



## The determinants of sick leave durations of Dutch self-employed

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### ABSTRACT

This paper analyzes sickness absenteeism among self-employed in the Netherlands. Using a unique data set provided by a large Dutch private insurance company, we assess the determinants of sick leave durations. Our study suggests that several risk factors affect the sick leave durations of self-employed in a similar way as they influence the absence spells of employees according to the literature. For example, the recovery rate decreases with age and claimants suffering from psychological diseases have a lower recovery rate relative to claimants with other disorders. Furthermore, the sick leave durations of self-employed last longer when the economy is booming. In contrast to what the literature generally documents for employees, we do not find any evidence for moral hazard effects with respect to the benefit compensation level. Moreover, the absence spells of self-employed last longer in periods of high unemployment, whereas the opposite effect is usually documented for employees. We do not establish any significant gender differences in the sick leave durations of self-employed. Contract-specific factors such as insurance brand and deferment period are typical characteristics of insurance contracts for self-employed and play an important role in explaining their sick leave durations. Finally, the introduction of insurer-based case management significantly increased the recovery rate of self-employed with an ongoing spell up to 1 year. By contrast, case management did not succeed in improving the recovery rate of claimants trapped in long-term sickness absence.

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### 1. Introduction

More than 10% of the Dutch labor force consists of self-employed. Although recent figures are scarce, long-term sickness prevalence in this group seems relatively high; about 6% in 2001.<sup>2</sup> Income insurance for self-employed in the Netherlands has only been available from private insurance companies. Before August 2004, self-employed fell under the 'Wet Arbeidsongeschiktheid Zelfstandigen' ('Self-Employed Income Insurance Act', henceforth abbreviated as WAZ), which obliged them to participate in a collective income insurance scheme. Since the abolishment of the compulsory public insurance, private income insurance has gained importance. For the insurance companies involved it is crucial to

understand which factors affect sick leave durations. The relevant risk factors can be used to obtain information about the riskiness of applicants and to determine evidence-based underwriting criteria for income insurance. Furthermore, a better understanding of underwriting criteria determines whether or not insurers enter this market at all, and if so, the premium they charge. Availability of such an insurance may be a determinant in the decision to become self-employed (Buchmueller and Valletta, 1999; Gruber and Madrian, 2002). Another important question for insurance companies is how to design the service process in order to improve the recovery probability of sick individuals, thus shortening the duration of benefit payments. In other words, can the speed of recovery be influenced by the way sickness absenteeism is monitored and managed and, if so, how?

There exists an extensive body of literature on the risk factors for sickness among employees. Sociodemographic characteristics, disease category and severeness, economic incentives, mental and physical health of the employee, job and company characteristics, employer or insurer-based case management and macro-economic factors have been shown to affect the return-to-work process (see the survey article by Krause and Lund, 2004). Studies focusing on sickness absenteeism among self-employed are extremely scarce. Yelin et al. (1980) and Krause et al. (1997) document, respectively,

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<sup>2</sup> More precisely, self-employed constituted 12.5% of the Dutch labor force in the second quarter of 2007. In absolute numbers, 909,000 individuals were self-employed on a labor force of 7.3 million people. Source: the 'Centraal Bureau voor de Statistiek', see [www.cbs.nl](http://www.cbs.nl).

shorter and longer sick leave durations for self-employed relative to employees. Also among the few empirical studies on sickness absenteeism of self-employed is Hartman et al. (2003). The authors use data on sick leave claims provided by a private Dutch insurance company to analyze the frequency and duration of sick leave among (self-employed) Dutch farmers. The authors find that both the claimant's age and type of illness affect the duration of the incapacity. Bakker et al. (2006), who review over 350 articles on sick leave, point out that the risk factors identified for employees do not necessarily apply to self-employed. The two populations may have different characteristics. Moreover, the working conditions and benefits of self-employed and employees, as well as their remuneration methods, generally differ. Furthermore, self-employed have more freedom than employees to adjust their actual labor supply to labor demand. Therefore, it seems unlikely that absence spells reflect quantity rationing of labor supply as discussed e.g. in Brown and Sessions (1996). Hence, we expect the sick leave durations of self-employed to be less 'contaminated' by shirking. Other differences may arise due to the specific nature of private insurance. According to contract theory, competitive insurance markets are characterized by asymmetric-information effects between insurer and insured about the risk incurred by the insured. The self-employed is better informed about his probability to fall ill and about the conditional distribution of his sick leave duration. This informational advantage directly affects the insurer's expected costs of providing an insurance contract. Due to adverse selection effects, risk assessment generally plays a more important role in private than in public insurance.

Our study assesses the determinants of sick leave durations among self-employed, thus contributing to the scarce literature on sickness absenteeism in this group. We compare the risk factors for self-employed to those generally found for employees. We use a unique data set of sickness claims by self-employed working in various professions, provided by a private Dutch insurance company. A wide range of survival models is applied to assess the determinants of the absence duration. We explicitly take into account various sociodemographic, contract-specific, and business cycle variables. Furthermore, we consider the role of economic incentives on the return-to-work process of self-employed by assessing the impact of the compensation benefit level on the duration of the incapacity. Moreover, we investigate how a fundamental change in the way the insurance company monitored claimants affected the duration of the incapacity. More specifically, until mid-2003 this insurance company focused primarily on assessing the legitimacy of the claims and on determining the proper benefit payment according to the terms of the claimant's insurance contract. From mid-2003 onwards, the insurance company shifted its focus to trying to shorten the absence durations by active case management. To this end, dedicated case managers now perform the intake interview and monitor the recovery process, while opportunities for alternative employment and the usefulness of interventions are also considered as part of the standard procedure. To our best knowledge, the existing literature on case management and vocational interventions all focus on employees and not on self-employed (see e.g. Donceel et al., 1999; Høgelund and Holm, 2006). Therefore, the present paper is also an initial attempt to assess the impact of insurer-based case management on the return-to-work process of self-employed.

Our case study suggests that several risk factors affect the sick leave durations of self-employed in a similar way as they influence the absence spells of employees according to the literature. For example, the recovery rate decreases with age and claimants suffering from psychological diseases have a lower recovery rate relative to claimants with other disorders. Furthermore, the sick leave durations of self-employed last longer when the economy is booming. In

contrast to what the literature generally documents for employees, we do not find any evidence for moral hazard effects with respect to the benefit compensation level. The replacement income does not significantly affect the recovery rate. The absence spells of self-employed last longer in periods of high unemployment, whereas the opposite effect is usually documented for employees. We do not establish any significant gender differences in the sick leave durations of self-employed. Moreover, contract-specific factors such as insurance brand and deferment period are typical characteristics of private income insurance schemes and play an important role in explaining sick leave durations of self-employed. Finally, the introduction of insurer-based case management significantly increased the recovery rate of self-employed with an ongoing spell up to 1 year. By contrast, case management did not succeed in improving the recovery rate for claimants trapped in long-term sickness.

The paper is structured as follows. A review of relevant theoretical and empirical literature regarding work absenteeism is presented in Section 2. This section also discusses the main differences in work absence between self-employed and employees. Section 3 explains the Dutch system of income insurance for self-employed. Section 4 describes the data and provides an explorative analysis of the claims in our sample. Next, Section 5 describes the survival models used in the empirical part of this paper. Section 6 discusses the corresponding estimation results and several robustness checks are presented in Section 7. Lastly, we summarize our conclusions in Section 8.

## 2. Literature review

This section reviews relevant theoretical and empirical literature dealing with worker absenteeism. Subsequently, we zoom in on absenteeism among self-employed and highlight important differences relative to worker absence.

### 2.1. Theoretical literature

Three main models explaining worker absence have been proposed in the economic literature: the labor-leisure choice model, the efficiency-wage model and the contract model of absence. See Brown and Sessions (1996) for a comprehensive survey of this literature. In the classical labor-leisure choice model (Allen, 1981; Barmby and Treble, 1991; Barmby et al., 1991; Dunn and Youngblood, 1986), the optimal level of consumption and labor supply given a stock of time is determined by maximizing utility subject to a budget constraint. Absence from work is an attempt by workers to bring the actual hours worked more in line with desired hours by working less than the official hours fixed in the job contract. The efficiency-wage approach (Barmby et al., 1994; Skåtun and Skåtun, 2004) assumes that there is asymmetric-information regarding worker health. Workers may claim sick pay when they are actually in good health. To detect this kind of 'shirking', firms employ a costly monitoring technology. The firm chooses the wage and the number of contracts to maximize expected profits. The main result of the model is that the efficiency-wage rate increases with the costs of monitoring workers. According to the contractual approach of e.g. Coles and Treble (1993, 1996) and Skåtun (2003), absenteeism is the result of interaction between firm and worker. Workers may either choose to be at work, to be absent because of illness, or to be absent without a cause. In the two latter cases the employee will receive sick pay. The firm only observes whether a worker is absent or not, resulting in a moral hazard problem. The model assumes that the firm chooses a wage-sick pay contract to maximize profits, subject to a zero-profit condition (i.e. free entry of firms) and an incentive compatibility constraint. The latter con-

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