Social Insurance, Firms, and Workers’ Sickness Absences – Evidence from Austrian Social Security Data Using a Regression Discontinuity Design

René Böheim
Johannes Kepler University Linz, WIFO
and
Thomas Leoni
WIFO

2nd Annual Meeting of the Disability Research Consortium

October 30-31, 2014
Washington, D.C.

This research was supported by a grant from the U.S. Social Security Administration (SSA) as part of the Disability Research Consortium (DRC). The findings and conclusions are solely those of the author[s] and do not represent the views of SSA, any agency of the Federal Government, the NBER Disability Research Center or Mathematica’s Center for Studying Disability Policy (CSDP). Support from the Austrian National Research Network “Labor Economics and the Welfare State” is gratefully acknowledged. Christina Judmayr and Christian Thallinger provided excellent research assistance.
1. Introduction

In many OECD countries firms are, at least to some extent, insured against the wage costs they sustain during workers' sicknesses, either because the amount or the period of sick pay is limited, or because firms are refunded for their costs. The insurance may create a moral hazard for firms, for example, because it may lead to inefficient monitoring of absences or to an under-investment in the prevention of absences. Little is known about how firms respond to the design of such insurances.

We investigate an insurance that covered firms in Austria until 2000. We exploit an administrative threshold that defined whether a firm had to pay a deductible for its insurance against direct costs (wages) caused by blue-collar workers sicknesses. The quasi-experimental situation around the threshold provides causal evidence on the extent of moral hazard induced by the deductible. Our results show that the deductible did not result in different sicknesses in small and large firms in the vicinity of the threshold.

2. Background

Sickness absences often precede permanent labor market detachment in the form of disability benefits (OECD 2010). Also, policy reforms of disability insurance are likely to have spill-over effects into sickness insurance programs (e.g. Staubli 2011). Institutional settings and social security regulations represent important sick leave determinants. So far, the economic literature has predominantly studied the effect of regulations and incentives on the behavior of employees. Worker insurance through sickness benefits has been found to generate moral hazard and to influence absenteeism (f.i. Johansson and Palme 2005, Ziebarth and Karlsson 2010).

Only limited research is available on the behavior of firms with respect to their workers' sickness absences. Westergaard-Nielsen and Pertold (2012) analyze the behavior of Danish firms and find strong and robust evidence of moral hazard in firms which select to buy insurance against their workers' sickness absences. Fevang et al. (2014) show that a Norwegian sick leave reform which exempted employers from refunding sick pay only for pregnancy-related absences led to approximately 5 percent more sickness absence spells of pregnant women.
3. Institutional settings

Austria belongs to the group of countries where all workers are insured against sicknesses with generous benefit schemes (Scheil-Adlung and Sandner 2010). A two-stage system is in place, where employers are required to pay wages for an initial period of sick leave, after which the social insurance pays sick pay if the worker is still ill or disabled. Numerous European countries, e.g., Belgium, Denmark, Finland, Norway, Spain and Sweden, have similar institutional settings. In particular, Germany and Austria have similar sick leave regulations as well as related labor market institutions.

We study an insurance that was in place between 1974 and September 2000.1 During this period, small firms received a 100 percent and large firms—firms whose wage bill exceeded a threshold—received a 70 percent refund of the wages they had to pay their sick blue-collar workers. In other words, larger firms had to pay a deductible of 30 percent, which small firms did not have to pay. The insurance was compulsory and financed by employers' premiums based on their blue-collar workers' wages.

4. Data and methodology

We exploit the discontinuity caused by this threshold using a regression discontinuity design to identify the causal effect of the deductible on sickness absences in firms. Our analysis is based on register data from the Austrian Social Security Database (ASSD) that cover all workers in one large province, Upper Austria. The data are matched employer-employee data, augmented with information from the statutory health insurance for 1998 and 1999, which provide information on the days on paid sick leave.

A regression discontinuity exploits the fact that firms can only, if at all, imprecisely manipulate an assignment variable which determines treatment, in our case, the payment of a deductible, or no treatment. The variation in the vicinity of the threshold can be interpreted as if obtained from a randomized experiment (Imbens and Lemieux 2008). The key identifying assumption for the causal interpretation of any difference in the vicinity of the threshold is that firms do not remain small to avoid the deductible.

---

1 A similar insurance scheme is still in place in Germany, where firms that have fewer than 30 employees receive part of their sick leave costs refunded by an insurance fund. In Austria, where the insurance mechanism was abolished in 2000, partial cost refunds for small firms were re-introduced in 2002.
Detailed examination of the distribution of firms at the threshold leads us to conclude that there is no evidence of manipulation which might violate the identifying assumption.

5. Results

We consider incidences, i.e., the sum of spells, and durations, i.e., the sum of absent days, in firms. These are weighted by the blue-collar workers' wage shares to account for differences in the firms' workforce compositions and wages. The weighting procedure has the aim to reflect differences in the (potential) relevance of the refund scheme for the cost structure of firms. Most estimates are not statistically significant at conventional error levels; those that are statistically significant indicate that large firms, not small firms, had more and longer sickness absences (Table 1). Robustness checks indicate that our results do not change by choosing alternative sickness indicators, spell definitions or by omitting the weighting procedure from our calculations.

### Table 1: Estimated effect of the deductible on sickness absences

<table>
<thead>
<tr>
<th></th>
<th>Interval around the threshold</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+/− 1500</td>
<td>+/− 1000</td>
<td>+/− 500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>τ (SE)</td>
<td>τ (SE)</td>
<td>τ (SE)</td>
<td></td>
</tr>
<tr>
<td>Spells</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimal bandwidth</td>
<td>0.489 (0.395)</td>
<td>0.444 (0.384)</td>
<td>0.423 (0.381)</td>
<td></td>
</tr>
<tr>
<td>Optimal bandwidth/2</td>
<td>2.182 (1.622)</td>
<td>1.568 (1.382)</td>
<td>1.349 (1.263)</td>
<td></td>
</tr>
<tr>
<td>Optimal bandwidth*2</td>
<td>0.470* (0.263)</td>
<td>0.510** (0.253)</td>
<td>0.528 (0.249)</td>
<td></td>
</tr>
<tr>
<td>Days</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimal bandwidth</td>
<td>4.877* (2.522)</td>
<td>4.869* (2.517)</td>
<td>4.865* (2.515)</td>
<td></td>
</tr>
<tr>
<td>Optimal bandwidth/2</td>
<td>2.485 (3.323)</td>
<td>2.532 (3.311)</td>
<td>2.556 (3.304)</td>
<td></td>
</tr>
<tr>
<td>Optimal bandwidth*2</td>
<td>4.431** (1.929)</td>
<td>4.433** (1.917)</td>
<td>4.434** (1.911)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>12,424</td>
<td>8,335</td>
<td>4,174</td>
<td></td>
</tr>
</tbody>
</table>

Note: \( \tau \) indicates the estimated difference in the sickness indicator due to the change in treatment. Spells are all sickness absences of blue-collar workers in a firm in a month, weighted by the blue-collar workers' wage shares. Days are all blue-collar workers' sickness days in a firm in a month, weighted by the blue-collar workers' wage shares. Only spells are considered during which firms continued to pay their absent workers, without imposing an upper limit on the duration of a spell. Standard errors in parentheses. The optimal bandwidths are calculated according to Imbens and Kalyanaraman (2012). The kernel is a triangle kernel *** \( p < 0.01 \), ** \( p < 0.05 \), * \( p < 0.1 \).
6. Conclusion and Discussion

Our results do not indicate any causal effect of the deductible on the sickness absences. We interpret our findings that the deductible is too low to induce management responses. The deductible is based on the wages paid to sick workers and, for the firms in our sample, amounts to 1.1 percent of the average total blue-collar wage bill in a firm.

Our results can be linked to earlier research on the effect of insurance deductibles on health care utilization. Chiappori et al. (1998), for example, find that the introduction of a small copayment rate in France did not lead to fewer GP consultations. Evidence on the moral hazard effects of deductibles is however mixed (Gerfin and Schellhorn 2006).

In our case the deductible must be contrasted with the total costs resulting from work loss due to absence, which might be substantially larger than the wage (Pauly et al. 2002). Finally, the relatively small deductible might be dominated by other costs a firm might face if it were to (aggressively) lower sickness absences, such as increased monitoring costs and possible negative effects on worker motivation. In a laboratory experiment, Duersch, Oechssler and Vadovic (2012) show that workers reciprocate generous sick pay with higher effort.

Table 2: Sick leave absence and lost worktime rates in Austria and United States.

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absence rate</td>
<td>2.3</td>
<td>2.4</td>
<td>2.4</td>
<td>2.6</td>
<td>2.7</td>
<td>2.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Lost worktime rate</td>
<td>2.8</td>
<td>3.1</td>
<td>2.9</td>
<td>2.9</td>
<td>3.5</td>
<td>3.2</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>US</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absence rate</td>
<td>2.3</td>
<td>2.2</td>
<td>2.2</td>
<td>2.3</td>
<td>2.2</td>
<td>2.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Lost worktime rate</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note: Data for workers aged 16 years+. The absence rate is the ratio of workers with absences to total full-time wage and salary employment. The lost work time rate expresses hours absent as a percentage of hours usually worked. Based on full-time workers only. Absences are defined as instances when persons who usually work 35 or more hours per week (full-time) worked fewer than 35 hours during the reference week because of own illness, injury or medical problems. Data for USA: CPS, BLS calculations; data for Austria: AKE, WIFO calculations.

We must be careful when generalizing our findings to other countries, particularly the United States. The United States are characterized by a very different set of regulations and institutional complementarities than Austria. Unlike Austria, in the
United States it is essentially the employer's decision to provide workers with paid sick leave provisions. As we show in a comparison between Austria and the United States which we include in the Appendix of our paper, this fundamental difference determines a large gap in worker benefit coverage rates between the two countries. Institutional differences are also mirrored in sizeable differentials in the distribution of sickness absenteeism, particularly with respect to the share of worktime lost due to sick leave (Table 2). Once we take into account these differences, the Austrian case, which is representative for other European countries, can however provide an instructive benchmark for the design of sick leave insurance.

7. References


