# Substitution between temporary parental leave and sickness absence

## Malin Persson

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# Substitution between temporary parental leave and sickness absence[*]

by

Malin Persson[♣]

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## Abstract

This paper studies interrelations between two benefits in the Swedish social insurance system: the sickness insurance and the temporary parental benefit. The level of compensation differs between the two benefits creating an economic incentive for parents to claim temporary parental benefit when being ill. The substitution between the two benefits is studied using a randomized experiment were parents received information that their use of the temporary parental benefit would be subject to intensified monitoring. Receiving this information decreased utilization of the temporary parental benefit but at the same time led to an increase in short-term sickness absence by 4.9 percent. This corresponds to approximately 43 percent of the decreased use of the temporary parental benefit.

Keywords: Social insurance, social experiment; monitoring, moral hazard
JEL-codes: J22, H55, H51, H30, I38

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# 1    Introduction

There are a number of studies analyzing the incentive effects of the Swedish sickness benefit system on labour supply; in particular these studies find a positive relationship between the replacement rate for lost income when sickness absent and the frequency and length of absence spells.[1]

Since economic incentives matter in the sickness insurance, there is reason to suppose that economic incentives also may play a role for the relative take-up rates between insurances. There has however not been much research on the effects of incentives arising between insurance programs, see Krueger & Meyer (2002) for an overview. Still, in the Swedish context Larsson (2006) and Hall and Hartman (2010) study the interactions between the unemployment insurance and the sickness insurance.[2] They find, utilizing quasi-experimental variation that economic incentives between the unemployment and sickness insurance matters, unemployed report sickness more often when benefits are higher in the sickness insurance compared to the unemployment insurance.

This paper will study the incentives arising between the sickness insurance and the temporary parental benefit in Sweden. Compensation for lost income when absent from work due to sickness has been included in the Swedish social insurance since 1955. From 1974 the social insurance also includes compensation for lost income when working parents have to stay home from work to take care of their sick children; a benefit called *temporary parental benefit*. The level of compensation in the sickness insurance and the temporary parental benefit were the same until 1991 when a distinction between the two insurances was made. Today the compensation in both insurances is nearly 80 percent of lost income (up to a certain ceiling for the temporary parental benefit) but with the difference that there is one waiting day without compensation when being sickness absent but not when caring for a sick child. This waiting day in the sickness insurance leads to an incentive to substitute away from the

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[1] See: Johansson and Palme (1996, 2002 and 2005 respectively), Petterson-Lidbom and Skogman Thoursie (2006) and Hesselius and Persson (2007) for studies using individual data and e.g Henreksson and Persson (2004) for a study at the aggregate level using time-series data.
[2] Larsson (2006) finds some evidence of an incentive effect arising for unemployed individuals who could receive a higher compensation from sickness insurance (SI) than from unemployment insurance (UI). Hall and Hartman (2010) analyse moral hazard between these two insurance systems using a reform in the UI affecting only some of the unemployed. This reform eliminated the difference in ceilings between UI and SI benefits during the first 100 days of unemployment. According to their results the lowered SI benefit ceiling decreased incidence of sickness absence by about 36 percent among the unemployed who before the reform could receive higher compensation in the SI than in the UI.

sickness insurance towards the temporary parental benefit for parents who are ill themselves. In the government bill proposing the waiting day (1992/93:31) the risk of substitution between these two insurances was acknowledged but it was argued that the incentive was counterweighted as parents who had their child at day-care would have to keep the child at home to be able to claim for temporary parental benefit instead of sick-pay. However, until 1st of July 2008 there was practically no monitoring of the child's absence from school or pre-school so this argument did not formally hold.[3] Also there is no requirement of a doctor's certificate in the temporary parental benefit for a child less than 12 years of age until on the eighth day of the absence spell. Thus for short absence spells there was effectively no monitoring when claiming temporary parental benefit before 1st July 2008.

To study the substitution between these two insurances this paper utilizes an experiment conducted in the temporary parental benefit in 2006. In this experiment a randomized sample of parents to children of 1 up to 11 years of age received a letter notifying them that their use of the temporary parental benefit would be subject to intensified monitoring during an upcoming period of two months, which led to a decreased utilization of the benefit. In the paper it is estimated how this treatment – pre-announced and intensified monitoring of the temporary parental benefit – affects parents sickness absence. The treatment only affected a randomized sample of parents which makes it possible to compare their sickness absence to that of the remaining population of parents who did not receive any treatment. The effect on sickness absence will then be related to the direct effect of treatment on the use of temporary parental benefit to see how much of the reduction in use of temporary parental benefit is substituted towards sickness absence.

The results show a statistically significant increase in sickness absence for spells shorter than a week. In particular, the number of sickness absence days was 4.9 percent higher in the treated group. This increase in sickness absence constitutes about 43 percent of the decrease in temporary parental benefit.

The paper is organized as follows: Section 2 gives an overview of the two insurances, the experiment is described in Section 3 and the data being used is described

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[3] See Försäkringskassan (2011) for the history of monitoring of the temporary parental benefit.
A reform was implemented in the temporary parental benefit on 1st July 2008 to decrease the excess use of the benefit (Government bill 2007/08:94). As of this date the parent has to show a certificate of the child's absence from pre-school or school to be eligible for the benefit.

in Section 4. A description of the empirical strategy is given in Section 5 and results for sickness absence and a connection to the results for temporary parental benefit are given in Section 6. The economic significance of these findings are discussed in Section 7, whereas section 8 concludes.

## 2    Temporary parental benefit and sick-pay

Temporary parental benefit and the sickness benefit for short term sickness absence – i.e. the sick-pay – are paid through different systems and have different financing. Sick-pay is paid and financed by the employer and temporary parental benefit is paid by the Social Insurance Agency and financed through the pay-roll tax.

### 2.1    Temporary parental benefit

The compensation called temporary parental benefit consists of three separate benefits; care for children, contact days and paternity days. In this paper the only part considered is the temporary parental benefit for care of children.

The temporary parental benefit for care of children gives a parent right to compensation if he or she has to give up working to look after a child, under 12 years of age, that is ill or infectious or if the regular carer of the child is ill or infectious. A doctor's certificate is not required until on the 8th day of the care period. It is also possible to receive temporary parental benefit when caring for children older than 12 but under 16 years of age, although in these cases a special need of care has to be certified by a doctor or a nurse from the first day.

The maximum number of days compensated with temporary parental benefit is 120 per year and child. When 60 out of these 120 days have been claimed then no further days can be claimed for illness or infectiousness of the child's regular carer. Benefits can be claimed for whole days or for partial days.

The replacement level in the temporary parental benefit is 78 percent of lost income for parents with a yearly income under the ceiling in the sickness insurance which was

297,750 SEK during the spring of 2006.[4] Lost income for the part over the ceiling is not compensated in the social insurance.[5]

A parent who has to stay home from work with a child reports this to the employer and then claims benefits from the Social Insurance Agency. Benefits were usually paid from the Social Insurance Agency without any contact with the employer or child-care in the spring of 2006, the exception being cases where the Social Insurance Agency had gotten some signal urging them to do more thorough monitoring.[6]

A reform in the temporary parental benefit implemented on 1st July 2008 implied that from this date a certificate of absence for the child from school or pre-school is needed to claim benefits.

## 2.2    Sick-pay

The compensation during the first 14 days of sickness absence is paid by the employer, which is regulated in the Sick Pay Act. This period is called the sick-pay period and income loss is replaced to 80 percent after one waiting day (without a ceiling). This waiting day was introduced in 1993 to increase the co-insurance for sickness absent individuals, primarily to directly decrease the cost of the insurance but also to increase individual efforts to prevent sickness absence (Government bill 1992/93:31).

The waiting day can partly be avoided by being absent for only part of the first day e.g. when at work making a sick report before the ordinary working time has ended.[7] A doctor's certificate is required from the 8th day of sickness absence. If the period of sickness absence continues longer than 14 days the Social Insurance Agency can grant sickness benefits for the additional period of absence. In 2006 sickness benefits compensated lost income to 80 percent for yearly incomes under the sickness insurance ceiling.

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[4] This is based on the Social Insurance Agency's estimation of the individual's current labour income. The ceiling was approximately 31,000 Euros (exchange rate 2011-10-08). In the final data set used approximately 25 percent of the parents had an income higher than the ceiling in 2005.
[5] The employer can pay additional compensation for lost income over the ceiling; for example, parents employed in the governmental sector receive compensation above the ceiling for 10 days per year through their employer.
[6] During 2006 randomized monitoring towards the employer was implemented in response to the findings of large excess use of the benefit (Försäkringskassan, 2011). This was done during the fall (Försäkringskassan, 2006a).
[7] There is a general high-risk protection in the sickness insurance – the maximum number of waiting days during a twelve-month period is set to ten. When this number is exceeded sick-pay can be paid from the first day of absence. It is also possible to apply for a special high-risk protection for individuals who have a medically well-documented illness leading to many absence spells. In this case sick-pay can be paid from the first day and the employer can be compensated for this.

The main difference in compensation between the two benefits is thus that there is one waiting day in the sickness insurance and no waiting day in the temporary parental benefit. There is also the difference that lost income over the sickness insurance ceiling is compensated when sickness absent during the sick-pay period but not when taking temporary parental leave.

## 3 The experiment

An experiment was conducted for the temporary parental benefit during the spring of 2006. This experiment was commissioned by a government appointed delegation against incorrect payments in the social security system and was aimed to measure the excessive use of the benefit. The experiment was designed by researchers at IFAU and implemented by the Social Insurance Agency. The experiment is described in detail and analyzed in Engström et al (2007).

In short, the experiment was carried out as follows. During March 2006, three random samples were drawn from the population of parents to children between 1 and 11 years old.[8] The parents in the three samples received different information from the Social Insurance Agency. The first sample, consisting of approximately 29,000 parents, received a letter informing them that they had been randomly selected to a group where the use of temporary parental benefit would be exposed to intensified monitoring during an upcoming period of two months. In the letter the Social Insurance Agency informed that it was going to carry out inspections by e.g. contacting employers, day-care and schools. The parents also received a small brochure explaining the rules of the benefit.[9] This brochure also included information about the parent's obligations when receiving compensation. Firstly, that an individual who receives too much compensation normally has to pay back the incorrect amount. Secondly, that individuals getting caught with deliberately trying to go round the rules to receive compensation will be held responsible and runs the risk of being punished by paying fines or serve time in prison. The rules of the benefit were not changed in any way and the brochure was just informing about existing rules. The second sample, consisting of approximately 7,000 parents, received the letter but not the brochure. The third sample, also consisting of

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[8] The randomization was based on a random selection of birthdates.
[9] In Appendix 1 a translation of the letter into English is presented and in Appendix 2 a translation of the brochure.

approximately 7,000 parents, only received the brochure. The remaining population of parents, approximately 1.3 million individuals, did not receive any letter or brochure and was not subject to any intensified monitoring. This group could therefore be used as a reference group in the experiment.

The main purpose of the experiment was to estimate the total excessive use of the temporary parental benefit. The assumption behind this was that when receiving the letter parents would discipline their use of the benefit towards the intentions of the benefit, and even discipline excessive use that usually cannot be detected through monitoring. Actual monitoring with employers and schools/day-care was also carried out for a random sample of the parents who received the letter and claimed benefits during the experiment period. This made it possible, to some extent, to study how much their behaviour changed towards the intentions of the benefit.

### 3.1    Substitution between insurances

The incentive for substitution arises because the co-insurance differs between the sick-pay and the temporary parental benefit. Absence with sick-pay has a higher initial direct cost compared to absence with temporary parental benefit which creates an economic incentive to choose temporary parental benefit over sick-pay for parents.

The compensation in the temporary parental benefit is only based on income below the ceiling in the sickness insurance, in contrast to sick-pay which is based also on income above the ceiling. Therefore, the higher the income and the longer the absence spell the smaller is the economic incentive to choose temporary parental benefit over sick-pay.

Since a doctor's certificate for the child is not required until the 8th day of the absence spell the parent has discretion over the assessment of the child's health status for short absence spells. During the spring of 2006 the Social Insurance Agency did normally not check whether the child was absent from school or day-care when granting benefits. The lack of monitoring towards day-care or schools implied that the parent could leave the child at school/day-care as usual and still stay at home and claim for temporary parental benefit until a doctor's certificate was required for the child.

Other incentives might also be associated with the use of the two insurances. The specific employer gains from the employee claiming temporary parental benefit instead of sick-pay since the temporary parental benefit is financed through pay-roll taxes in

contrast to sick-pay which is a direct cost for the employer. Caring for a sick child might also be a different signal to the employer than own sickness.

Working against the economic incentive to choose temporary parental benefit over sickness absence is the parent's perceived costs of illegitimately using the temporary parental benefit, such as the risk of getting caught doing this, the punishment if caught and costs related to bad consciousness.

For a parent who associates a sufficiently low cost to illegitimate use of temporary parental benefit the lower co-insurance in the temporary parental benefit can have two implications. First, that parents are absent at occasions where they would not be absent if the only available compensation was sick-pay with one waiting day. Secondly, that parents who would have been absent anyway chooses the temporary parental benefit over sick-pay to avoid the higher co-insurance. Individuals who associates a sufficiently high costs to illegitimate use of temporary parental benefit would not be absent in the first case and would in the second be absent with sick-pay. The requirement in the temporary parental benefit of a doctor's certificate for the child on the $8^{th}$ day of absence implies that a parent who expects to be ill for a longer period has less incentive to claim temporary parental benefit.

A notification of more intense monitoring of the temporary parental benefit can thus have two effects given that the threat of monitoring is viewed as realistic and substantially increase the individuals' perceived risk of getting caught. In the first case more intense monitoring would lead to less utilization of temporary parental benefit but no increase in sickness absence as the parent would not find it worth being absent at the higher co-insurance associated with sick-pay. In the second case more intense monitoring can induce the parent to switch to sickness absence instead of temporary parental benefit.

According to this argument the increased sickness absence caused by pre-announced intensified monitoring of the temporary parental benefit would show the extent to which parents, who would be absent anyway, chooses temporary parental benefit instead of sick-pay. Adding this increase to the average sickness absence for the non-treated would then show how high the average sickness absence would be if the incentive to substitute between the two insurances was removed. There are some problems to interpreting the results in this way however; the increased sickness absence might be too large due to an

overreaction to the letter – the fear of being monitored could make some parents switch from legitimately using the temporary parental benefit to the sickness insurance just to avoid monitoring – or too small due to some parents not reacting to the letter. The risk of overreaction to the letter is raised in Engström et al (2007) but considered as not being a substantial problem since several measures were taken to decrease this risk in the design of the experiment.[10] Also, there was no sign of overreaction in the sensitivity analysis of the use of temporary parental benefit among the partners of the treated individuals.[11] The share of the claims of temporary parental benefit that failed when monitored on the other hand indicates that some parents did not react to the letter.[12]

The estimated effect of receiving the letter and being subject to intensified monitoring will therefore be interpreted as how this particular treatment leads to substitution towards sickness absence, and not as how much sickness absence would increase if the possibility to substitute between benefits was removed altogether.

# 4     Data

The data used comes from a longitudinal database administered by Statistics Sweden (LOUISE) containing information from administrative registers regarding education, income, employment and demographics. The database covers the entire registered adult population in Sweden.

Individuals in the database are matched to information from the experiment and information on sickness absence. Information on sickness absence during the sick-pay period comes from the short term business statistics on sick-pay, which is a sample survey made by Statistics Sweden.

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[10] According to Engström et al (2007) effort was made to set the tone in the letter to be "kind", it was also declared in the letter that the selection of individuals chosen for intensified monitoring was completely random and not based on any suspicions of misuse, the letter was accompanied with a brochure explaining the rules of the benefit for the major part of the treated individuals, also a call centre was set up by the Social Insurance Agency to which parents receiving the letter could turn with questions. See Appendix 1 and 2.

[11] The letter stated that it was the individual parent who was selected to be exposed to intensified monitoring. In Engström et al (2007) the use of temporary parental benefit among the partners of the selected parents is therefore studied to analyze if there is a substitution towards the other caretaker of the child. Point estimates show no increase in use of temporary parental benefit among the partners and there was no sign of two counteracting effects (substitution and contamination) among the partners when looking at the variance.

[12] In the group receiving the letter 11 percent of the paid amount was still incorrect when monitored. Reasons for failing when monitored were that the child was attending child-care, the parent had been working/got paid for the same period of time, the parent was not supposed to work, had sick-pay or had unemployment benefits at the same time (see Engström et al, 2007).

## 4.1 Sample selection

The population is first restricted to parents included in the sampling frame for the experiment, which is defined as parents with at least one child between 1 and 11 years of age in March 2006. The population is then further restricted based on the sample selection for the survey on sickness absence. In the survey employers are divided into strata depending on number of employees and branch of business, then random sampling of employers is made within strata. All employers with more than 500 employees in the private sector, all employers in the municipal sector with 100 or more employees and all employers in the governmental sector are always included in the survey.[13] These employers give information on their employees' individual sickness absence for all months of the year. The population studied is restricted to this part of the survey. In the database on sickness absence only those individuals who had been sickness absent are included, however. This implies that it is not possible to distinguish individuals without absence from individuals not sampled. Since the complete population is not used it is thus necessary to supplement the sickness absence data with firm and employment data to identify each individual's employer. To do this individuals are matched to employers based on the statement of income issued in December 2005.[14] Information on sector and the number of employees in November 2005 for each employer is also matched to the individual. The final dataset for the analysis thus contains the population of parents to children between 1 and 11 years of age in March 2006, employed in December 2005 by firms in the private sector with 500 or more employees or in the public sector (besides a very small number of municipal employers with less than 100 employees).

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[13] Among employers in the private sector with 100 to 500 employees a stratified sample of about 30 percent of the firms is randomly selected to give information on all months during the following two quarters. For firms in the private sector with less than 100 employees a stratified sample of workplaces is selected every six months. The selected workplaces are then divided into three groups to give information on one month during both of the following two quarters. Sampled workplaces among these smaller employers leave their information mainly through a post questionnaire (SCB, 2006). It is not compulsory to answer the survey. Since the smaller firms are not always included in the survey the risk of non-response is higher compared to larger firms and firms in the public sector which always are included in the survey. The response rate could also be correlated with the treatment effect. The firms giving information on sickness absence could be firms where making things right is considered more important and where using temporary parental benefit for own illness is discouraged. The estimated treatment effect might thus not be representative when including the small firms.

[14] If an individual has statements from several employers he or she is matched to the employer were the paid salary during 2005 was the highest.

## 4.2    Descriptive statistics

Descriptive statistics are presented in Table 7 in Appendix 3. The population is divided into four groups based on status in the experiment; the three treatment groups and the reference group – which contains the remaining population who did not receive either letter or brochure. Compared to the original size of the treatment and reference groups in the experiment, described in Section 3, the groups are reduced to slightly less than half the original size by the restrictions made on the population. Descriptive statistics presented in the table are: share women, average age, share with a labour income higher than the ceiling in the sickness insurance in 2005 and share employed in the public sector. Only one of the treatment groups – the one which only received the information brochure – differ significantly from the reference group on one of these variables. The share with an income above the ceiling is higher in this group compared to the reference group. This is not the group of main interest and no other variables differ significantly for this group.

In Table 1 sickness absence and use of temporary parental benefit during a reference period prior to the experiment period are presented.[15] There are no statistically significant differences between any of the group averages for the number of sick-days or sick-spells during the reference period. Neither did average use of temporary parental benefit differ statistically between groups.

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[15] The reference period is the period between 1st of January and 28th of February 2006. The experiment period was between 29th of March to 31st of May. There is a buffer-month in between these two periods because it is common for parents to wait a couple of weeks with their temporary parental benefit application, giving a retroactive effect of treatment on claims not sent in already.

Table 1 Descriptive statistics for sickness absence and temporary parental benefit during the reference period[16]

| Group | Number of individuals | Average number of sick-days, censored on the 7th day | Average number of sick-spells | Average number of net days of temporary parental benefit |
|---|---|---|---|---|
| Group receiving letter and brochure | 11,960 | 0.862 [0.824; 0.900] | 0.255 [0.245; 0.264] | 0.972 [0.937; 1.008] |
| Group receiving only letter | 2,847 | 0.829 [0.754; 0.904] | 0.249 [0.229; 0.269] | 1.019 [0.940; 1.096] |
| Group receiving only brochure | 3,041 | 0.871 [0.795; 0.948] | 0.252 [0.233; 0.271] | 0.964 [0.893; 1.036] |
| Reference group | 533,042 | 0.861 [0.856; 0.867] | 0.250 [0.249; 0.252] | 0.967 [0.961; 0.972] |

*Note:* 95 percent confidence interval in parentheses.

## 5    Empirical strategy

Pre-announced intensified monitoring of the temporary parental benefit was randomly assigned to parents in the population. The reference group, consisting of approximately 533,000 individuals, did not receive any treatment. The effect of treatment on sickness absence is therefore estimated by the parameter $\beta$ in:

$$S_i = \alpha + \beta d_T + \varepsilon_i$$

Where $S_i$ is the sickness absence of individual $i$ during the experiment period, $d_T$ is an indicator variable taking the value one for treated individuals and zero for non-treated individuals. $\alpha$ is an intercept which gives the average sickness absence among the non-treated. $\varepsilon_i$ is the error term.

Two definitions of sickness absence are used in the analysis – number of sickness absence days and number of spells of sickness absence during the experiment period. A spell can only be 14 days long during the sick-pay period but a doctors' certificate is required from the 8th day of absence – both for temporary parental benefit and sickness absence. For this reason it is more interesting to look at shorter spells of sickness absence as no effect of treatment is expected after the certificate requirement. All spells

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[16] The absence spells can contain both whole days and partial days. The extent of sickness absence during a partial day is not stated. When a spell contains both whole and partial days these cannot be distinguished from each other. For this reason no difference is made between whole and partial days.

The sickness absence and temporary parental benefit spells are censored on the 7th day when they are measured in number of days. There are no statistically significant differences between groups when uncensored either.

longer than 7 days are therefore censored on the 7th day in the main analysis (i.e. spells longer than seven days are set to 7). When looking at the number of sick-days, all days of absence during the experiment period are added together, independently of whether they belong to different spells.

In order to gain precision two treatment groups are pooled in the main analysis; the group which received both letter and brochure and the group which only received the letter. A heterogeneity analysis is carried out to test whether treatment effects differ between these two groups.

# 6    Results

In this section the results of the empirical analysis are presented. First the main results are presented and then the results of the heterogeneity analyses. In Section 6.3 the estimated treatment effect on sickness absence is put in relation to the treatment effect on utilization of temporary parental benefit, showing the degree of substitution.

## 6.1    Main results for sickness absence

In the results presented in first column of Table 2 the sickness absence spells are censored on the 7th day. With this restriction there is a statistically significant effect on sickness absence of receiving the letter and being exposed to intensified monitoring of the temporary parental benefit.[17] On average this treatment lead to an increase in the number of sickness absence days by 4.9 percent. In Table 8 in Appendix 3 the estimated treatment effect is presented for uncensored spells of sickness absence during the sick-pay period. The point estimate of the treatment effect for uncensored spells is similar to when censored on the 7th day, thus indicating that there is no additional treatment effect for sickness absence after the doctor's certificate requirement. The treatment effect on sick-days is also estimated for sickness absence spells censored on the 3rd day, presented in the second column of Table 2. Compared to when censored on the 7th day the treatment effect remains basically the same but the standard error is reduced. This result indicates that the treatment effect is concentrated to the first few days of the absence spells.

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[17] Using difference-in-difference gives similar point estimates but standard errors are slightly increased.

Table 2 Results for number of sick-days when the absence spells are censored on the 7th and the 3rd day, and results for number of absence spells

| | Dependent variable | | |
|---|---|---|---|
| | Number of sick-days when censored on the 7th day | Number of sick-days when censored on the 3rd day | Number of sickness absence spells |
| Mean in non-treated group | 0.6778 | 0.4554 | 0.1951 |
| Treatment effect | 0.0333* | 0.0303** | 0.0141** |
| | (0.0159) | (0.0099) | (0.0042) |
| Relative treatment effect [95 percent CI] | 4.9 % [0.3 %; 9.5 %] | 6.7 % [2.4 %; 10.9 %] | 7.2 % [3.0 %; 11.4 %] |
| Number of observations | | 547,849 | |

*Note:* Standard errors in parentheses. The Delta-method is used to calculate confidence intervals of the relative treatment effect.
\* Significant at the 5-percent level, \*\* Significant at the 1-percent level.

When instead estimating the treatment effect on the number of spells the result, presented in Table 2, shows that information of intensified monitoring lead to an increase in the number of spells of sickness absence by on average 7.2 percent. The point estimate of the treatment effect for sick-days (0.033) is larger than the point estimate for number of spells (0.014), indicating that there is a treatment effect beyond the first day of the spell.

## 6.2    Heterogeneity analysis

### 6.2.1    Different treatment

As mentioned earlier the treatment in the experiment was varied somewhat; among the 14,807 individuals who received the letter declaring intensified monitoring 11,960 also received a brochure which explained the rules of the benefit, the remaining 2,847 individuals only received the letter. Did this difference in treatment lead to different reactions?

Table 3 Results for number of sickness absence days and number of spells by treatment group

| | Dependent variable | | |
|---|---|---|---|
| | Number of sick-days when censored on the 7th day | Number of sick-days when censored on the 3rd day | Number of sickness absence spells |
| Treatment effect in group receiving letter and brochure | 0.0301♣ (0.0175) | 0.0274* (0.0109) | 0.0109* (0.0046) |
| Differential treatment effect for group receiving only letter | 0.0168 (0.0406) | 0.0153 (0.0252) | 0.0167 (0.0108) |
| Number of observations | 547,849 | | |

*Note*: Standard errors in parentheses.
♣Significant at the 10-percent level,*Significant at the 5-percent level.

The point estimates of the difference in treatment effects between the two treatment groups suggest, for all specifications in Table 3, a quite large additional treatment effect in the group which only received the letter compared to the group which received both letter and brochure. The differences in treatment effects between the two groups is however far from statistically significant so the same treatment effect in both groups cannot be ruled out.

There was also a group of individuals in a separate treatment group that only received a brochure explaining the rules of the temporary parental benefit. As a sensitivity check the treatment effect in this group is estimated. According to Table 9 in Appendix 3 there are no statistically significant treatment effects for this group either for number of days or number of spells of sickness absence.

### 6.2.2 Income

In Table 4 the treatment effects are estimated for individuals with a labour income in year 2005 below and above the ceiling present in 2005 separately. The temporary parental benefit is based on expected present total income before tax, which means that the incomes for 2005 are an approximation of the incomes the benefits are based on for 2006.

Table 4 Results for number of sickness absence days and spells by income level

| | Number of sick-days when censored on the 3rd day | | Number of sickness absence spells | |
|---|---|---|---|---|
| | Below the ceiling | Above the ceiling | Below the ceiling | Above the ceiling |
| Mean in non-treated group | 0.5192 | 0.2658 | 0.2231 | 0.1118 |
| Treatment effect | 0.0318** (0.0121) | 0.0246 (0.0151) | 0.0157** (0.0051) | 0.0090 (0.0064) |
| Relative treatment effect [95 percent CI] | 6.1 % [1.5 %; 10,7 %] | 9.3 % [-1.8 %; 20.4 %] | 7.0 % [2.5 %; 11.5 %] | 8.1 % [-3.1 %; 19.2 %] |
| Number of observations | 410,007 | 137,842 | 410,007 | 137,842 |

*Note:* Standard errors in parentheses. The Delta-method is used to calculate confidence intervals of the relative treatment effect.
*Significant at the 5-percent level, **Significant at the 1-percent level.

The results in Table 2 show that the treatment effect is concentrated to the beginning of the absence spells. Therefore to get more precise estimates of the treatment effects the sickness absence spells are censored on the third day. Table 4 shows that point estimates of the treatment effect on number of sick-days and number of spells are smaller for individuals with an income above the ceiling compared to for those with an income lower than the ceiling, point estimates of the relative treatment effect is however larger in the high income group due to the lower average sickness absence in this group. The treatment effects are however not statistically significant in the high-income group and the difference in treatment effects between income groups is not statistically significant either.

### 6.2.3 Gender

In Table 5 treatment effects are estimated separately for men and women. The point estimate of the treatment effect is higher for men than for women both for number of sick-days and for number of spells. A stronger effect on sickness absence for men is in line with the direct effects of treatment on the use of temporary parental benefit found in Engström et al (2007). Their results show that men had a statistically significant larger reaction to the letter than women had. The differences in treatment effects between men and women for sickness absence are however not statistically significant.

Table 5 Results for number of sickness absence days and number of spells by gender

| | Number of sick-days when censored on the 3rd day | | Number of sickness absence spells | |
|---|---|---|---|---|
| | Men | Women | Men | Women |
| Mean in non-treated group | 0.3750 | 0.5057 | 0.1543 | 0.2206 |
| Treatment effect | 0.0373* (0.0150) | 0.0257* (0.0130) | 0.0150* (0.0063) | 0.0135* (0.0055) |
| Relative treatment effect [95 percent CI] | 9.9 % [2.1 %; 17.8 %] | 5.1 % [0.0 %; 10.1 %] | 9.7 % [1.8 %; 17.7 %] | 6.1 % [1.2 %; 11.0 %] |
| Number of observations | 210,657 | 337,192 | 210,657 | 337,192 |

*Note:* Standard errors in parentheses. The Delta-method is used to calculate confidence intervals of the relative treatment effect.
*Significant at the 5-percent level.

## 6.3 Substitution between insurances

According to the results above there is an effect of pre-announced and intensified monitoring of the temporary parental benefit on sickness absence. Putting the treatment effect for sickness absence in relation to the treatment effect for temporary parental benefit will show how much of the decrease in utilization of temporary parental benefit is substituted towards sickness absence.

When replicating the analysis in Engström et al (2007) and re-estimating the treatment effect for temporary parental benefit with this dataset, where only parents employed at large firms or in the public sector are included, the decrease in use of temporary parental benefit is somewhat smaller compared to original estimates in Engström et al. Table 6 shows that treated parents decreased their use of temporary parental benefit, measured in net days, by 8.9 percent.[18]

The sick-pay periods are measured in calendar days (from start-date to end-date) and not in number of compensated days. To get more comparable measures for both insurances, the effect on temporary parental benefit is re-estimated to calendar days using start and end dates of the spells. This is presented in the second column of Table 6. Both the point estimate of the treatment effect and the mean number of temporary

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[18] This can be compared to 12.9 percent when the full population of parents is included and difference-in-difference is used in Engström et al (2007). Using difference-in-difference here gives a treatment effect of 10.9 percent which is not statistically significantly different to 8.9 percent.

parental benefit days during the experiment period in the non-treated group increases with this specification, the relative treatment effect however largely stays the same. The treatment effect for the temporary parental benefit can not only be expected to be present for really short spells. A common error found when the Social Insurance Agency controls temporary parental benefit claims is that parents incorrectly adds a day to spells that are correct for all other days (Försäkringskassan, 2006b). The third column of Table 6 shows that the treatment effect is slightly but not significantly smaller when the spells of temporary parental benefit are censored on the 7th day, indicating on average a very small effect of the information letter for the period when a doctor's certificate is required.

Table 6 Results for the use of temporary parental benefit

|  | Dependent variable | | |
| --- | --- | --- | --- |
|  | Net days of | Calendar days | Calendar days when censored on the 7th day |
| Mean in non-treated group | 0.6925 | 0.8946 | 0.8005 |
| Treatment effect | -0.0613** | -0.0779** | -0.0689** |
|  | (0.0135) | (0.0219) | (0.0149) |
| Relative treatment effect [95 percent CI] | -8.9 % [-12.7 %; -5.0 %] | -8.7 % [-13.5 %; -3.9 %] | -8.6 % [-12.2 %; -5.0 %] |

*Note*: Standard errors in parentheses. The Delta-method is used to calculate confidence intervals of the relative treatment effect.
**Significant at the 1-percent level.

The estimated treatment effect on sickness absence was an increase by on average 0.03 days per person. Relating the treatment effect on sickness absence to the estimated direct effect on temporary parental benefit – a decrease of approximately 0.08 days per person according to the second column in Table 6 – the increase in sickness absence is approximately 43 percent of the decrease in temporary parental benefit.[19] This result implies that the group notified of more intense monitoring of the temporary parental benefit substituted 43 percent of the decreased utilization of temporary parental benefit towards sickness absence. Since a substantial part of the reduced utilization of temporary parental benefit is not substituted towards sickness absence this indicates that parents in fact decreased their absence from work. Parents could however also have

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[19] $0.0333/0.0779 \approx 0.427$.

taken other types of leave e.g. holiday or compensatory leave; this type of substitution is not captured in the present analysis since such data were not available.

# 7    Economic significance

Since temporary parental benefit and sick-pay have different financing the substitution also leads to a transfer of costs – from the social insurance to the employer. To show the economic significance of the estimated substitution the results are here extrapolated to a full year and the population of parents.

During the experimental intervention of approximately two months, the paid temporary parental benefit was 8.9 percent lower in the treated group. Assuming that this relative treatment effect was constant throughout 2006, this would imply decreased compensation with approximately 284 million SEK when extrapolating the result to all employed parents.[20] Including the pension fees that are paid by the social insurance based on the temporary parental benefit, the estimated reduction in cost for the social insurance would be 313 million SEK.[21]

The increased cost to employers for additional sick-pay due to substitution is somewhat harder to estimate. There is no information in the data on actual payments of sick-pay. A rough approximation can however be made assuming that lost income during sickness absence and temporary parental leave is compensated to the same extent after one waiting day. Under this assumption the increase in compensated sickness absence is approximately 25 percent of the decrease in temporary parental benefit.[22] Extrapolating this to all employed parents and a full year the increased sick-pay would

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[20] 8.9 percent of the average paid amount per person in 2006 for the population studied is 267 SEK. Extrapolating this result to all parents in the sampling frame for the experiment that could be linked to any firm in December 2005 (1,063,049 individuals) this treatment effect would imply approximately 284 million SEK. In addition pension fees of 10.21 percent are also paid by the social insurance based on the compensation paid in the temporary parental benefit. The results in Engström et al (2007) show a larger treatment effect on the use of temporary parental benefit in the private compared to the public sector indicating an underestimation of the effect when extrapolating the results for the population analyzed in this paper to all employed parents. The population analyzed in this paper also has an average wage that is lower than the average of the rest of the employed parents.

[21] Increased monitoring of the temporary parental benefit would also lead to costs for the Social Insurance Agency of monitoring benefit claimants, this is not taken into account here. Decreased administrative costs due to a reduction in number of claims of temporary parental benefit are neither taken into account.

[22] The treatment effect for temporary parental benefit measured in calendar days was a decrease by 0.0779 days per person during the experiment period. The increase in sickness absence was 0.0333 calendar days per person. Subtracting one waiting day for each spell of sickness absence (the number of spells increased by 0.0141 per person) leaves an increase of 0.0192 days per person. This gives an increase in "compensated" sickness absence of 24.6 percent of the decreased compensated temporary parental leave. $\frac{0.0333 - 0.0141}{0.0779} \approx 0.246$

be about 70 million SEK.[23] Including payroll taxes, the total cost increase would be approximately 93 million SEK.[24]

Based on these approximations the increased cost related to sick-pay for employers is around 30 percent of the decreased costs for the utilization of temporary parental benefit. This relation is based on the assumption that each sickness absence spell begins with one waiting day. One waiting day per spell would imply that around 40 percent[25] of the increased sickness absence was not compensated with sick-pay, thus that the substitution substantially increased the parents' co-insurance. Since it is possible to avoid parts of the waiting day this figure probably is an overestimation, however.

## 8    Conclusions and discussion

The results show statistically significant effects of treatment – receiving a letter declaring intensified monitoring of the temporary parental benefit – on the number of sickness absence spells and on the number of sickness absence days when looking at the part of the spells before the doctor's certificate requirement. The intensified monitoring in the temporary parental benefit lead to an increase in the number of sickness absence days by 4.9 percent for these short absence spells. This result shows that a change in one insurance can have a substituting effect towards another insurance. The substitution in this case is only partial; the increased sickness absence constitutes about 43 percent of the decrease in temporary parental benefit among the treated individuals.

The two insurances are paid through different systems and have different financing. Sick-pay is paid and financed by the employer and temporary parental benefit is paid by the Social Insurance Agency and financed through pay-roll taxes. The substitution between the two insurances therefore also leads to a transfer of costs of compensation from the social insurance to the employers. The estimated yearly decreased cost for the temporary parental benefit would be 313 million SEK if the relative treatment effect

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[23] Calculated as 24.6 percent of 284.1 million. This is a very rough approximation based on the assumption that the compensation is the same *per calendar day* of the spell.
Estimated increased costs to employers would be higher if taking into account that the temporary parental benefit only compensates lost income under the ceiling in the sickness insurance, and to 78 percent, in contrast to sick-pay which also compensates high incomes to 80 percent. Also it is probable that less than one waiting day per sickness absence spell is imposed as it is possible to avoid parts of it.

[24] Employers paid payroll taxes of 32.28 percent in 2006 based on the compensation paid to the employees.

[25] Estimated by the increased number of spells in relation to the increased number of sick-days: $\frac{0.0141}{0.0333} \approx 0.42$

was constant over the full year and the population analysed were representative for all employed parents. A rough approximation of the financial consequences of the substitution for employers shows a yearly increased cost of 93 million SEK.

The treatment effect on sickness absence is estimated for a population consisting of parents who are employed at large private firms or in the public sector. Unfortunately it has not been possible to make any analysis of the treatment effect among parents employed in smaller private firms. The reaction of these parents would be an interesting topic for future research as both employer and employee gain from the employee claiming temporary parental benefit when being ill.

A new policy was implemented on the 1st of July 2008, from this date parents have to show that their child was absent from school or day-care during the period the parent is claiming temporary parental benefit for. This study indicates that a change regarding the temporary parental benefit can affect sickness absence. Whether the policy change would have the same effect on sickness absence as the experiment had is not clear. There is a difference to having to submit a certificate when claiming benefits compared to pre-announced monitoring on several margins. Still, the policy change would affect the margin that is likely to be used if parents use the temporary parental benefit for their own illness. Given that the experiment analysed in this paper was conducted two years before the policy change it further complicates extrapolation of the results from the experiment to the reform since the use of the insurances might have changed over this time-period

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## Appendix 1: The letter

Monitoring of temporary parental benefit

You have been selected for special monitoring concerning temporary parental benefit. The monitoring concerns claims and compensations for temporary parental benefit during the period of the 29th of March to the 31st of May 2006. The Swedish Social Insurance Agency is going to carry out inspections by e.g. contacting employers, day care and schools.

The fact that you have been selected has nothing to do with earlier withdrawals of temporary parental benefit. You may not necessarily have applied for temporary parental benefit in the past. We have used a method of random selection. The reason for You being selected is thus not that you are suspected of cheating. It is equally probable for all having children in the ages of 1-11 to be selected for intensified monitoring.

The increased inspection represents a part of a bigger work to counteract cheating and offences against public compensations.

If you have questions on this, please feel free to contact us. Please use our e-mailbox: kontroll.tfp@forsakringskassan.se. If you prefer to talk to us, the phone number is 020 – 45 00 56.

If you wish to learn more about the Swedish Social Insurance Agency and temporary parental benefit, you may visit our web site www.forsakringskassan.se.


The Swedish Social Insurance Agency
Försäkringskassan

## Appendix 2: The information brochure on regulations of temporary parental benefit

### Temporary parental benefit, care for sick child

### The right to care for sick child compensation
You, who have children in the ages below 12, are eligible to the VAB-Benefit. Besides biological parents, also adoptive parents are affected by this, as well as:
- A person living together with the parent
- A person who by admission of the social welfare board takes care of a child for the purpose of adopting it.
- A juridical caretaker who, without being a parent for the child have custody of the same.
- A person who takes care of a child permanently in his or her home (foster parent).
- Individuals living together and are or have been married or have had joint children.

### Under what circumstances are you eligible to VAB-Benefit?
VAB-Benefit may be paid out to the parent who has to be absent from work to take care of a sick child in the home for any of the following reasons:
- The child is ill or infectious.
- The regular caretaker is ill or infectious. The regular caretaker is the person who usually takes care of the child when you are working, such as a parent working in the home, the other parent, child minder or relative.
- The other parent has to visit the doctor with another child of the family. The condition is that the child is under the age of 12 and in some cases under the age of 16.
- To visit the child welfare centre or the public preventive medicine care, such as the dentist or children's psychiatry and youth welfare.

VAB-Benefit can also be paid when a parent to a sick child or a child with a functional disorder visits an institution, such as rehabilitation, special school or alike or attend a course arranged by hospital staff. If care allowance has been paid for the child, VAB-Benefit would not be paid for the same treatment and supervision.

### Certificate for the child
If the child is sick/ill infectious for more than 7 days a certificate from the doctor or nurse will be needed from the 8th day. The first day is counted from the first day compensated for care taking. Also the days when you don't receive benefit will be counted to the first unattested 7 days. The calculation of the period when no certification is needed would not be affected by the parents for instance replacing each other in the care taking of the child.

### For the regular caretaker
If the regular caretaker is ill this would be confirmed through a certificate or stated opinion from a doctor from the 8th day.

### Number of compensation days
The parents can be compensated during maximum 60 days per child and year. When these 60 days are exhausted, compensation can be paid for additional maximum 60 days per child and year. The additional 60 days cannot be claimed due to the regular caretakers illness or infectiousness.

### Compensation to another person when the parent is working

The right to VAB-Benefit can be signed over to another person, who, in the parents place, stays home from work to take care of the child. This means that the parent continues to work and that another insured is absent work in order to take care of the child (in the caretakers place). The right to VAB-Benefit can be signed over when the child is sick or infectious or when the regular caretaker, for example the child minder, is sick or infectious.

## Compensation to another person – when the parent falls ill

When a parent is ill and receives sick pay or sickness benefit the Social Insurance Agency can decide that another person, who is absent from work in order to take care of someone else's sick child, can receive VAB-Benefit compensation (in the parents place). That is to say that if you were well and would have been eligible to the VAB-Benefit in the claim for benefit in the situation it concerns. VAB-Benefit with regards to children younger than 240 days can only be paid if the child is hospitalized or when the supervision of the child is permanently arranged in day care and you as a parent has to stay at home from your work in order to take care of the child. VAB-Benefit can also be paid when the child is in the final phase of a care period and is nursed in the home if the alternative would be continuous hospital treatment.

## Exchange of parental benefit into VAB-Benefit

If the child is taken care of in a hospital, parental benefit can be e exchanged for VAB-Benefit. This also applies both for the child it concerns as well as older siblings.

## Special needs

In some cases VAB-Benefit can be paid for a sick or disabled child who's younger than 240 days. This applies among others to when a parent visits an institution, for example rehabilitation, special school or alike, or attends a course arranged by a medical institution. The same applies for children 240 days or older when the parent exchanges parental benefit to VAB-Benefit.

## Compensation

The VAB-Benefit is 80 percent of the sickness benefit based income. The compensation can be withdrawn for a whole, three quarters, a half, one quarter or one eighth of a day. A day with three quarter, a half, one quarter or one eighth compensation is counted as corresponding share of a day. If you are employed, you receive hour- or day based compensation, i.e. 80 percent of the sickness benefit based income divided by the work in one year expressed in hours or days. If you collect income from other type of employment you will receive calendar day calculated compensation, i.e. 80 percent of the sickness benefit based income divided by 365. This applies even if you exchange parental benefit to VAB-Benefit. Your compensation is calendar day calculated also for a day when you are wholly or partially unemployed. If you are wholly unemployed you receive compensation only for days when you loose jobseeker's allowance.

## Application

You have to make an application to the Social Insurance Agency on at latest the very same day you wish to begin the period of compensation. You can also apply for the benefit at the web www.forsakringskassan.se, service phone 020-524 524 or phone your insurance office. Some employers automatically file an application for you. It is therefore important that you learn how this is done at your work place.

## More information

This folder shall not be regarded as words of an act in this matter. If you want to learn more about the VAB-Benefit and the parental insurance you may visit our web site www.forsakringskassan.se, or get into touch with the Social Insurance Agency.

## Obligations

### What happens when you receive too much in compensation?
If you receive compensation that you're not eligible to, you will normally have to pay back the incorrect sum. This implies even if it's not your fault that the compensation was incorrect.

### It is felonious to cheat
At the Social Insurance Agency we regard the matter of cheating seriously. By "cheating" we mean that someone deliberately tries to get round the rules in order to get hold of compensation. What happens when you cheat, for example by reporting incorrect information or by neglect reporting changed conditions? Well, the one who is cheating always will be hold accountable and held responsible and furthermore runs the risk of being punished by paying fine or to serve jail time.

### Always report changes
You are always obliged to report changed conditions significant for the eligibility to compensation.

## Appendix 3: Additional tables

Table 7 Descriptive statistics for the sample

| Group | Number of individuals | Share women | Average age | Share with income higher than the ceiling in 2005 | Share employed in the public sector in 2005 |
|---|---|---|---|---|---|
| Group receiving letter and brochure | 11,960 | 0.616 [0.608; 0.625] | 38.43 [38.32; 38.54] | 0.249 [0.241; 0.257] | 0.616 [0.607; 0.624] |
| Group receiving only letter | 2,847 | 0.619 [0.601; 0.636] | 38.25 [38.02; 38.48] | 0.257 [0.241; 0.273] | 0.606 [0.588; 0.624] |
| Group receiving only brochure | 3,041 | 0.617 [0.599; 0.634] | 38.21 [37.99; 38.44] | 0.270 [0.254; 0.285] | 0.593 [0.576; 0.611] |
| Reference group | 533,042 | 0.615 [0.614; 0.617] | 38.39 [38.37; 38.41] | 0.252 [0.250; 0.253] | 0.609 [0.608; 0.611] |

*Note*: 95 percent confidence interval in parentheses.


Table 8 Result for sick-days when the full sick-pay period is used

| | Dependent variable |
|---|---|
| | Number of sick-days when censored on the 14th day |
| Mean in non-treated group | 0.8439 |
| Treatment effect | 0.0286 (0.0216) |
| Relative treatment effect [95 percent CI] | 3.4 % [-1.6 %; 8.4 %] |
| Number of observations | 547,849 |

*Note:* Standard errors in parentheses. The Delta-method is used to calculate confidence intervals of the relative treatment effect.


Table 9 Treatment effects on sickness absence of receiving information brochure

| | Dependent variable | |
|---|---|---|
| | Number of sick-days when censored on the 3rd day | Number of sickness absence spells |
| Treatment effect of receiving brochure | 0.0076 (0.0215) | 0.0009 (0.0088) |
| Number of observations | 536,083 | |

*Note:* Standard errors in parentheses.

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