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journal homepage: www.elsevier.com/locate/jpubeSpillovers from gatekeeping – Peer effects in absenteeism[☆]Anna Godøy^{a, b, *}, Harald Dale-Olsen^b^aInstitute for Research on Labor and Employment, University of California, Berkeley, United States of America^bInstitute for Social Research, Oslo, Norway

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ABSTRACT

We study peer effects in absenteeism among workplace colleagues. Gatekeeping is an essential task in many insurance systems. In this study we exploit exogenous shifts of general practitioners (GPs) occurring when physicians quit or retire. We find that these shifts induce changes in absenteeism for affected workers. By utilizing high-quality Norwegian matched employer–employee data with detailed individual information on certified sick leave during the period 2003–2012, we can study how the transfer of workers between GPs affects co-workers' absenteeism. We identify strong causal positive peer effects in absenteeism: a one day change in focal worker sickness absence transfers to a 0.41 day shift in peer absence.

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1. Introduction

The role of social preferences and norms in determining individual behavior and effort choices has been studied both theoretically and in lab experiments. A substantial literature has examined how colleagues influence each other through work ethics (Casadesu–Masanell, 2004), altruism and reciprocity (Adams and Rosenbaum, 1962; Akerlof, 1982) and fairness considerations (Adams, 1963; Akerlof and Yellen, 1990; Fehr and Schmidt, 1999). Individual worker behavior is typically not directly observable, making it difficult for firms to make contracts explicitly conditional on employee effort. Making contracts conditional on realized output will be costly for firms whose risk averse workers must be compensated for expected fluctuations in income. With incomplete contracts, social preferences

and norms can be an important factor in determining effort behavior at work (Fehr and Gächter, 2000).

In this paper, we analyze social spillover effects in worker absenteeism. Sickness absence is costly, both for business and public finances. In OECD countries, the cost of disability and sickness programs is much higher than spending on unemployment (OECD, 2010): In 2007, OECD countries spent an average of 0.8% of GDP on private and public sick leave programs alone. Moreover, the cost of absenteeism to firms may exceed the cost of sick pay due to disruptions to production. Peer effects in sickness absence may amplify such distortions.

Sickness absence is notoriously difficult for employers to control directly, as employee health is private information, observable only to the employees themselves and, to some degree, their physicians. In addition, the institutional context we study is such that workers have few economic incentives not to call in sick – during short term sickness absence, replacement ratios of benefits are high (typically 100%), and workers are legally covered by job protection legislation.

Economic theory suggests peer pressure may give rise to social spillover effects in absenteeism through local effort norms (Kandel and Lazear, 1992). Identifying such peer effects empirically is challenging however, as coworkers tend to be similar to each other at the outset. Moreover, coworkers may be subject to correlated shocks – e.g.

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similar work related health risks - that influence absence patterns, giving rise to a spurious within-group correlation in absenteeism.

To identify causal spillover effects, our empirical strategy focuses on the absence patterns of individuals whose colleagues experience an arguably exogenous shift in absence rates. In Norway, all residents are registered with a general practitioner (GP). These doctors act as the primary gatekeepers for paid sick leave, as all sickness absence lasting longer than 3 days must be certified by a physician. The basic premise of our identification strategy is that doctors will differ in their certification behavior, even when faced with identical patients.

When a GP quits or retires, their entire patient lists are typically sold along with the practice. As a consequence, an entire group of patients is shifted between two physicians with potentially different certification behavior. This allows us to compare the certification behavior of two doctors who face the same patients, recovering an unbiased measure of the difference between the two doctors' underlying certification propensities. We show that estimated certification propensities are significant in explaining changes in absence rates of the transferred patients.

Next, we use the estimated physician effects to estimate spillover effects on the focal workers' colleagues. As these colleagues are not directly affected by the physician transfer, any effect on this group can be interpreted as spillover effects. With this approach, we identify significant spillover effects in absenteeism among peers at work: depending on specification, a one percentage point increase in absence rate of focal workers increases the absence rates of similar age colleagues by up to 0.41 percentage points.

Estimated effects are stronger for coworkers who are close in age to the focal worker, which is in line with what we would expect if our estimates reflect social contagion. Extended models find that the effect is indeed behavioral and not driven by infectious diseases spreading among colleagues: focal worker absence increases peer absence that is due to non-communicable conditions (musculoskeletal, psychological). If anything, peer absence due to respiratory infections actually tends to fall slightly when the focal worker's absence increases, indicating that encouraging sick employees to stay home rather than go in to work may reduce the spread of contagious diseases at the workplace.

During the last decade, several studies have addressed social interaction issues related to sick leaves (Hesselius et al., 2009; Dale-Olsen et al., 2015; Lindbeck et al., 2016), disability receipt (Rege et al., 2012; Dahl et al., 2014a), welfare utilization (Åslund and Fredriksson, 2009; Markussen and Røed, 2015) and parental leave (Dahl et al., 2014b). These studies indicate a strong presence of social interaction effects.

Causal identification of peer effects using observational data is challenging (Manski, 1993): as individuals sort themselves into peer groups, outcomes tend to be correlated within peer groups even in the absence of causal peer effects. One identification strategy used to overcome these problems involves studying some reform or experiment which affected a group of individuals, identifying social interaction effects by measuring changes in outcomes among non-affected individuals. Several of the studies above follow such an approach directly, e.g., Hesselius et al. (2009) and Dahl et al. (2014b), while others achieve this indirectly (e.g., Dale-Olsen et al. (2015) exploited a tax reform which affected a limited number of workers).

Hesselius et al. (2009) was the first study to convincingly identify peer effects in sick leave behavior among colleagues. The authors utilized variation from a 1988 experiment in Gothenburg, Sweden, where half the city's population were randomly assigned treatment in the form of increased maximum duration of self-certified sick leave (12 days for the treated versus 6 days for the control group) – the experiment significantly increased absence rates in the treated group. Hesselius and co-authors find that as the share of treated workers at the workplace increases, so do the sick leave days of the untreated

colleagues, i.e., the untreated workers respond to the behavior of their colleagues.

While our paper is clearly related to Hesselius et al. (2009), the value-added is considerable. Our key result is that we show that the peer effects in sick leave behavior is not limited to self-certified absence from work, but even extend to physician-certified sick leaves. This is a relevant finding in its own right, as it indicates that the presence of gatekeepers does not stop these peer effects from happening.

From an economic policy point of view this is important, as physician-certified sick leave tends to have a greater public finance effects compared to short term absence. Physician-certified sick leaves constitute the majority of the lost work days in most countries.¹ The distribution of sickness absence is highly skewed, with long term absence accounting for most of the cost of sick pay. Moreover, many welfare regimes follow a pattern where sick pay for short term, self-certified absences are covered by the employer or not at all, while long term, physician-certified absences are covered by public authorities.

The findings in this paper point to a policy lever to reduce long term absence rate. Our research design highlights the importance of the GP as a gatekeeper in the welfare system, while pointing out likely multiplier effects. In the presence of moral hazard, policymakers will often face a difficult tradeoff between providing full insurance – 100% sick pay – and maintaining incentives for work and economic self-sufficiency. Stricter gatekeeping is often proposed as a way to reconcile these two policy objectives. Our findings predict that increased gatekeeping will have multiplier effects, effectively magnifying the impact of these policies: in our policy simulations, we find that spillover effects account for 43% of the impacts of a simulated gatekeeping reform.

Finally, our data includes information on diagnosis-specific absence rates, allowing us to examine the pattern of peer effects in more detail. Specifically, we show how the peer effects arise through specific complaints and disorders, and can discuss our results in relation to transmittable diseases, effort-provision and workload.

A number of papers have used variation in gatekeeper leniency to identify effects of disability insurance (DI), by exploiting random assignment of adjudicators and medical examiners (Maestas et al., 2013; French and Song, 2014). One particularly relevant paper is Dahl et al. (2014a)'s paper analyzing the intergenerational transmission of disability insurance (DI) enrollment. Applicants who were assigned more lenient judges were more likely to be granted DI on appeal. In a second step, applicants were matched to their adult children, using the random variation in judge leniency to identify "family welfare cultures". The authors found evidence of significant spillover effects: persons whose parents were assigned more lenient judges were themselves more likely to be enrolled in DI as adults.

Our paper differs from this literature in one important aspect: in the case of GPs, gatekeepers are not randomly assigned. In particular, patients may self-select to more lenient GPs in order to get more absence days. Our identification strategy then relies not on random assignment of the initial GP, rather we argue that the change in GP induces a shift in certified absence patterns that is as good as random. These GP changes have been used as a natural experiment to estimate the impact of GPs on absenteeism (Markussen et al., 2013). We discuss this assumption of random assignment in more detail in Section 3.

The paper whose empirical approach perhaps most closely resembles that of the present paper is Dahl et al. (2014b)'s work on peer effects in the take-up of paternity leave. In the paper, the

¹ While the numbers vary over the period we study, on average 10–20% of absence in Norway is self-certified, with the rest being physician-certified.

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