 + \beta_1 AprilAugust_i + \beta_2 ReformYear_i + \beta_3 AprilAugust_i ReformYear_i + X_i\delta + \varepsilon_i \quad (8)$$

Similarly to the case entry to unemployment insurance benefits above, we are also interested in whether there are spikes in re-employment for PSB claimants following the benefit exhaustion. Thus, we allow yet again for the hazard rate of exits to stable jobs to change in the days following PSB exhaustion, on days 46-52 and 91-97 after job loss. Furthermore, of particular importance is whether the timing of these transitions changed due to the policy change. We estimate the same model as in equation 5.

Before turning to the estimation results, we briefly show descriptive evidence in Figure 9 and Figure 10 displaying hazard and cumulative hazard of the exit to jobs for the four periods used in our difference in difference models. Hazard functions in Figure 9 are pretty noisy but we can see some spike after day 45 for the 5-month period after the reform shown in red. On panel (a) we show these hazards against the 5-month period before the reform, while on panel (b) we show with blue the hazards from the same months a year ago. In the top panel of 10, we can see a small difference between days 45-135 for the period after the policy change, as well as the fact that those losing their jobs between April-August tended to become re-employed quicker than those who lost their job between November-March.

[25] We also performed the estimations for a more restricted group, only persons whose jobs ended in 2.5 months 'ball' around the 1st of April 2007, and the results were qualitatively similar.

[26] Note that we censored all observations at one year following job-loss.

The bottom panel is of particular interest, where we show the same figure separately for PSB claimants who were not on sick leave at the end of their employment spell. This shows a more pronounced difference in 2007 (compared to 2006), with a more important increase in the hazard to a job immediately after the 45th day following job loss.

The first set of logit models in Table 4 includes employment outcomes at eight points in time for those who have taken up passive sickness benefits, and we use a full set of controls. We cannot find any detectable increase in re-employment probability up to 9 months after job loss as a result of the policy change, thus we cannot detect any significant and robust differences in our difference-in-difference setup. We do see a significant and positive difference at 271 and 316 days following job loss, which decreases and loses significance by the 361st day. One the one hand, it might be plausible that the effect kicks in only later, after individuals have exhausted the UI benefits.[27] On the other hand, in the Figure 9 above, one can notice that the hazard to jobs for the control group in 2007 slowed after 270 days, which we cannot see in 2006. Hence, it needs further investigation whether the difference estimated above can be attributed to the policy change.

In Table 6 we show the results of the hazard models. Overall, we cannot discern any overall positive effect of the policy change on job finding. We can also see that (a) that before the policy change, the hazard to jobs showed a small and significant increase in the week just after the exhaustion of the PSB; and (b) that there was a similar, albeit not significant increase in the exit to jobs on days 46-52 after the policy change.

5.6 Heterogeneity analysis

In this section, we are interested in heterogeneity of the job finding response with respect to being on sick leave at the end of the employment spells, as well as health status and our categorisation of PSB markup compared to UIB value.

Our most interesting result comes from estimating hazard models for those who were *not* on sick leave at the end of their employment spell, displayed in Table 7. On the one hand, we find no evidence that the policy change increased exit to jobs overall. On the other hand, we do find that in the period following the policy change, that exits to employment increased in the week following the exhaustion of PSB (which is estimated to be significant at the 10 percent level).

Next we report results from another heterogeneity analysis, where we split the sample based on our categorization of passive sickness benefit markup over unemployment benefit. We cannot find any significant impacts in this analysis, but it is true that the only positive estimates we see is for the 'High PS' group, who could gain particularly much with taking up PSB instead of UIB. These results are partially in line with our expectations: after the reform the group with a high potential passive sickness benefit amount, who we think are marginally more likely to fraudulently take-up PSB, find job with 6.6pp higher probability than compared to the year before and before April the same year.

6 Discussion and conclusions

We investigated the take-up of passive sickness benefit of displaced workers and the effect of its potential duration on the time spent in non-employment.

[27] It is worth remembering that the maximum duration of UI benefits was 270 days, however, the period with higher replacement rates last only a maximum of 91 days. Also notice that only around 40 percent of our sample had a continuous insurance period lasting at least 2 years, hence the majority were not eligible for a potential UI benefit duration of 270 days.

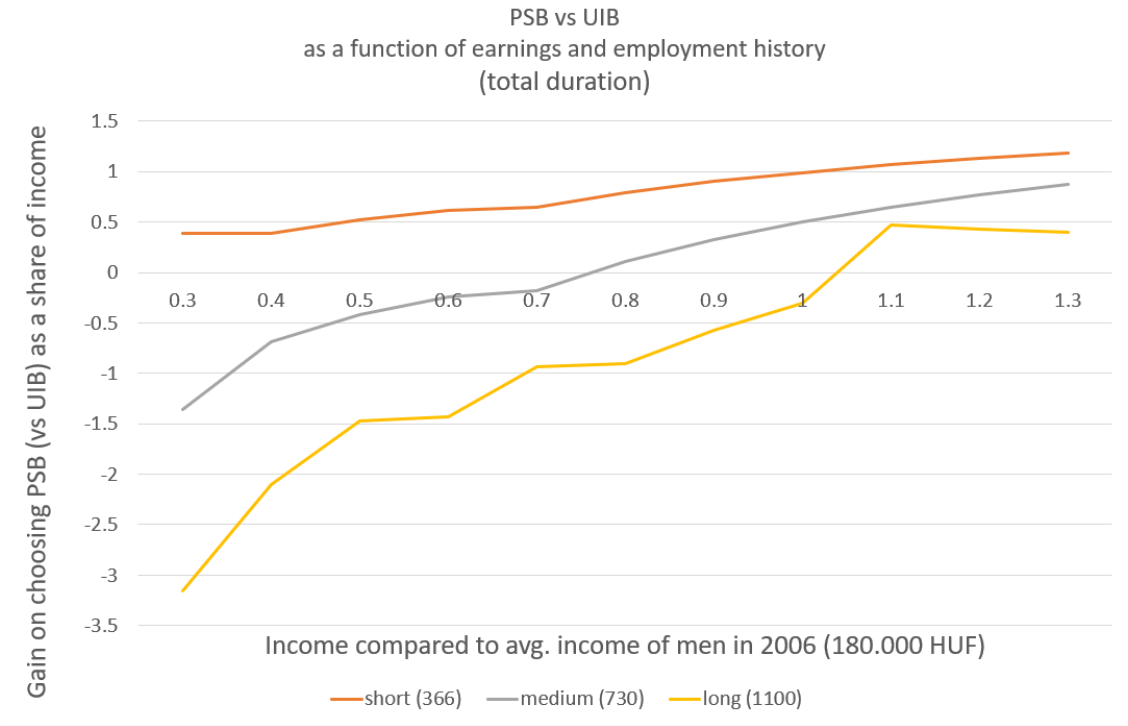
We found that those with higher earnings (who would be affected by the UI benefit cap, and hence had an incentive to claim PSB instead of UI benefits) have a higher propensity of claiming passive sickness benefits. By contrast, we did not find any evidence that those who were not eligible for UI benefits (and hence had a particularly high incentive) claimed sickness benefits. We used a host of proxies for health status, which all proved to be significant determinants of PSB claiming; however, we showed that claiming PSB in not at all limited to those who were on sick leave towards the end of their employment spell. We also found that the drastic shortening of the duration of passive sickness benefit did not lead to a decrease in claims, it coinncided with a 1.2% increase in the take-up, and did not affect the main drivers of claiming behavior.

The fact that there was no change in PSB claiming behavior enables us to estimate the effect of the change in the potential benefit duration on the length of non-employment. We found that cutting the benefit duration by 45 days to half of its original value did not speed up the outflow to stable employment in general. This could be due to several factors. First, that a significant portion of passive sickness benefit claimers do suffer from health issues, and might not have recovered to start searching for jobs earlier. Second, that for those who were eligible for UI benefits, the decrease in total potential benefit duration was only moderate, and that job search of the non-employed with respect to the benefit durations in Hungary is inelastic – as found in previous research. Indeed, a large proportion of PSB claimants go on the claim UI benefits, and this happens 'earlier' in the non-employment spell after the policy change.

When estimating our job finding logit model separately for groups by health status and by passive sickness benefit markup, we find significant positive effects for those who had zero health spending in the last calendar year (17%) and those whose potential PSB value is above the unemployment benefit cap (14%). However, these effects are concentrated around 45 to 90 days after the start of the non-employment spell. Similarly, we find a spike in the transition to employment in the week after the PSB exhaustion date for those who were not on sickness benefits at the end of their employment spell. Hence, they likely took up jobs immediately after the exhaustion of the PSB, but the shortening of the potential benefit duration had no other effect on their employment history. This might be indicative of the fact that these persons had relatively good labour market prospects, and were likely not prevented in taking up a job by their health condition. By the same token, these results might be indicative that a significant proportion of these same groups did not have a health condition which warranted a 90 days sickness benefit spell.

Figures and Tables

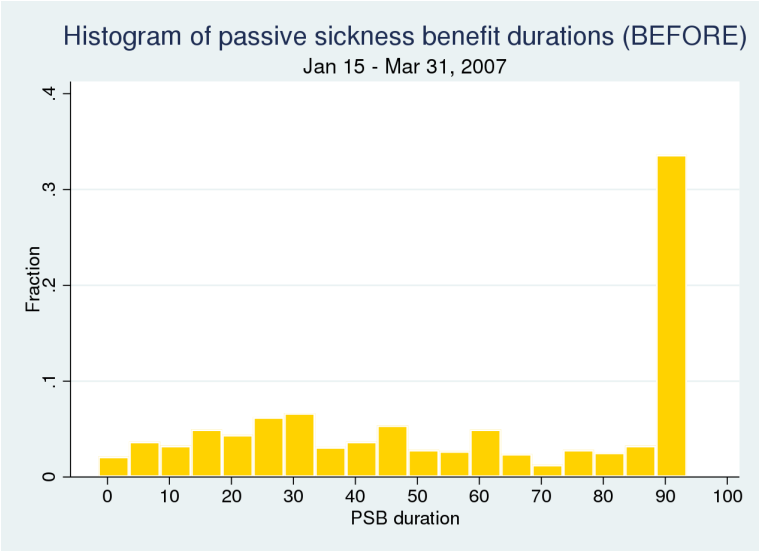
Figure 1: The relative value of passive sickness benefit compared to unemployment benefit for different wages and employment spell length for the total eligibility period before the policy change in April 2007



Note:

Figure 2: Distribution of passive sickness benefit spells 2.5 months before and after the policy change

(a) Before



(b) After

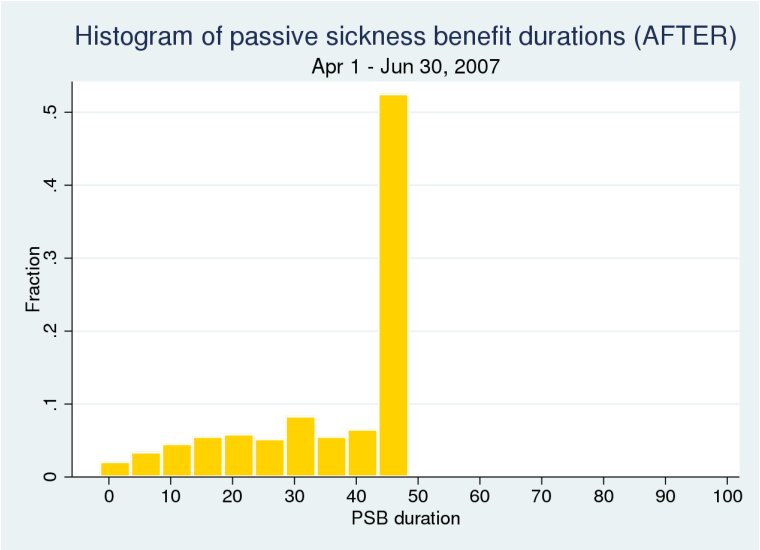
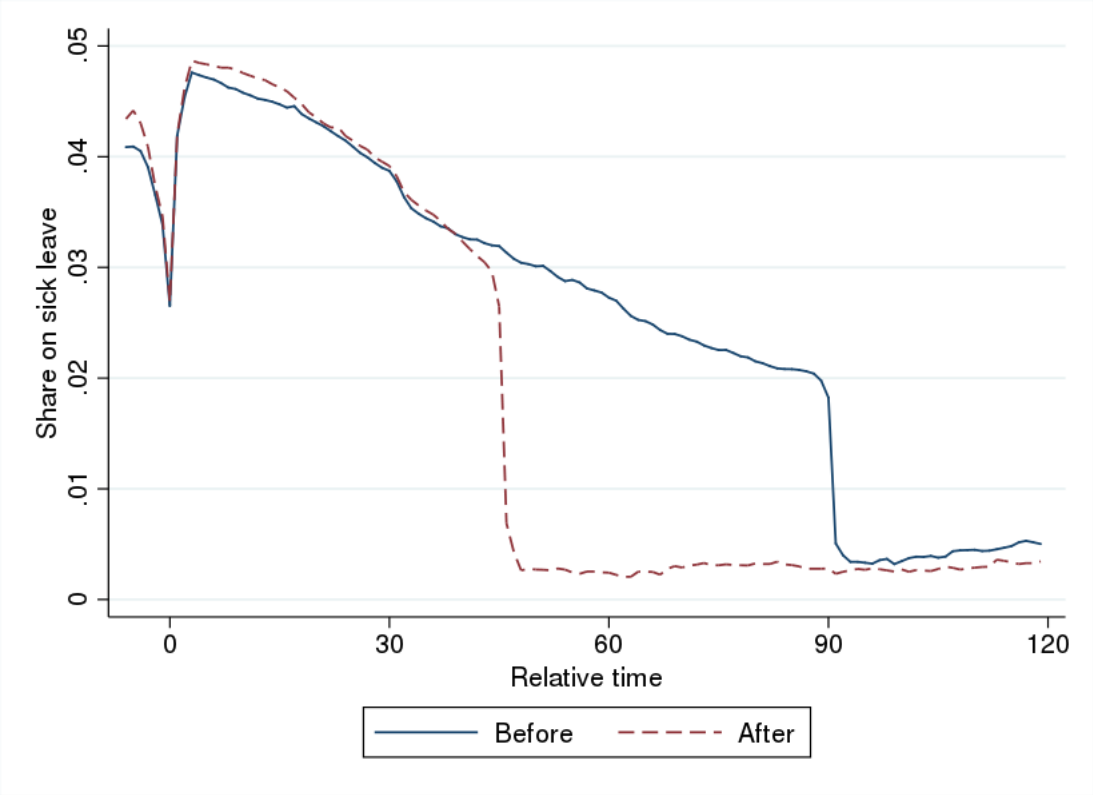


Figure 3: Share of people on sick-leave by relative time to job ending

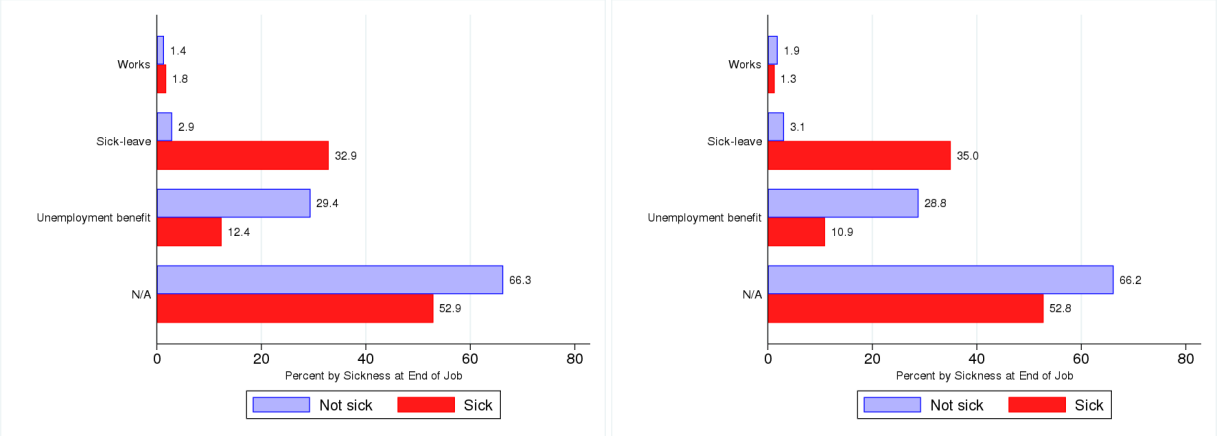


Note: The figure plots the share of people who are on sick-leave for up to 120 days of their job ending. The before period is the year before the reform April 1, 2006 – March 28, 2007 and the after period is the year following the reform (April 3, 2007 – March 31, 2008)

Figure 4: Transitions from Active to Passive Sick Leave, Unemployment Benefit or Inactivity

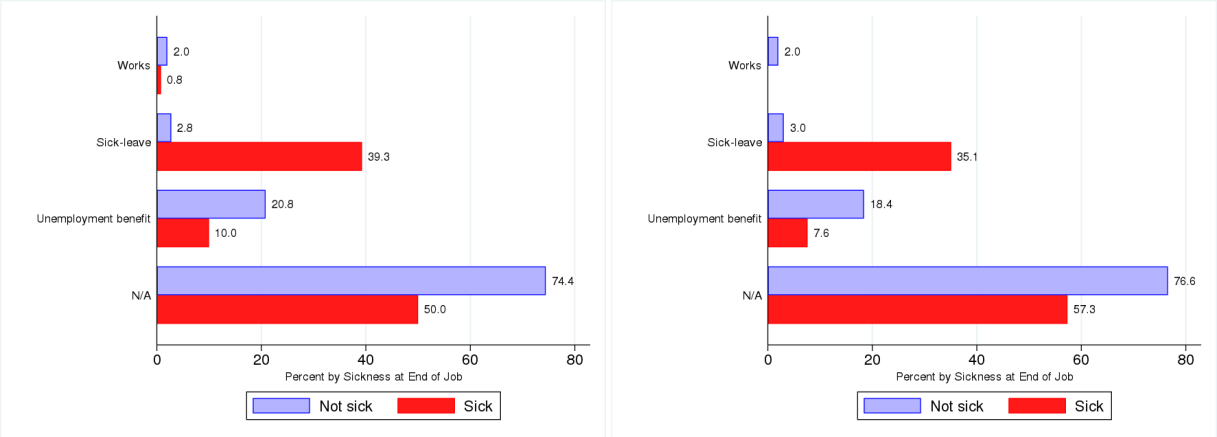
(a) November 2005 - April 2006

(b) November 2006 - April 2007



(c) April 2006 - August 2006

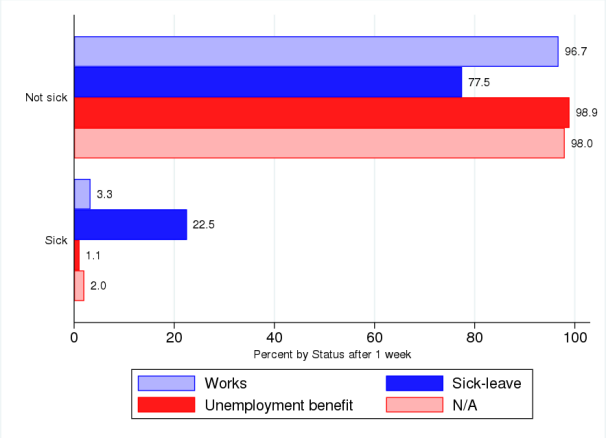
(d) April 2007 - August, 2007



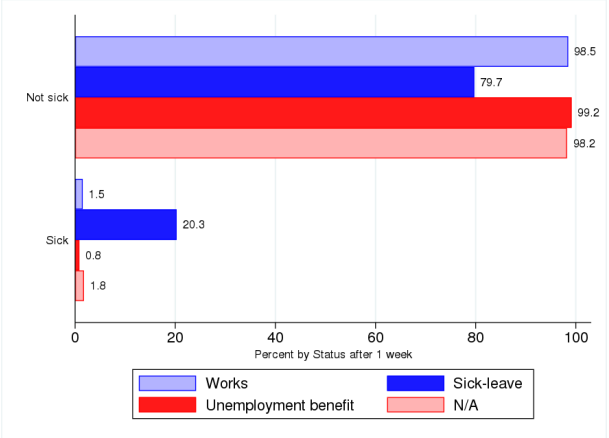
Note: The figures show the percentage of employees in four possible statuses 1 week after their job ending. The four statuses are working, sick leave, unemployment benefit or unknown (inactive). Percentages are shown separately for employees who were on sick leave and for those who were not on sick leave at the end of their employment spell. The four subfigures correspond to the four group in our difference-in-differences analysis, that are the 5-months-periods before/after 2006 or 2007 April 1. Sample is restricted for those who did not start a 30-day or longer employment spell within a week, who were eligible for 90 days of sick leave on the last day of their employment and did not return to the same employer on their first employment spell that lasted 30 days or longer.

Figure 5: Share of People on Sick Leave on Last Day of Employment by Their Status 1 Week After Job Ending

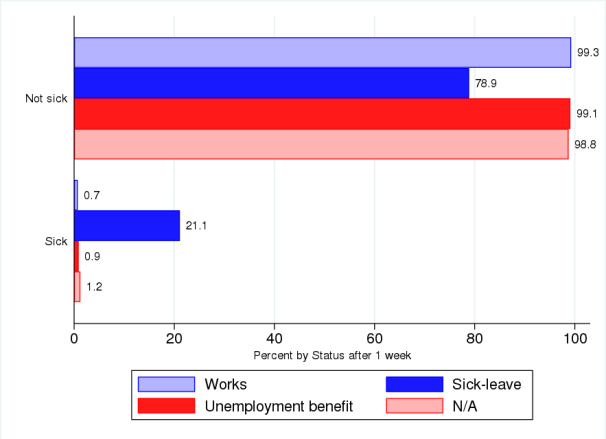
(a) 5 months before 2006 April 1



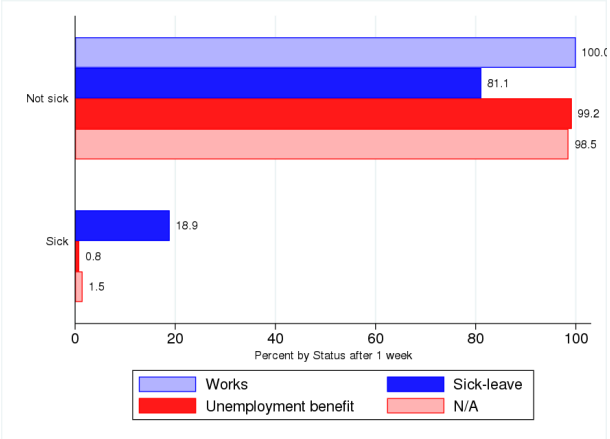
(b) 5 months before 2007 April 1



(c) 5 months after 2006 April 1



(d) 5 months after 2007 April 1



Note: The figures show the percentage of employees on sick leave on their last employment day by four possible statuses 1 week after their job ending. The four statuses are working, sick leave, unemployment benefit or unknown (inactive). Percentages are shown separately for employees who work, are on passive sick leave, are getting unemployment benefit or are inactive (N/A). The four subfigures correspond to the four group in our difference-in-differences analysis, that are the 5-months-periods before/after 2006 or 2007 April 1. Sample is restricted for those who did not start a 30-day or longer employment spell within a week, who were eligible for 90 days of sick leave on the last day of their employment and did not return to the same employer on their first employment spell that lasted 30 days or longer.

Figure 6: Number of job endings during a 1 year period around April 2007 and April 2006, monthly

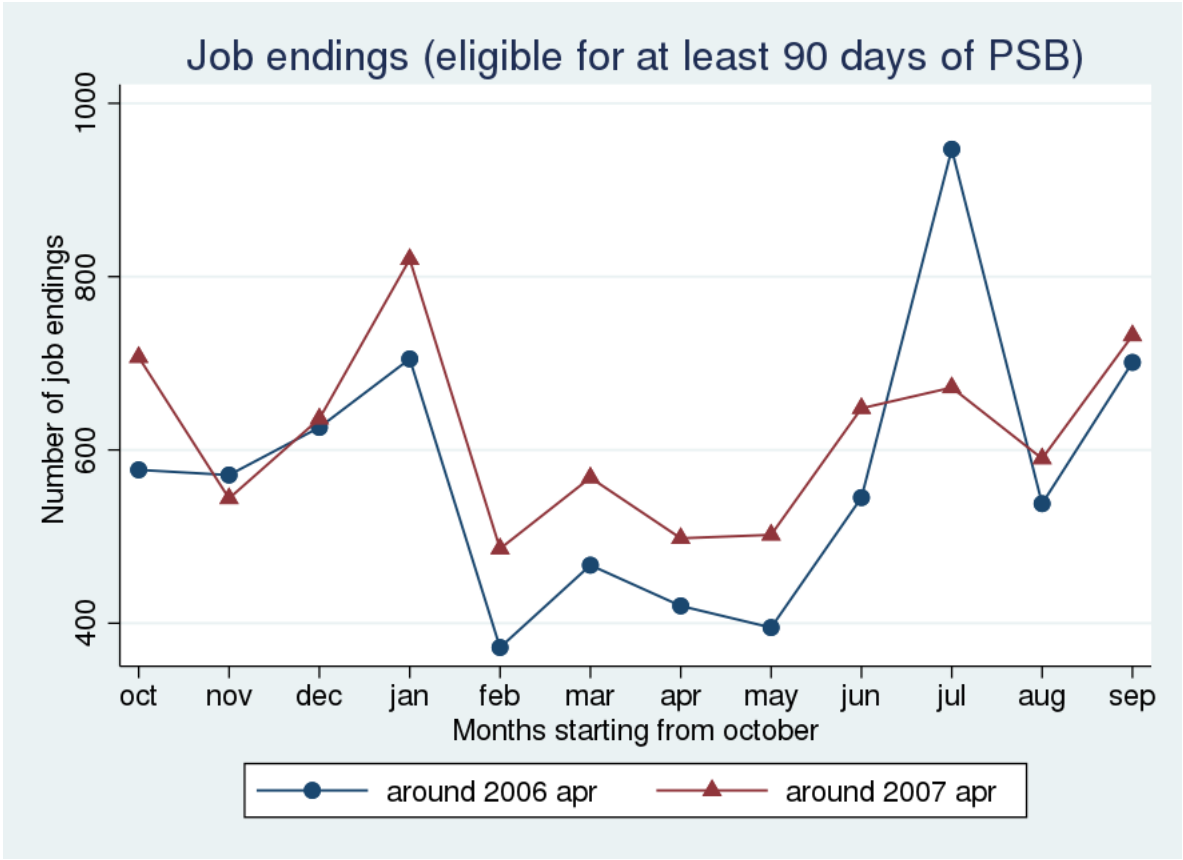


Figure 7: Share of job endings where they during a 1 year period around April 2007 and April 2006, monthly

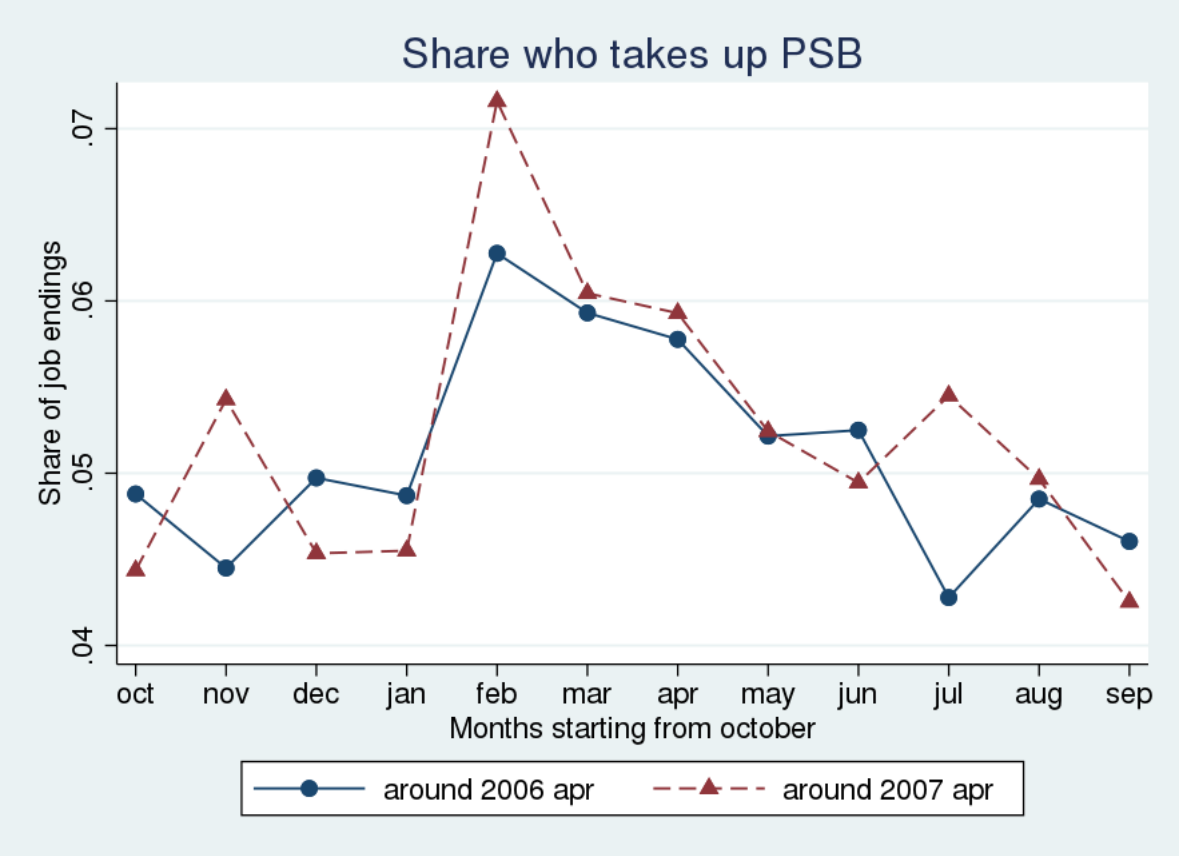
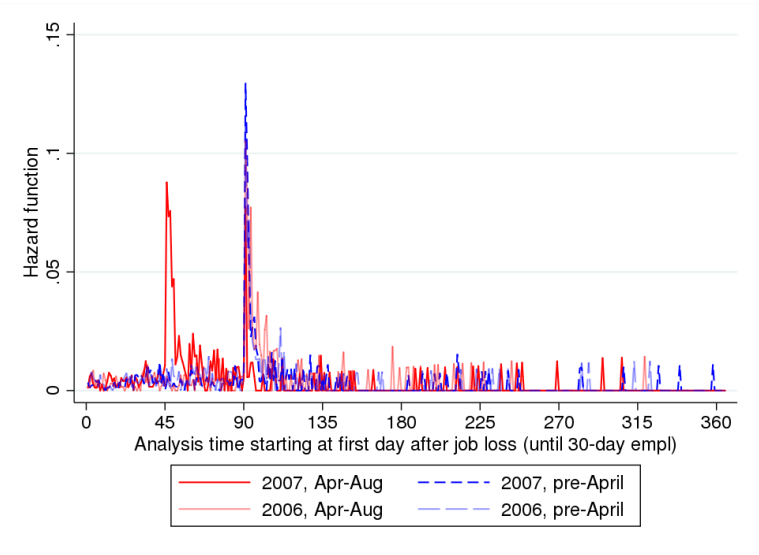
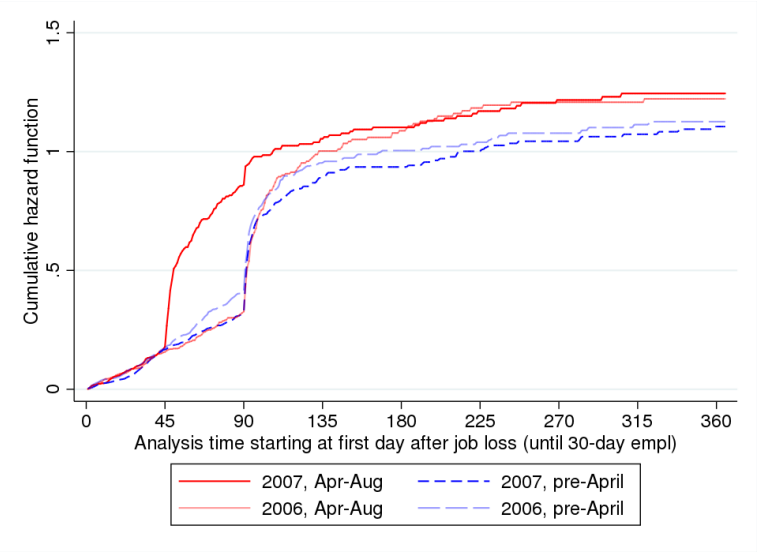


Figure 8: Take-up of unemployment benefit after passive sick-leave

(a) Hazard



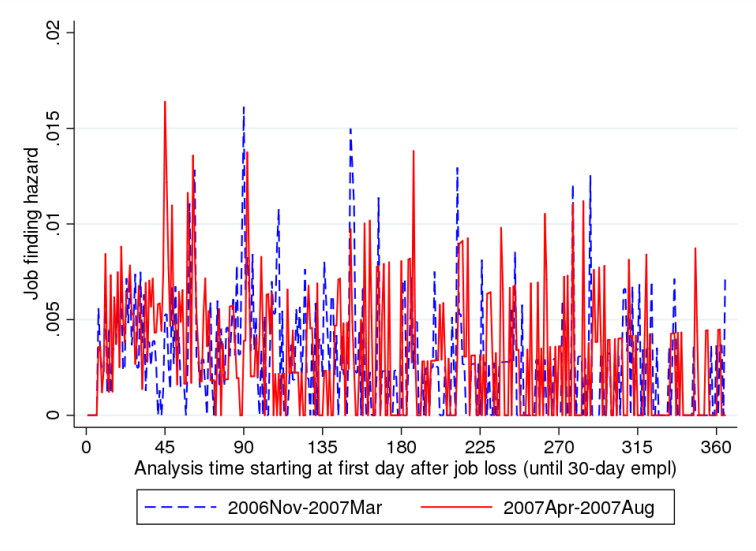
(b) Cumulative hazard



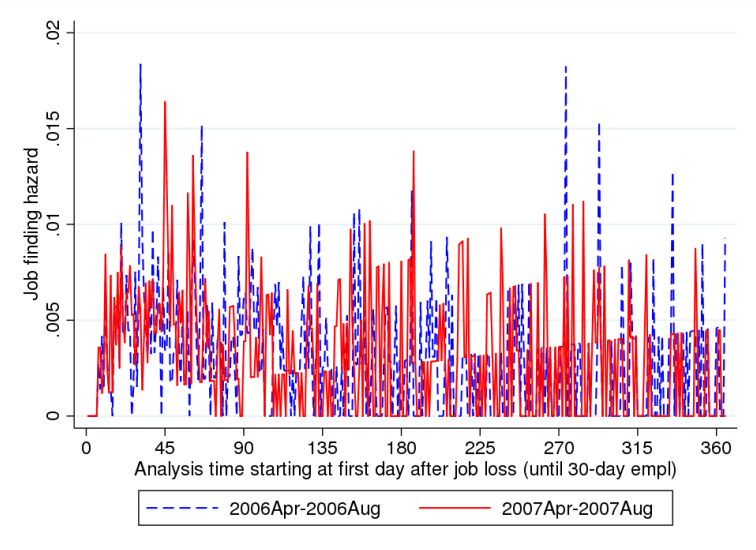
Note: Figures show the hazard and cumulative hazard of taking up unemployment insurance benefits after a job ending for the sample of people on passive sick leave. Those who return to the same employer are not included in the analysis. Analysis time is censored if someone starts a job that is at least 30 days long.

Figure 9: Job-finding hazards for people on passive sick-leave

(a) 2006 Nov - 2007 Marc vs. 2007 Apr - Aug



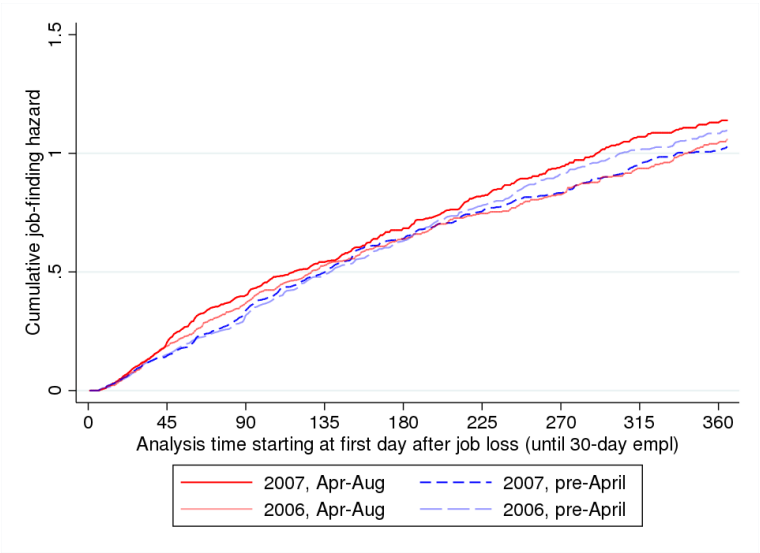
(b) April-August 2006 vs 2007



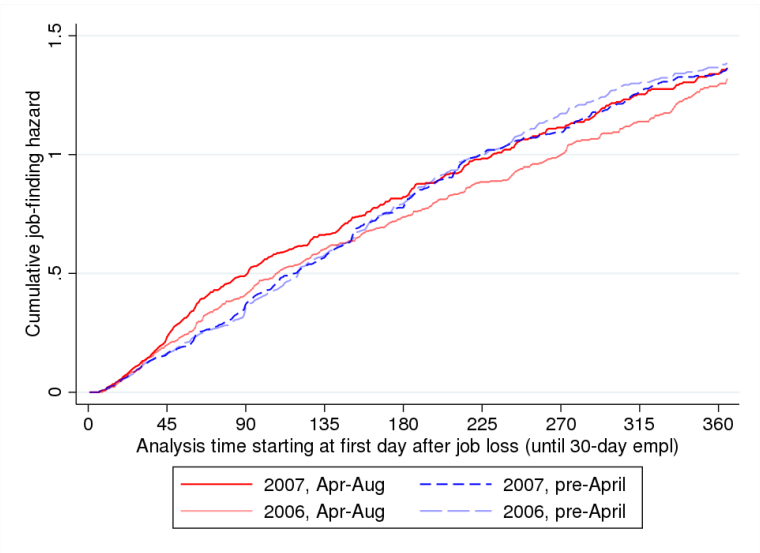
Note: Figures show the hazard of starting a new job that is at least 30 days long after a job ending for the sample of people on passive sick leave. Those who return to the same employer are not included in the analysis.

Figure 10: Job-finding cumulative hazards for people on passive sick-leave

(a) All people who go on passive sick-leave



(b) Not on sick-leave when job ends



Note: Figures show the hazard of starting a new job that is at least 30 days long after a job ending for the sample of people on passive sick leave. Those who return to the same employer are not included in the analysis.

Table 1: Summary of passive sickness benefit and unemployment benefit rules

	Passive sickness benefit	**Job search benefit**	**Tempted to take-up PSB**
Eligibility	Apply within 3 days of job ending	Involuntary job ending (or 90 days waiting period) Employed at least 365 days in past 4 years	Voluntary job end Too short employment
Maximum duration	max{ Number of days being continuously employed ; 90/45 days}	max{ (Number of days employed in past 4 years) / 5 ; 270 days}	
Possible duration range	1-90/45	73-270	
Replacement rate	70% if at least 2 years of continous employment, 60% otherwise	60% (for max. 36-90 days)	>2 years employment
Min. amount	minimum wage * replacement rate	60% of minimum wage based on start day	
Max. amount	No limit	2*60% of minimum wage based on start day	>2*minimum wage income

Table 2: What drives passive sickness benefit take-up decision? We present average marginal effects from a logit model explaining passive sickness benefit take-up within 1 year before April 2007

VARIABLES	(1) PSB take-up Cat.	(2) PSB take-up Cat.	(3) PSB take-up Cont.[2]	(4) PSB take-up Cont.[2]
Categorization of UIB vs PSB				
Categorization of UIB vs PSB = 1, no UIB	-0.00807***	-0.00150		
	(0.00279)	(0.00364)		
Categorization of UIB vs PSB = 2, UIB max < PSB	0.116***	0.0175***		
	(0.00970)	(0.00661)		
(daily PSB - UIB) for first 90 days, cut at 99th percentile (HUF 1000)			4.62e-05***	3.51e-05**
			(1.40e-05)	(1.53e-05)
Basic controls				
Age		3.67e-05		-0.000296
		(0.00142)		(0.00142)
Age squared		1.78e-05		2.16e-05
		(1.79e-05)		(1.79e-05)
Regional monthly unemployment rate		0.284***		0.265***
		(0.0668)		(0.0667)
Health controls				
No care, only outpatient, in- and outpatient care last year = 1, Outpatient care		0.00512		0.00516
		(0.00403)		(0.00404)
No care, only outpatient, in- and outpatient care last year = 2, In- and outpatient care		0.00154		0.000370
		(0.00611)		(0.00611)
Health data is missing = 1		0.000202		-0.000263
		(0.00401)		(0.00403)
Last. emp. day: was on sick benefit		0.464***		0.474***
		(0.0338)		(0.0336)
# of sick days in last calendar year		-8.82e-05		-9.12e-05
		(7.62e-05)		(7.66e-05)
Ln of Total spending on drugs (individual+SocSec) last year		0.000517		0.000630*
		(0.000380)		(0.000380)
Previous employment				
Last empl.: in public sector (public official, public servant) = 1		0.0144*		0.0148*
		(0.00797)		(0.00805)
Continuous insurance period at the end of job (in months)		0.000232*		0.000451***
		(0.000129)		(0.000123)
Ln of last daily income		0.0412***		0.0426***
		(0.00404)		(0.00400)
Last job: average wage at employer		0.0114***		0.0148***
		(0.00344)		(0.00332)
By employer: % of sick leave last year		0.00160***		0.00157***
		(0.000571)		(0.000569)
Observations	8,981	8,981	8,931	8,931

Note: Clustered - on individual level - standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Observations are weighted to correct for sample selection (all PSB takers, but only 20% sample of other job endings are in the sample). Average marginal effects reported in the table are the change in y for a unit change in x. This calculation is made on the observational level and then averaged, thus it shows the average marginal effect and not the marginal effect at the means of explanatory variables.

Table 3: Average marginal effects from diff-in-diff logit models explaining passive sickness benefit take-up

	(1) PSB take-up	(2) PSB take-up
April-Aug	-0.00248	-0.00278
	(0.00343)	(0.00346)
Reform year	-0.00180	-0.00785**
	(0.00329)	(0.00349)
April-Aug * Reform year	-0.000893	-0.00118
	(0.00475)	(0.00488)
Observations	14,252	14,252

Note: Clustered - on individual level - standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Observations are weighted to correct for sample selection (all PSB takers, but only 20% sample of other job endings are in the sample). Average marginal effects reported in the table are the change in y for a unit change in x. This calculation is made on the observational level and then averaged, thus it shows the average marginal effect and not the marginal effect at the means of explanatory variables. The sample in these estimates include job endings for the period 5 months before and after April 1, 2006 and 2007, where no employment spells started within a week of the job ending (except if it was just temporary employment, that you can do while receiving benefits), the person has at least 90 days of sickness benefit eligibility, i.e. is eligible for the maximum period of passive sickness benefit before the policy change and the following first employment spell does not happen at the same employer as the employer in the last job.

Table 4: Average marginal effects from a diff-in-diff logit models for PSB takers explaining whether the person found a job within 45, 90, 135, 180, 225, 270, 315 and 360 days.

	(1)	(2)	(3)	(4)
Finds job	in 45 days	in 90 days	in 135 days	in 180 days
April-Aug	0.0415**	0.0373	0.0318	0.00364
	(0.0187)	(0.0233)	(0.0246)	(0.0252)
Reform year	-0.00349	0.00675	0.00152	-0.00830
	(0.0188)	(0.0227)	(0.0239)	(0.0241)
April-Aug * Reform year	-0.00143	-0.00105	-0.0101	0.0131
	(0.0256)	(0.0319)	(0.0340)	(0.0347)
Observations	3,171	3,171	3,171	3,171

	(5)	(6)	(7)	(8)
Finds job	in 225 days	in 270 days	in 315 days	in 360 days
April-Aug	-0.0167	-0.0419*	-0.0301	-0.0186
	(0.0251)	(0.0249)	(0.0245)	(0.0243)
Reform year	-0.0252	-0.0447*	-0.0377	-0.0385*
	(0.0240)	(0.0238)	(0.0235)	(0.0232)
April-Aug * Reform year	0.0408	0.0747**	0.0564*	0.0407
	(0.0345)	(0.0342)	(0.0337)	(0.0334)
Observations	3,171	3,171	3,171	3,171

Clustered - on individual level - standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Note: Estimated on the sample of people who take up PSB after their job ends. Reform year is 1 for observations that are within 5 months before and after April 1, 2007, and is 0 for observations that are within 5 months before and after April 1, 2006. April-Aug is 1 for months April-August and 0 for the preceding months November-March. Average marginal effects reported in the table are the change in y for a unit change in x. This calculation is made on the observational level and then averaged, thus it shows the average marginal effect and not the marginal effect at the means of explanatory variables. The sample in these estimates include job endings for the period 5 months before and after April 1, 2006 and 2007, where no employment spells started within a week of the job ending (except if it was just temporary employment, that you can do while receiving benefits), the person has at least 90 days of sickness benefit eligibility, i.e. is eligible for the maximum period of passive sickness benefit before the policy change and the following first employment spell does not happen at the same employer as the employer in the last job.

Table 5: Average marginal effects from a diff-in-diff logit model for PSB takers explaining whether the person found a job within 45, 90, 135 and 180 days. Heterogeneity based on PSB markup over UIB

VARIABLES	(1) 5 m No UI	(2) 5 m No UI	(3) 5 m High PS	(4) 5 m High PS	(5) 5 m Baseline	(6) 5 m Baseline
	finds job in 45 days	finds job in 45 days	finds job in 45 days	finds job in 45 days	finds job in 45 days	finds job in 45 days
April-Aug	0.0347	0.0335	-0.0317	-0.0117	0.00959	0.0185
	(0.0236)	(0.0251)	(0.0411)	(0.0444)	(0.0229)	(0.0238)
Reform year	0.0293	0.0310	-0.0415	-0.0437	-0.0215	-0.0210
	(0.0227)	(0.0241)	(0.0387)	(0.0424)	(0.0245)	(0.0256)
April-Aug * Reform year	-0.0278	-0.0350	0.0781	0.0666	0.0380	0.0235
	(0.0315)	(0.0329)	(0.0543)	(0.0581)	(0.0325)	(0.0334)
	finds job in 90 days	finds job in 90 days	finds job in 90 days	finds job in 90 days	finds job in 90 days	finds job in 90 days
April-Aug	0.0544*	0.0501	-0.0246	0.00585	0.0190	0.0140
	(0.0322)	(0.0327)	(0.0519)	(0.0549)	(0.0300)	(0.0309)
Reform year	0.0619**	0.0530*	2.75e-05	-0.00571	-0.00476	-0.00719
	(0.0301)	(0.0311)	(0.0479)	(0.0510)	(0.0305)	(0.0313)
April-Aug * Reform year	-0.0441	-0.0500	0.0625	0.0389	-0.00256	-0.0123
	(0.0430)	(0.0433)	(0.0675)	(0.0705)	(0.0422)	(0.0430)
	finds job in 135 days	finds job in 135 days	finds job in 135 days	finds job in 135 days	finds job in 135 days	finds job in 135 days
April-Aug	-0.0105	-0.0231	-0.0151	0.0180	0.0166	0.00403
	(0.0358)	(0.0367)	(0.0541)	(0.0554)	(0.0327)	(0.0336)
Reform year	0.0262	0.0131	0.00106	-0.00468	0.000615	-0.00164
	(0.0323)	(0.0331)	(0.0507)	(0.0524)	(0.0328)	(0.0340)
April-Aug * Reform year	0.000360	-0.000240	0.0262	0.00195	-0.0187	-0.0254
	(0.0494)	(0.0499)	(0.0709)	(0.0726)	(0.0458)	(0.0469)
	finds job in 180 days	finds job in 180 days	finds job in 180 days	finds job in 180 days	finds job in 180 days	finds job in 180 days
April-Aug	0.00396	-0.00811	-0.0492	-0.0211	0.00556	-0.0170
	(0.0382)	(0.0386)	(0.0545)	(0.0550)	(0.0348)	(0.0354)
Reform year	0.0440	0.0339	-0.0240	-0.0356	0.0115	0.00354
	(0.0348)	(0.0350)	(0.0512)	(0.0523)	(0.0344)	(0.0356)
April-Aug * Reform year	-0.0225	-0.0291	0.0663	0.0567	-0.0259	-0.0278
	(0.0528)	(0.0529)	(0.0718)	(0.0726)	(0.0484)	(0.0493)
Controls		Yes		Yes		Yes
Observations	1,126	1,078	783	741	1,434	1,352

Clustered - on individual level - standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Note: see notes for Table 4

Table 6: Hazard estimations about job-finding for people on passive sick-leave after their job ending

	Job hazard	Job hazard	Job hazard	Job hazard	Job hazard	Job hazard
April-Aug	0.989	0.954	0.983	0.947	0.947	0.947
	(0.065)	(0.064)	(0.068)	(0.066)	(0.066)	(0.066)
	[0.865]	[0.485]	[0.799]	[0.438]	[0.439]	[0.436]
Reform year	0.962	0.929	0.953	0.921	0.920	0.921
	(0.060)	(0.059)	(0.062)	(0.061)	(0.061)	(0.061)
	[0.533]	[0.248]	[0.467]	[0.219]	[0.213]	[0.213]
April-Aug * Reform year	1.133	1.136	1.130	1.132	1.134	1.134
	(0.104)	(0.105)	(0.108)	(0.109)	(0.110)	(0.110)
	[0.171]	[0.169]	[0.202]	[0.200]	[0.195]	[0.195]
April-Aug * Days 46-52			1.078	1.085	1.085	1.085
			(0.372)	(0.375)	(0.375)	(0.375)
			[0.827]	[0.814]	[0.814]	[0.814]
April-Aug * Days 91-97			1.095	1.116	1.116	1.116
			(0.370)	(0.378)	(0.378)	(0.378)
			[0.788]	[0.746]	[0.746]	[0.745]
Reform year * Days 46-52			1.003	0.994	0.995	0.995
			(0.333)	(0.330)	(0.331)	(0.331)
			[0.992]	[0.986]	[0.989]	[0.987]
Reform year * Days 91-97			1.208	1.206	1.207	1.207
			(0.377)	(0.377)	(0.378)	(0.377)
			[0.545]	[0.550]	[0.548]	[0.548]
April-Aug * Reform year * Days 46-52			1.452	1.460	1.458	1.459
			(0.663)	(0.667)	(0.666)	(0.667)
			[0.414]	[0.407]	[0.409]	[0.408]
April-Aug * Reform year * Days 91-97			0.702	0.706	0.705	0.705
			(0.326)	(0.328)	(0.327)	(0.327)
			[0.445]	[0.453]	[0.451]	[0.451]
Days 46-52			1.109	1.113	1.033	1.026
			(0.267)	(0.268)	(0.274)	(0.265)
			[0.668]	[0.657]	[0.902]	[0.922]
Days 91-97			1.486*	1.477*	1.918**	1.385*
			(0.351)	(0.350)	(0.538)	(0.334)
			[0.093]	[0.099]	[0.020]	[0.176]
Obs	599325	599325	599325	599325	599325	599325
Controls	No	Yes	No	Yes	Yes	Yes
Baseline hazard	Quadratic	Quadratic	Quadratic	Quadratic	Piecewise constant	Spline

Note: Estimated on the sample of people who take up PSB after their job ends. Odds ratios are shown. Clustered - on individual level - standard errors are in parentheses. P-values are in brackets. *** p<0.01, ** p<0.05, * p<0.1. Reform year is 1 for observations that are within 5 months before and after April 1, 2007, and is 0 for observations that are within 5 months before and after April 1, 2006. April-Aug is 1 for months April-August and 0 for the preceding months November-March. The sample in these estimates include job endings for the period 5 months before and after April 1, 2006 and 2007, where no employment spells started within a week of the job ending (except if it was just temporary employment, that you can do while receiving benefits), the person has at least 90 days of sickness benefit eligibility, i.e. is eligible for the maximum period of passive sickness benefit before the policy change and the following first employment spell does not happen at the same employer as the employer in the last job.

Table 7: Hazard estimations about job-finding for people on passive sick-leave after their job ending – sub-sample of those who had not been on active sick-leave at the time of job ending

	Job hazard	Job hazard	Job hazard	Job hazard	Job hazard	Job hazard
April-Aug	0.961	0.954	0.954	0.947	0.947	0.947
	(0.070)	(0.070)	(0.072)	(0.072)	(0.072)	(0.072)
	[0.580]	[0.517]	[0.535]	[0.472]	[0.478]	[0.474]
Reform year	0.991	0.969	0.988	0.965	0.964	0.964
	(0.067)	(0.067)	(0.070)	(0.069)	(0.069)	(0.069)
	[0.897]	[0.649]	[0.861]	[0.625]	[0.612]	[0.613]
April-Aug * Reform year	1.117	1.102	1.099	1.084	1.086	1.086
	(0.111)	(0.110)	(0.114)	(0.113)	(0.113)	(0.113)
	[0.264]	[0.331]	[0.361]	[0.437]	[0.430]	[0.428]
April-Aug * Days 46-52			0.943	0.945	0.945	0.945
			(0.359)	(0.360)	(0.360)	(0.360)
			[0.878]	[0.883]	[0.881]	[0.882]
April-Aug * Days 91-97			1.251	1.269	1.268	1.269
			(0.462)	(0.469)	(0.470)	(0.469)
			[0.544]	[0.519]	[0.521]	[0.520]
Reform year * Days 46-52			0.739	0.737	0.738	0.738
			(0.276)	(0.275)	(0.275)	(0.275)
			[0.417]	[0.414]	[0.416]	[0.415]
Reform year * Days 91-97			1.372	1.378	1.380	1.379
			(0.464)	(0.466)	(0.467)	(0.467)
			[0.349]	[0.343]	[0.342]	[0.342]
April-Aug * Reform year * Days 46-52			2.449*	2.448*	2.444*	2.445*
			(1.242)	(1.242)	(1.241)	(1.242)
			[0.077]	[0.078]	[0.078]	[0.078]
April-Aug * Reform year * Days 91-97			0.576	0.573	0.572	0.572
			(0.288)	(0.287)	(0.287)	(0.287)
			[0.270]	[0.267]	[0.266]	[0.266]
Days 46-52			1.129	1.132	1.009	1.001
			(0.288)	(0.289)	(0.283)	(0.274)
			[0.635]	[0.628]	[0.974]	[0.997]
Days 91-97			1.375	1.365	1.943**	1.298
			(0.365)	(0.363)	(0.614)	(0.351)
			[0.230]	[0.242]	[0.036]	[0.335]
Obs	456630	456630	456630	456630	456630	456630
Controls	No	Yes	No	Yes	Yes	Yes
Baseline hazard	Quadratic	Quadratic	Quadratic	Quadratic	Piecewise constant	Spline

Note: Estimated on the sample of people who take up PSB after their job ends, but were not on active sick-leave at the time of job ending. Odds ratios are shown. Clustered - on individual level - standard errors are in parentheses. P-values are in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Reform year is 1 for observations that are within 5 months before and after April 1, 2007, and is 0 for observations that are within 5 months before and after April 1, 2006. April-Aug is 1 for months April-August and 0 for the preceding months November-March. The sample in these estimates include job endings for the period 5 months before and after April 1, 2006 and 2007, where no employment spells started within a week of the job ending (except if it was just temporary employment, that you can do while receiving benefits), the person has at least 90 days of sickness benefit eligibility, i.e. is eligible for the maximum period of passive sickness benefit before the policy change and the following first employment spell does not happen at the same employer as the employer in the last job.

Table 8: Hazard estimations about taking up unemployment benefit for people on passive sick-leave after their job ending

	UI hazard	UI hazard	UI hazard	UI hazard	UI hazard	UI hazard
April-Aug	0.999	0.949	1.017	0.966	0.964	0.964
	(0.074)	(0.070)	(0.092)	(0.088)	(0.088)	(0.088)
	[0.993]	[0.476]	[0.851]	[0.702]	[0.686]	[0.687]
Reform year	0.915	0.861**	0.858*	0.807**	0.806**	0.807**
	(0.066)	(0.063)	(0.077)	(0.073)	(0.073)	(0.073)
	[0.218]	[0.040]	[0.087]	[0.018]	[0.018]	[0.018]
April-Aug * Reform year	1.506***	1.568***	1.219	1.258*	1.294**	1.286*
	(0.158)	(0.164)	(0.158)	(0.163)	(0.169)	(0.168)
	[0.000]	[0.000]	[0.126]	[0.076]	[0.048]	[0.054]
April-Aug * Days 46-52			0.356**	0.355**	0.356**	0.356**
			(0.160)	(0.159)	(0.159)	(0.160)
			[0.021]	[0.021]	[0.021]	[0.021]
April-Aug * Days 91-97			1.033	1.037	1.039	1.039
			(0.190)	(0.192)	(0.192)	(0.192)
			[0.859]	[0.844]	[0.837]	[0.836]
Reform year * Days 46-52			0.659	0.660	0.660	0.660
			(0.236)	(0.236)	(0.236)	(0.236)
			[0.244]	[0.246]	[0.246]	[0.246]
Reform year * Days 91-97			1.341*	1.353*	1.353*	1.353*
			(0.231)	(0.234)	(0.234)	(0.235)
			[0.088]	[0.081]	[0.080]	[0.081]
April-Aug * Reform year * Days 46-52			39.685***	39.970***	38.816***	38.963***
			(21.339)	(21.506)	(20.877)	(20.956)
			[0.000]	[0.000]	[0.000]	[0.000]
April-Aug * Reform year * Days 91-97			0.237***	0.245***	0.238***	0.240***
			(0.075)	(0.078)	(0.076)	(0.076)
			[0.000]	[0.000]	[0.000]	[0.000]
Days 46-52			1.303	1.293	1.120	0.995
			(0.299)	(0.297)	(0.283)	(0.239)
			[0.248]	[0.262]	[0.654]	[0.985]
Days 91-97			11.811***	11.764***	5.247***	8.367***
			(1.599)	(1.598)	(0.938)	(1.297)
			[0.000]	[0.000]	[0.000]	[0.000]
Obs	317391	317391	317391	317391	317391	317391
Controls	No	Yes	No	Yes	Yes	Yes
Baseline hazard	Quadratic	Quadratic	Quadratic	Quadratic	Piecewise constant	Spline

Note: Estimated on the sample of people who take up PSB after their job ends. Odds ratios are shown. Clustered - on individual level - standard errors are in parentheses. P-values are in brackets. *** p<0.01, ** p<0.05, * p<0.1. Reform year is 1 for observations that are within 5 months before and after April 1, 2007, and is 0 for observations that are within 5 months before and after April 1, 2006. April-Aug is 1 for months April-August and 0 for the preceding months November-March. The sample in these estimates include job endings for the period 5 months before and after April 1, 2006 and 2007, where no employment spells started within a week of the job ending (except if it was just temporary employment, that you can do while receiving benefits), the person has at least 90 days of sickness benefit eligibility, i.e. is eligible for the maximum period of passive sickness benefit before the policy change and the following first employment spell does not happen at the same employer as the employer in the last job.

Table 9: Hazard estimations about taking up unemployment benefit for people on passive sick-leave after their job ending – sub-sample of those who had not been on active sick-leave at the time of job ending

	UI hazard	UI hazard	UI hazard	UI hazard	UI hazard	UI hazard
April-Aug	0.986	0.937	0.992	0.943	0.947	0.945
	(0.081)	(0.077)	(0.102)	(0.097)	(0.098)	(0.097)
	[0.859]	[0.428]	[0.935]	[0.571]	[0.599]	[0.586]
Reform year	0.880	0.828**	0.864	0.810**	0.812**	0.812**
	(0.070)	(0.067)	(0.086)	(0.082)	(0.082)	(0.082)
	[0.105]	[0.019]	[0.139]	[0.037]	[0.040]	[0.040]
April-Aug * Reform year	1.551***	1.606***	1.202	1.234	1.273	1.263
	(0.183)	(0.188)	(0.175)	(0.181)	(0.188)	(0.186)
	[0.000]	[0.000]	[0.206]	[0.150]	[0.102]	[0.113]
April-Aug * Days 46-52			0.512	0.508	0.506	0.507
			(0.242)	(0.240)	(0.239)	(0.240)
			[0.156]	[0.152]	[0.149]	[0.151]
April-Aug * Days 91-97			1.051	1.050	1.046	1.049
			(0.213)	(0.214)	(0.214)	(0.214)
			[0.805]	[0.810]	[0.824]	[0.816]
Reform year * Days 46-52			0.762	0.761	0.759	0.760
			(0.306)	(0.306)	(0.305)	(0.305)
			[0.499]	[0.497]	[0.493]	[0.494]
Reform year * Days 91-97			1.122	1.139	1.137	1.137
			(0.216)	(0.221)	(0.220)	(0.220)
			[0.550]	[0.500]	[0.509]	[0.507]
April-Aug * Reform year * Days 46-52			29.075***	29.596***	28.661***	28.801***
			(16.628)	(16.935)	(16.390)	(16.471)
			[0.000]	[0.000]	[0.000]	[0.000]
April-Aug * Reform year * Days 91-97			0.214***	0.221***	0.215***	0.217***
			(0.080)	(0.083)	(0.080)	(0.081)
			[0.000]	[0.000]	[0.000]	[0.000]
Days 46-52			1.172	1.163	0.936	0.860
			(0.317)	(0.315)	(0.274)	(0.241)
			[0.557]	[0.576]	[0.821]	[0.591]
Days 91-97			13.385***	13.376***	5.819***	9.613***
			(1.998)	(2.005)	(1.160)	(1.672)
			[0.000]	[0.000]	[0.000]	[0.000]
Obs	237142	237142	237142	237142	237142	237142
Controls	No	Yes	No	Yes	Yes	Yes
Baseline hazard	Quadratic	Quadratic	Quadratic	Quadratic	Piecewise constant	Spline

Note: Estimated on the sample of people who take up PSB after their job ends, but were not on active sick-leave at the time of job ending. Odds ratios are shown. Clustered - on individual level - standard errors are in parentheses. P-values are in brackets. *** p<0.01, ** p<0.05, * p<0.1. Reform year is 1 for observations that are within 5 months before and after April 1, 2007, and is 0 for observations that are within 5 months before and after April 1, 2006. April-Aug is 1 for months April-August and 0 for the preceding months November-March. The sample in these estimates include job endings for the period 5 months before and after April 1, 2006 and 2007, where no employment spells started within a week of the job ending (except if it was just temporary employment, that you can do while receiving benefits), the person has at least 90 days of sickness benefit eligibility, i.e. is eligible for the maximum period of passive sickness benefit before the policy change and the following first employment spell does not happen at the same employer as the employer in the last job.

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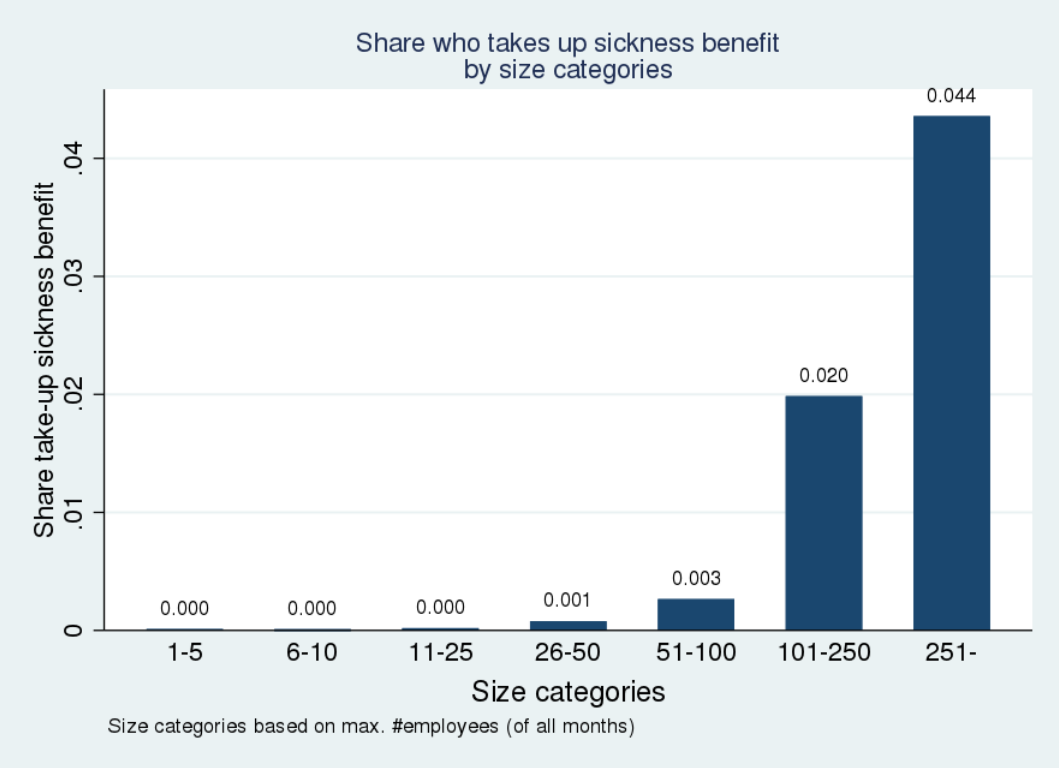
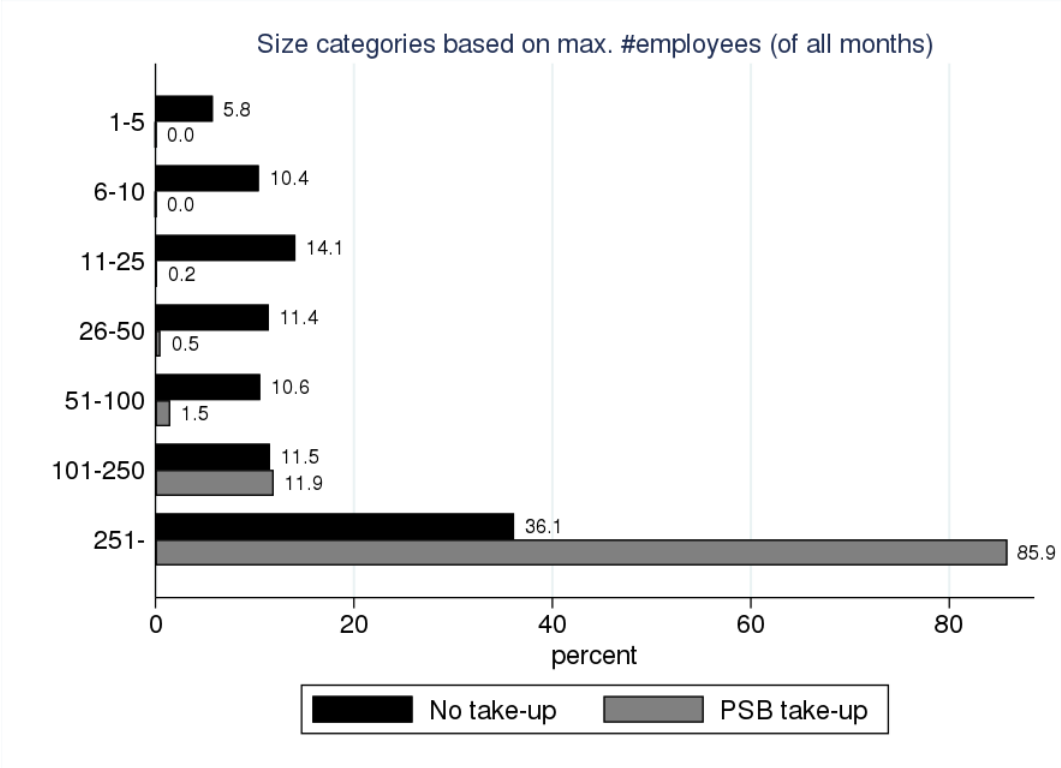
Appendix

Figures

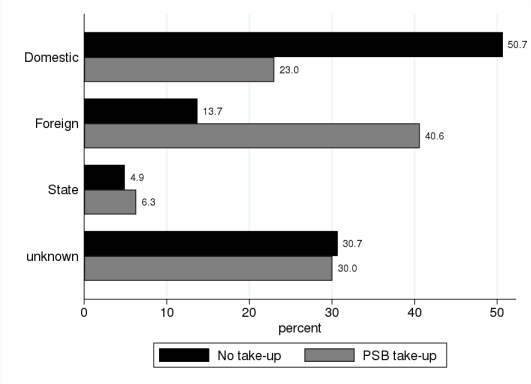
Appendix Figure A1: Share who takes up sickness benefit by previous employer size category



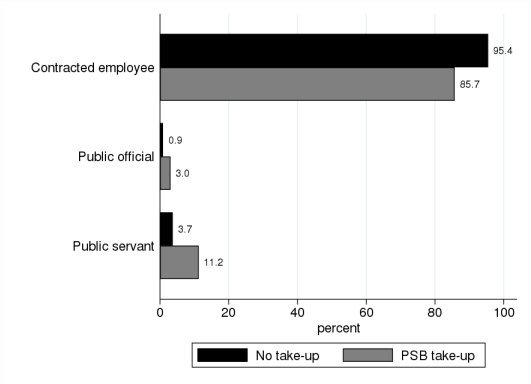
Appendix Figure A2: Distribution of size of previous employer by sickness benefit take-up



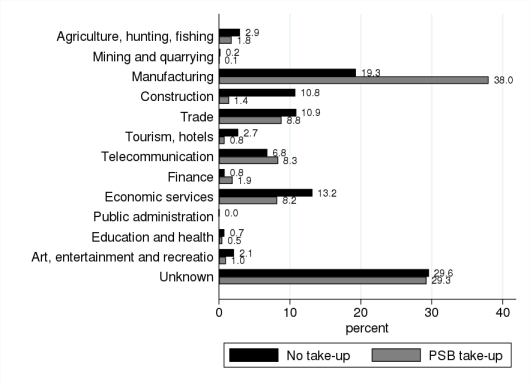
Appendix Figure A3: Comparison of PSB takers and all other job endings in the characteristics of their last employer



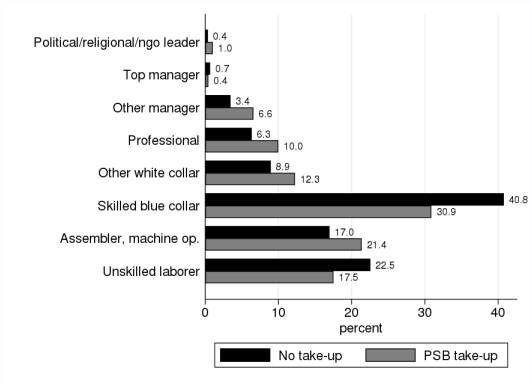
(a) Employer ownership



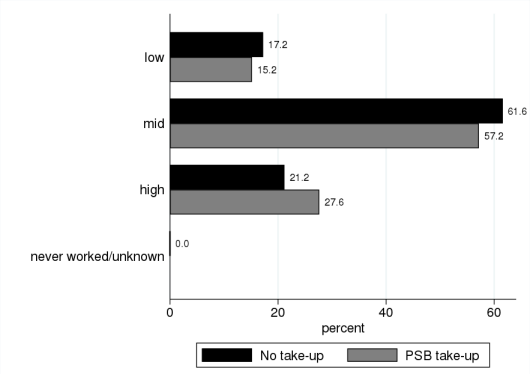
(b) Type of employment



(c) Industry



(d) Occupation



(e) Education level (proxied by highest occupation in sample period)

Tables

Appendix Table A1: Comparison of PSB-takers and non-takers for the period Apr 2006 - Mar 2007, the year before the policy change, for the estimation sample used in Table 2

	(1) Non-taker			(2) PSB-taker			(3) Comparison	
	mean	sd	count	mean	sd	count	b	t
Age	36.76	9.86	6604	39.43	10.25	1697	-2.67***	(-9.66)
Regional monthly unemployment rate	0.08	0.03	6454	0.08	0.03	1649	0.00**	(3.10)
Previous employment								
Last empl.: in public sector (public official, public servant)	0.03	0.18	6604	0.10	0.30	1697	-0.06***	(-8.24)
Dummy: continuous insurance period longer than 2 yrs	0.20	0.40	6604	0.37	0.48	1697	-0.17***	(-13.57)
Continuous insurance period, if shorter than 2 yrs	259.92	162.20	5289	297.51	171.34	1066	-37.60***	(-6.59)
Last. emp.: daily income (HUF 1000)	3.31	6.54	6604	6.38	15.09	1697	-3.07***	(-8.18)
Sickness benefit base amount (HUF 1000)	3.64	4.25	6604	5.32	5.67	1697	-1.67***	(-11.37)
Last job: average wage at employer	0.77	0.43	6604	1.05	0.60	1697	-0.27***	(-17.64)
By employer: % of sick leave last year	2.05	2.46	6303	2.62	2.38	1664	-0.56***	(-8.51)
Health indicators								
Last. emp. day: was on sick benefit	0.02	0.13	6604	0.19	0.39	1697	-0.17***	(-17.99)
# of sick days in last calendar year	4.88	19.27	6604	9.69	29.56	1697	-4.81***	(-6.37)
Total health spending last year	38.36	107.05	6604	38.27	92.77	1697	0.09	(0.04)
Total spending on drugs (individual+SocSec) last year	15.48	56.51	6604	16.09	45.05	1697	-0.62	(-0.48)
Total spending on in+outpatient care last year	22.89	80.51	6604	22.18	72.94	1697	0.71	(0.35)
Positive outpatient care spending	0.85	0.36	6604	0.85	0.36	1697	-0.00	(-0.32)
Positive inpatient care spending	0.10	0.31	6604	0.10	0.30	1697	0.01	(0.69)
Care take-up last year==No care	0.15	0.36	6604	0.15	0.35	1697	0.00	(0.50)
Care take-up last year==Outpatient care	0.74	0.44	6604	0.75	0.43	1697	-0.01	(-0.89)
Care take-up last year==In- and outpatient care	0.10	0.31	6604	0.10	0.30	1697	0.01	(0.69)
Health data is missing	0.16	0.37	6604	0.15	0.36	1697	0.01	(0.96)
Outcomes								
Finds job within 1 year (min. 30-day job)	0.63	0.48	6604	0.62	0.49	1697	0.01	(0.82)
Finds job within 1 year (min. 60-day job)	0.53	0.50	6604	0.54	0.50	1697	-0.01	(-0.76)
Finds job within 1 year (min. 90-day job)	0.42	0.49	6604	0.44	0.50	1697	-0.02	(-1.23)
Finds job within 1 year (min. 120-day job)	0.38	0.49	6604	0.40	0.49	1697	-0.01	(-1.02)
Time until job finding (min. 30-day job, censored at 1 yr)	115.41	97.24	4173	123.71	93.88	1054	-8.30*	(-2.55)
Time until job finding (min. 60-day job, censored at 1 yr)	114.19	96.99	3489	122.55	93.49	914	-8.36*	(-2.39)
Time until job finding (min. 90-day job, censored at 1 yr)	111.56	96.87	2790	122.43	94.18	745	-10.87**	(-2.78)
Time until job finding (min. 120-day job, censored at 1 yr)	111.07	96.67	2526	123.84	95.60	672	-12.78**	(-3.07)
Observations	6604			1697			8301	

Appendix Table A2: Comparison of PSB-takers 5 months before and after April 2006 the estimation sample of differences in differences models

	(1) Before			(2) After			(3) Comparison	
	mean	sd	count	mean	sd	count	b	t
Age	38.95	10.18	805	39.28	10.01	773	-0.33	(-0.65)
Regional monthly unemployment rate	0.08	0.02	793	0.08	0.03	751	0.00	(0.49)
Previous employment								
Last empl.: in public sector (public official, public servant)	0.06	0.23	805	0.10	0.30	773	-0.05**	(-3.28)
Dummy: continuous insurance period longer than 2 yrs	0.30	0.46	805	0.36	0.48	773	-0.06*	(-2.49)
Continuous insurance period, if shorter than 2 yrs	290.51	175.02	565	308.78	176.16	497	-18.27	(-1.69)
Last. emp.: daily income (HUF 1000)	6.57	33.75	805	5.30	9.16	773	1.27	(1.03)
Sickness benefit base amount (HUF 1000)	4.80	5.30	805	5.26	5.98	773	-0.46	(-1.61)
Last job: average wage at employer	1.04	0.76	805	1.02	0.54	773	0.03	(0.77)
By employer: % of sick leave last year	2.66	2.83	778	2.52	1.87	761	0.14	(1.12)
Health indicators								
Last. emp. day: was on sick benefit	0.22	0.42	805	0.20	0.40	773	0.03	(1.26)
# of sick days in last calendar year	9.77	27.59	805	8.09	29.49	773	1.68	(1.17)
Total health spending last year	46.17	123.88	805	33.29	91.77	773	12.88*	(2.35)
Total spending on drugs (individual+SocSec) last year	17.48	70.31	805	14.35	41.44	773	3.14	(1.08)
Total spending on in+outpatient care last year	28.69	92.73	805	18.95	71.28	773	9.74*	(2.35)
Positive outpatient care spending	0.83	0.37	805	0.83	0.38	773	0.00	(0.16)
Positive inpatient care spending	0.11	0.32	805	0.08	0.28	773	0.03*	(2.01)
patient_dummy_f==No care	0.17	0.37	805	0.17	0.37	773	-0.00	(-0.16)
patient_dummy_f==Outpatient care	0.72	0.45	805	0.75	0.43	773	-0.03	(-1.22)
patient_dummy_f==In- and outpatient care	0.11	0.32	805	0.08	0.28	773	0.03*	(2.01)
Health data is missing	0.15	0.36	805	0.16	0.36	773	-0.01	(-0.48)
Outcomes								
Finds job within 1 year (min. 30-day job)	0.64	0.48	805	0.63	0.48	773	0.01	(0.61)
Finds job within 1 year (min. 60-day job)	0.52	0.50	805	0.54	0.50	773	-0.02	(-0.96)
Finds job within 1 year (min. 90-day job)	0.44	0.50	805	0.43	0.50	773	0.01	(0.25)
Finds job within 1 year (min. 120-day job)	0.38	0.48	805	0.39	0.49	773	-0.02	(-0.79)
Time until job finding (min. 30-day job, censored at 1 yr)	129.83	90.57	516	123.68	97.50	484	6.15	(1.03)
Time until job finding (min. 60-day job, censored at 1 yr)	128.79	90.57	418	124.93	97.32	420	3.86	(0.59)
Time until job finding (min. 90-day job, censored at 1 yr)	127.65	91.19	355	126.51	99.35	336	1.14	(0.16)
Time until job finding (min. 120-day job, censored at 1 yr)	126.32	90.89	302	127.53	101.22	305	-1.21	(-0.15)
Observations	805			773			1578	

Appendix Table A3: Comparison of PSB-takers 5 months before and after April 2007 the estimation sample of differences in differences models

	(1) Before			(2) After			(3) Comparison	
	mean	sd	count	mean	sd	count	b	t
Age	39.55	10.45	924	38.73	10.24	841	0.82	(1.66)
Regional monthly unemployment rate	0.08	0.03	898	0.08	0.03	825	0.00	(0.96)
Previous employment								
Last empl.: in public sector (public official, public servant)	0.09	0.29	924	0.13	0.34	841	-0.04**	(-2.66)
Dummy: continuous insurance period longer than 2 yrs	0.38	0.49	924	0.41	0.49	841	-0.03	(-1.22)
Continuous insurance period, if shorter than 2 yrs	287.67	166.54	569	326.98	181.83	494	-39.30***	(-3.65)
Last. emp.: daily income (HUF 1000)	7.28	18.62	924	6.74	17.65	841	0.54	(0.62)
Sickness benefit base amount (HUF 1000)	5.37	5.40	924	5.75	5.94	841	-0.39	(-1.43)
Last job: average wage at employer	1.07	0.65	924	1.10	0.66	841	-0.03	(-1.02)
By employer: % of sick leave last year	2.69	2.74	903	2.61	1.91	805	0.08	(0.73)
Health indicators								
Last. emp. day: was on sick benefit	0.19	0.39	924	0.17	0.38	841	0.01	(0.69)
of sick days in last calendar year	11.03	29.57	924	7.93	24.76	841	3.10*	(2.39)
Total health spending last year	42.44	93.44	924	53.72	196.44	841	-11.28	(-1.52)
Total spending on drugs (individual+SocSec) last year	17.56	47.83	924	20.23	55.05	841	-2.67	(-1.08)
Total spending on in+outpatient care last year	24.89	74.23	924	33.49	180.80	841	-8.61	(-1.29)
Positive outpatient care spending	0.87	0.34	924	0.85	0.35	841	0.01	(0.79)
Positive inpatient care spending	0.11	0.31	924	0.12	0.32	841	-0.01	(-0.41)
patient_dummy_f==No care	0.13	0.34	924	0.15	0.35	841	-0.02	(-1.00)
patient_dummy_f==Outpatient care	0.76	0.43	924	0.74	0.44	841	0.02	(1.09)
patient_dummy_f==In- and outpatient care	0.11	0.31	924	0.12	0.32	841	-0.01	(-0.41)
Health data is missing	0.15	0.36	924	0.16	0.37	841	-0.01	(-0.72)
Outcomes								
Finds job within 1 year (min. 30-day job)	0.62	0.49	924	0.64	0.48	841	-0.02	(-1.04)
Finds job within 1 year (min. 60-day job)	0.53	0.50	924	0.56	0.50	841	-0.03	(-1.17)
Finds job within 1 year (min. 90-day job)	0.44	0.50	924	0.46	0.50	841	-0.02	(-0.64)
Finds job within 1 year (min. 120-day job)	0.40	0.49	924	0.41	0.49	841	-0.01	(-0.41)
Time until job finding (min. 30-day job, censored at 1 yr)	123.74	90.79	570	116.40	92.36	539	7.34	(1.33)
Time until job finding (min. 60-day job, censored at 1 yr)	120.53	90.15	494	119.24	92.97	473	1.29	(0.22)
Time until job finding (min. 90-day job, censored at 1 yr)	119.08	89.69	409	118.11	94.61	385	0.97	(0.15)
Time until job finding (min. 120-day job, censored at 1 yr)	120.78	90.70	367	120.08	94.98	342	0.69	(0.10)
Observations	924			841			1765	