

2011

# Sickness Absence and Economic Incentives: Dissertation Summary

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This doctoral thesis deals with sickness absence and economic incentives. It analyzes how economic incentives, as set by policymakers, shape the decisions of employees to go on sick leave.

Despite its enormous relevance, the causes and consequences of workplace absences due to sickness are an under-researched field in economics to date. While there are a large number of studies that build upon correlates of sick leave behavior, studies that convincingly identify how incentives causally affect sick leave behavior are scarce.

In Germany, 4 percent of contracted labor is lost every year due to sickness absence (Badura, Schröder, and Vetter 2008). According to data from the Organisation for Economic Co-operation and Development (OECD), German employees take an average of 16.5 days of sick leave per year, while the average number of days of sick leave varies drastically among OECD countries between 4.1 (United States) and 29.2 (Slovakia) (OECD Health Data 2006). Currently, German employers spend about €25 billion per year for statutory employer-provided sick pay. This sum exceeds 1 percent of the total GDP. In addition, the public health insurance fund pays out about €6 billion annually for the long-term sick (German Federal Statistical Office 2009). To obtain a complete picture of the total amount of benefits paid due to work disability, one would need to add spending by private health insurance companies, disability insurance, and accident insurance, which replaces income losses due to work-related disability or accidents.

However, simply summing up the total benefits severely underestimates the total economic costs of sickness absence. For example, if the institutional framework is unable to prevent employees on temporary long-term sick leave from becoming permanently disabled, the economy loses a valuable qualified labor force. Especially in times of demographic change and a shrinking workforce, one crucial challenge of the social insurance system is to maintain employees' capacity to work as long as possible.

To draw on another example about how sick leave behavior may trigger indirect but important side effects, think about an inefficient sickness insurance system. On the one hand, particularly when benefit levels are generous, one may suspect that shirking behavior plays a substantial role. In other words, the fraction of employees who go on sick leave despite being able to work may be substantial. On the other hand, especially when benefit levels are less generous or the unemployment rate is high, presenteeism may be of importance. In other words, when a large proportion of employees

go to work despite being sick, this may lead to spillover effects at the workplace due to the spreading of diseases.

While most of these underlying causes and individual reasonings are difficult to unravel empirically, this thesis intends to shed some light on various aspects of how sick leave behavior is shaped. I analyze how sick leave behavior is affected by economic incentives that are varied by different policy reforms.

At the same time, I attempt to derive conclusions about the importance of the institutional setting for successful implementation of such reforms. Moreover, it is primarily the institutional setting that determines which actor carries the financial burden through the legal obligation to provide benefits. Since employers in Germany are obliged to provide sick pay for up to six weeks, I provide evidence on how policy reforms impact labor costs and how the labor market might adjust to such shocks in those costs.

The thesis consists of five independent chapters. Each chapter represents one research study and evaluates at least one specific policy reform in Germany. The unifying aspects of all studies, and hence this thesis, are the following. First, each chapter deals with sickness absence behavior and economic incentives. Second, each chapter evaluates policy reforms that were implemented in the mid-1990s in Germany. Third, each chapter builds upon the only data set that contains representative sick leave information for the whole of the German population: the Socio-Economic Panel Study (SOEP). Finally, each chapter makes use of the most recent microeconomic evaluation methods, which can be classified as "reduced-form" or "nonstructural."

Chapter 1 evaluates how a cut in the replacement level of the statutory sickness insurance in 1996 affected the sick leave behavior of private sector employees.<sup>1</sup> Here, I also approximate the impact on labor costs and calculate potential employment effects, one of the main reform objectives.

Chapter 2, which is unpublished and is my job market paper, evaluates how the reversal of the reform in 1999 affected sick leave behavior and labor costs. In this chapter, I make use of the rich SOEP data set to provide evidence on the underlying driving forces of the behavioral reactions and on heterogeneity in the reform effects. By characterizing the employees who were mainly responsible for the causal reactions, I also provide evidence on the potential significance of shirking behavior and presenteeism. Lastly, this chapter presents empirical evidence on how employers might have reacted to the shock in labor costs in a rigid labor market with strict dismissal protection.

Chapters 1 and 2 also serve as examples of how reform intention and actual reform implementation of labor market reforms may diverge in a labor market that is characterized by Bismarckian corporatism and a high degree of collective bargaining. The organizational structure of such labor markets restricts policymakers to merely setting federal minimum standards. However, they have no control over the

actual reform enforcement on the firm level, which enhances the risk of unpopular reforms failing. The main findings from the first two chapters, which both analyze short-term sick leave behavior, are summarized below.

First, employees clearly adapt their short-term sick leave behavior to changes in sick leave benefits. In 1996, the German legislature cut the statutory sick leave replacement level for private sector employees from 100 to 80 percent of foregone gross wages. This measure led to a fall in the average number of sick leave days of about 12 percent. Reversing the reform in 1999 increased average sick leave days by almost the same amount, namely by 10 percent. The response to the reform suggests that moral hazard plays a substantial role in the statutory sickness insurance and in the lower tail of the sickness spell distribution.

Interestingly, the two reforms triggered behavioral reactions in different parts of the sickness day distribution. The cut in benefits primarily induced employees to move from very few to zero absence days per year—the proportion of employees having zero absence days increased by about 8 percent. Contrarily, the expansion of benefits induced primarily unhealthy employees with more than 10 annual sick leave days to take more days off.

Whether the behavioral effects were primarily triggered by shirkers and employees who went on sick leave although they were able to work, or by presenteeism and employees who went to work although they were sick, remains an open question. I present empirical evidence that is in line with each of the two explanations.

Second, changing statutory sick leave benefit levels in an economy that is characterized by Bismarckian corporatism may lead to unintended side effects. Since policymakers can only vary federal minimum standards, their influence on how reforms are enforced on the firm level is limited. Employers are free to provide fringe benefits over and above statutory minimum standards. In the course of the first reform that reduced sick pay, it became clear that German society values a high level of statutory sick leave. A replacement level that falls behind what employees usually earn is considered to be unsocial by the majority of the Germans. The unpopular cut in sick pay provoked strikes and mass demonstrations.

Eventually, many employers agreed in collective wage agreements upon a voluntary provision of 100 percent sick leave. Estimates suggest that between 1997 and 1999, only half of all private sector employees effectively experienced a decrease in actual sick pay. In this particular reform, the divergence between reform intentions as envisioned by the policymakers and actual reform implementation was substantial. In 1999, large parts of the reform were reversed.

To take this noncompliance in the empirical specifications into account, I reviewed all existing collective agreements of that time. Based on their industry and actual sick leave scheme, I then assigned employees to different additional treatment and controls groups, which I used in more refined

specifications. These additional models and robustness checks confirm my main findings.

Third, changes in the sick pay levels directly translate into changes in labor costs because, in Germany, employers alone are legally obliged to pay for statutory sick leave. My calculations suggest that the changes in the level of statutory sick pay by 20 percentage points represented labor cost changes of approximately €1.5 billion per year, considering that only half of all employees' sick pay was effectively cut.

In a completely flexible labor market, economic theory would suggest that these exogenous shocks in labor costs would directly and immediately translate into changes in employment. Relating the estimated changes in labor costs to the findings of other studies for Germany that used general equilibrium models to estimate the relationship between labor costs and employment, the employment dimension of the sick leave reforms equates to around 50,000 jobs, relative to 30 million employees.

However, since employment protection is high in Germany, employers were likely to react to the shocks in labor costs in other ways. I present empirical evidence suggesting that in the aftermath of the increase in statutory sick pay, overtime hours increased and wages decreased in the private sector relative to other sectors.

Chapter 3 evaluates how a cut in statutory long-term sick pay affected the sick leave behavior of the long-term sick. I did not find any evidence that long-term sickness absence of over six weeks is characterized by monetary considerations. In other words, the long-term sick do not adapt their sick leave behavior to economic incentives. Evaluating the effects of a cut in statutory long-term sick pay from 80 to 70 percent of foregone gross wages in 1997, I did not find any empirical evidence for behavioral reactions.

A theoretical model confirms this finding under the assumption that the long-term sick are seriously ill. Thus, moral hazard seems to be less of an issue in the upper tail of the sickness spell distribution.

One explanation for this finding is the moderateness of the cut in long-term sick pay, which represented on average 7 percent of the net wage. Another explanation is linked to the severity of the underlying illness. While short-term sick leave is mainly determined by flu and minor ailments, the main catalysts of long-term sickness absence are cancer, chronic diseases, or mental illnesses. It is plausible that employees diagnosed with cancer, or who are mentally ill, are not very responsive to economic incentives.

Chapter 4 deals with convalescent care treatments. Convalescent care therapies at health spas involve periods of at least three weeks of workplace absence for employees.<sup>2</sup> The chapter shows that the demand for convalescent care treatments is price responsive. The decision by the government to double the daily copayments for convalescent care treatments from 1997 onward induced a decrease in the demand of these therapies of about 20 percent.

Since the question of the price elasticity of demand for medical care is a central economic question, I derive the following price elasticities: the price elasticity for medical rehabilitation therapies to avoid permanent work disability is inelastic and lies around  $-0.3$ . Slightly smaller but still inelastic is the price elasticity for medical rehabilitation therapies to recover from accidents at work. According to my calculations, it is about  $-0.5$ . Conversely, I find the price elasticity for preventive therapies at health spas to be less than  $-1$  and thus elastic.

The last chapter of the thesis shows how effective direct policy measures are in comparison to indirect measures. Direct policy measures such as increasing copayments unambiguously and universally affect the target population. Indirect measures such as cutting statutory sick pay or widening the options for employers to cut paid vacation in the event of long sick leave simply decrease social minimum standards.

While increasing copayments was very effective in dampening the demand for convalescent care, the other cost containment instruments were less effective. I did not find any evidence that the newly introduced option for employers to cut paid vacation in case of sickness absence due to convalescent care was effective. There is no empirical evidence for the notion that this measure reduced the demand for convalescent care therapies at health spas. Likewise, the cut in statutory sick pay did not reduce the demand for convalescent care therapies.

I have two main explanations for these last two findings. First, the cut in paid vacation may have had no effect since many employees use some or all of their vacation days for convalescent care in any case. Although entitled to take paid sick leave in addition to their paid vacation, many employees fear negative job consequences, especially when unemployment rates are high. Second, the cut in sick pay was not necessarily a binding constraint for most employees since they might have faced a decision of going to rehabilitation or simply staying at home to recover. They would have been on sick leave anyway.

Overall, evaluating five different policy reforms and their effects on sick leave behavior, I show that short-term sick leave behavior in particular is responsive to economic incentives. For sickness periods of over six weeks, I did not find such evidence. Policymakers should consider the institutional setting and potential side effects when implementing reforms. When policymakers are in a position to vary parameters that directly and universally affect the target population, the likelihood of successful implementation of the reform is high. As long as policymakers can only vary minimum standards in the regulatory framework of the economy, many actors within the institutional framework may successfully prevent the enforcement of the reform as intended by the policymakers. This is especially true of unpopular reforms.

## Notes

1. Chapter 1 is published as “A Natural Experiment on Sick Pay Cuts, Sickness Absence, and Labor Costs” (Ziebarth and Karlsson 2010).
2. Chapter 4 is published as “Estimating Price Elasticities of Convalescent Care Programmes” (Ziebarth 2010).

## References

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