Understanding Firm Behavior

To my family and Josefin

Acknowledgements

It is with mixed feelings I conclude that my time as a Ph.D. student has come to an end. Now that my thesis is finalized, I would like to express my gratitude to numerous people and organizations that have been of invaluable importance throughout these years.

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The Role of Recruitments and Institutional Reforms

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Abstract

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The topic of this thesis is firm behavior and how it is shaped by institutional changes and firms' recruitment decisions.

The first essay studies how the recruitment decisions made by small and medium-sized enterprises (SMEs) affect their subsequent productivity development. Previous studies have shown that being able to recruit employees with complementary skills is associated with skill improvement among incumbent personnel, suggesting that new recruits promote productivity through knowledge spillovers. Using matched employer-employee data, we find that recruiting personnel from large multinational firms can be instrumental for the performance of SMEs.

In the second essay, we evaluate the labor market effects of the 2007 Swedish youth payroll reform. This reform generated considerable labor cost savings for firms, related to their pre-reform number of young employees. We study the effects of these savings on firms' subsequent employment growth and wage development. Our findings suggest that a total of 18,100 jobs were created over the period 2006-2008 and that the savings were partially used to increase the total wages for incumbent employees.

The third essay utilizes the 2007 Swedish youth payroll reform to analyze whether general labor cost reductions enhance labor market opportunities for non-western immigrants. In contrast to targeted and time-limited wage subsidies for immigrants, which have frequently been used in the past, these savings were not tied to a specific group or to a certain time period. A strong and positive link between the amount of firms' labor cost savings and the employment of first-generation non-western immigrants is found.

The fourth essay evaluates the efficiency of a staff register reform introduced within the Swedish restaurant and hairdresser industries in 2007. The aim of this reform was to prevent firms from deliberately understating their wage payments and, thereby, evading taxes. We estimate the effect of the staff register reform on wages per employee and find wage increases of 2.17-10.2 percent per incumbent employee at restaurant firms during the four years following the introduction of the reform. Through a revenue-cost comparison, we compare the estimated gain in tax revenues to the total costs borne by firms and the tax authority. Our findings imply that the total costs exceed the tax revenues, suggesting that this reform is unlikely to be economically justified.

Keywords: Recruitment, knowledge spillover, labor cost, labor demand, employment, immigrants, payroll tax, wages, tax evasion

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Table of Contents

Introductory Chapter

Essay 1. Recruiting for small business growth: Micro-level evidence

Essay 2. How do firms respond to reduced labor costs? Evidence from the 2007 Swedish payroll tax reform

Essay 3. Firms' labor cost savings and recruitment of non-western immigrants: The unintended effect of a payroll tax reform

Essay 4. Compulsory staff registers as a way of increasing firms' wage reporting: A revenue-cost analysis

Introductory Chapter

Anton Gidehag

1. Introduction

Many institutions are perceived as deeply rooted, including, for instance, traditions and norms and therefore change slowly (Williamson, 1998; 2000). Such institutions are considered informal and embedded in society. At a general level, Williamson (1998) refers to the institutional environment as the rules of the game, including, for instance, how property rights are defined. The institutions of governance are considered the play of the game and involve finding the optimal governance structures. Some institutions change on a more frequent basis and are thus easier to affect through policy. For instance, they are related to how firms' decision making is affected by changing market conditions and how to obtain the right marginal conditions (Williamson, 1998). The focus of this thesis is on those institutions that are more frequently changing. In particular, the topic of this thesis is how institutional reforms and firms' recruitment decisions alter their subsequent firm behavior in terms of employment, tax evasion and productivity.

One question that is addressed in this thesis is how the recruitment of key personnel alters firm productivity among small and medium-sized enterprises (SMEs). Labor mobility is crucial for the transfer of knowledge between firms and, thus, for firms' ability to innovate and grow (Almeida and Kogut, 1999; Cooper, 2001; Fosfuri et al., 2001). The first essay, *Recruiting for small business growth: Micro-level evidence* (Gidehag and Lodefalk, 2017), focuses on the importance of recruiting managers and professionals for subsequent productivity growth among SMEs. SMEs are of particular interest since they have proven to be essential for net job creation (Henrekson and Johansson, 2010). Arguably, being able to recruit key personnel may provide SMEs with a competitive advantage, further fostering their growth. However, it is somewhat challenging for most SMEs to match the job offers made by larger and more established firms. Therefore, finding ways to facilitate SMEs' opportunities to attract key personnel is of crucial interest.

Identifying institutional changes that can improve firms' employment opportunities is also important, considering that the unemployment rates of many disadvantaged groups in the labor market have remained at high levels in the aftermath of the recent financial crisis (Papademetriou et al.; Bruno et al., 2014). There is also an imminent risk that these high unemployment rates may become persistent (Phelps, 1972; Heckman and Borjas, 1980; Arulampalam et al., 2001).

Against this background, the second essay, *How do firms respond to reduced labor costs? Evidence from the 2007 Swedish payroll tax reform* (Daunfeldt et al., 2019a), evaluates the implications of a payroll tax cut, introduced with the aim of reducing youth unemployment in Sweden. This reform constituted an institutional change that had a direct impact on firms' employment opportunities. In a highly unionized country such as Sweden, policymakers have limited opportunities to lower the minimum wage levels since these levels are decided in negotiations between employer organizations and trade unions. Instead, implementing payroll tax cuts is considered an alternative way to incentivize firm-level employment. Such reforms are, however, often claimed to cause wage inflation among insiders in the labor market at the expense of outsiders' opportunity to become employed (Holmlund, 1983; Gruber, 1997). We acknowledge that the youth payroll tax reform had an indirect effect of generating general labor cost savings, which were directly related to firms' number of young employees at the implementation of the reform. From a broad perspective, it is of interest to analyze whether general labor cost reductions can enable firms to increase their employment.

The third essay, *Firms' labor cost savings and recruitment of non-western immigrants: The unintended effect of a payroll tax reform* (Gidehag, 2019), utilizes the same reform as the second essay but has some notable differences. In the previous literature, it has been acknowledged that many immigrant groups are facing great challenges in the labor market due to, for example, discrimination, high minimum wages, lack of language skills, limited education and little work experience (e.g., Phelps, 1972; Arai and Thoursie, 2009; Jardim et al., 2017; Chiswick and Miller, 2009; Eriksson, 2011; OECD, 2014). Offering employers hiring subsidies might be one way to improve the labor market situation for immigrants and other disadvantaged groups (Martin and Grubb, 2001). However, the efficiency of such hiring subsidies has been questioned because they can be associated with deadweight losses and the displacement of regular employment and lead to only minor net gains in employment (Martin and Grubb, 2001; Kluve, 2006; Nekby, 2008). In addition, it has been argued that such hiring subsidies can have stigmatizing effects on the targeted group and that broadly targeted subsidies are likely to prove more successful (Katz, 1996; Neumark, 2013).

In particular, the third essay focuses on the effects of payroll tax reform on the employment of immigrants of non-western origin. The labor cost savings generated by the reform were both immediate and general in the sense that they were not conditional on employing a certain group of individuals in the postreform period. In that regard, the savings resembled the general hiring subsidies suggested by Katz (1996) and Neumark (2013), which makes them interesting to evaluate in the context of disadvantaged immigrant groups. In addition, this essay evaluates whether the effect of such savings on immigrant employment is particularly prominent in certain industries, which is to be expected, considering that there are large cross-industry differences in job skills and educational requirements.

The fourth and final essay, *Compulsory staff registers as a way of increasing firms' wage reporting: A revenue-cost analysis* (Daunfeldt et al., 2019b), studies how an institutional reform altered another facet of firm behavior, namely, tax evasion. Tax evasion constitutes a major problem in many countries, and there is evidence suggesting that tax evasion among firms might be as problematic as tax evasion among individuals (Fisher and Goddeeris, 1988). Arguably, firm-level tax evasion not only leads to a loss in tax revenue but also results in unfair competition among firms. Despite this being an important topic, the previous literature has mainly focused on individuals' tax-evading behavior and has seldom provided suggestions for appropriate measures to prevent firms from evading taxes (Joulfaian, 2000; Crocker and Slemrod, 2005). The fourth essay contributes to filling this gap by evaluating the efficiency of a reform that made staff registers compulsory within the Swedish restaurant and hairdresser industries. By preventing firms from concealing wage payments, the goal was to level the playing field and to provide fair competition, thereby enhancing firm conditions. However, when policymakers make institutional changes that alter the laws and rules under which firms operate, it is important to also consider the indirect effects that may have a negative impact on firm behavior. Such changes can, for instance, result in higher administrative costs and increased regulatory burden, which tend to have a negative influence on growth ambitions, productivity and the number of startups (Klapper et al., 2006; Schivardi and Viviano, 2011; Dreher and Gassebner, 2013).

The outline of the introductory chapter is as follows. The next section describes the theoretical backgrounds related to the four essays. The data sources, key variables and multiple empirical methods used in this thesis are briefly discussed in the third section. The fourth section contains summaries of the main findings from each essay. Finally, the fifth section presents the main conclusions derived from this thesis, discusses limitations and provides suggestions for future research.

2. Theoretical background

2.1. Knowledge spillovers

An individual gathers knowledge, which has positive externalities and may increase the productivity of coworkers, the current employer and other firms (Moretti, 2004a; 2004b). Such knowledge might, for instance, be gathered through education or on-the-job training. Throughout his/her career, an individual accumulates knowledge about, for instance, technology, marketing, finance and the management of firms. Part of that knowledge is tacit and individually bound, implying that labor mobility is key for knowledge transfer to take place between firms and, thus, for these firms' opportunities to innovate and grow (Almeida and Kogut, 1999; Cooper, 2001; Fosfuri et al., 2001). A new employee might, for instance, transfer knowledge to others through instruction or demonstration (Keller, 2004).

Numerous studies have analyzed how knowledge spillovers alter firm performance (Moretti, 2004b; Boschma et al., 2009, 2014; Andersson and Klepper, 2013). However, the degree to which bringing in new knowledge improves firm performance is likely to depend on the matching between the employer and the new employee as well as the workplace similarity. Previous research has, for instance, found that being able to recruit an employee from an international firm can prove to be particularly beneficial for the receiving firm's productivity development (Balsvik, 2011). The importance of bringing in new knowledge through recruitment arguably also varies with the size of the firm, where a new recruit can have a particularly large impact when entering a small firm. Another factor that is important in determining the magnitude of the knowledge spillover effect is the work position of the new employee; those employees entering influential positions might find it easier to implement their knowledge (Mion and Opromolla, 2014). Managers and professionals are particularly interesting in this context for two reasons. First, they can be expected to have gathered knowledge, e.g., about technologies, leaderships and social networks, from holding responsible positions at their previous employers. Second, their leading positions at the new employer enable them to make their knowledge count, e.g., by transmitting new ideas and extending the firm's social network.

Although employing individuals with unique knowledge can be essential for firm performance, not all firms are able to do so. Small firms may, for instance, struggle due to financial constraints and the inability to match the job offers made by larger and more established firms. A strict employment protection legislation (EPL) may constitute another barrier to recruitment, especially for small firms (Millán et al., 2013), and may entail that job movers lose, or decrease, their job protection, which in turn could prevent key personnel from making such a move. Furthermore, a strict EPL is associated with a higher risk when recruiting since it makes it more difficult to lay workers off, which is emphasized by Millán et al. (2013), who find that entrepreneurs face a higher risk when hiring and that lowering EPL is linked to higher job mobility among small firms. Therefore, less strict labor market legislation arguably constitutes an institutional change that can facilitate the opportunities of smaller firms to attract key personnel.

2.2. Payroll tax reductions

The standard theory of the interaction between labor demand and labor supply predicts that a reduced payroll tax causes an increase in both employment and the wage level. In a two-dimensional figure with wages on the vertical axis, employment on the horizontal axis, a downward sloping labor demand and an upward sloping labor supply, a payroll tax reduction is illustrated by an outward shift in the labor demand curve. The equilibrium employment and wage levels are located where labor demand equals labor supply. The extent to which reduced payroll taxes induce increases in employment and wages is, however, determined by the elasticities of labor demand and supply. A highly elastic labor demand or labor supply implies a larger effect on employment and a smaller effect on wages.

It has been argued that payroll tax reductions have little impact on employment and instead result in increased wage levels (Holmlund and Kolm, 1998; Gruber, 1997). In cases where unemployment benefits are determined in relation to the general wage level, it has been claimed that a reduced payroll tax results in long-run increases in both wages and the unemployment benefit level. The increased unemployment benefit further pushes up the wage level, which could offset the initial effect on employment (Holmlund and Kolm, 1998). In such circumstances, a payroll tax reduction generates increased wages, but employers' wage costs are left unchanged, implying that the incidence of this tax falls entirely on employees, which is similar to the outcome of a perfectly inelastic long-run labor supply.

In the event of targeted payroll tax reductions for a specific age group, standard theory predicts a similar outcome. Consider nontargeted individuals who are substitutes for the eligible age group, e.g., those who are close in age, and who thus receive the same wage as the eligible age group prior to the reduction. After the reduction, the wages for the eligible individuals increase until labor demand and labor supply are again equalized (Saez et al., 2019). At this new equilibrium, the wages for the eligible are higher, but employers' wage costs for the two groups remain the same. In practice, however, it is not obvious that this will be the final outcome. In fact, Saez et al. (2019) find that employers—not the targeted employees—bear the full incidence of a targeted payroll tax reduction, with lower wage costs as a result.

There are numerous potential reasons why a targeted payroll tax reduction is not completely shifted to employees in the form of increased wages. Employers might, for example, be unable to raise wages only for targeted individuals, e.g., due to discriminatory policies or wage equality regulations. An employer may also have a self-interest in limiting the internal wage dispersion if the personnel care about their relative incomes and to avoid job dissatisfaction among nontargeted employees (Card et al., 2012). In addition, the relative bargaining power of employers versus trade unions and the design of the wage bargaining system are key determinants of the wage spillover effect (Bauer and Riphahn, 2002; Bennmarker, 2009).

The Swedish payroll tax reform evaluated in this thesis targets all young individuals, i.e., both existing and new employees. Consequently, firms that have young employees at the time of reform implementation receive labor cost savings, proportional in magnitude to the total wage costs for these individuals. Since the price of one input factor, namely, youth labor, is reduced, the payroll tax reduction gives rise to both a substitution effect and a scale (output) effect (Egebark and Kaunitz, 2013; Saez et al., 2019). As young employees become less costly, the substitution effect predicts that a firm will rearrange its usage of input factors and shift to using more youth labor. However, a reduction in the cost of having young employees also decreases a firm's costs of producing a given level of output, leading to a downward shift in the marginal cost of production. In turn, this entails that the profit-maximizing output level increases, which—due to the scale effect—incentivizes the firm to increase its production and, thereby, its usage of other input factors. The scale effect could, therefore, incentivize increased employment of individuals who are not directly targeted by the payroll tax reduction.

2.3. Tax evasion among firms

The majority of the previous research on tax evasion has focused on individuals' decision to evade taxes, while that on firms' tax evasion is sparse in comparison (Joulfaian, 2000; Crocker and Slemrod, 2005). There are several ways that a firm can evade taxes, for instance, by intentionally underreporting its profits, sales, output or wage costs.

Theoretically, a firm that decides to evade taxes can be assumed to maximize its expected profit, optimizing both the output level and level of tax evasion (Cowell, 2002). The expected profit level negatively depends on the firm's expected tax level, which, in turn, is possible to manipulate by adjusting the amount of tax evasion. In addition, the firm accounts for the average concealment cost, i.e., the cost associated with misreporting taxes, which is also negatively related to its expected profit level. In this maximization problem, the optimal amount of tax evasion is found where the marginal cost of concealment is equal to the marginal reduction of the expected tax rate. Moreover, an increased probability of being detected evading taxes and higher penalties are associated with reduced tax evasion. When policy-makers implement policies to prevent tax evasion, it is arguably important for them to identify and understand the determinants of firms' concealment costs. Cowell (2002) argues, for instance, that the concealment cost related to a physical good is likely to be higher than that for a service and that firms with complex organizational structures have high concealment costs.

The previous research on firm-level tax evasion has acknowledged that a principal-agent problem potentially arises in cases where a firm's ownership and control functions are separate (Crocker and Slemrod, 2005; Hanton and Heitzman, 2010). The tax manager (agent) is in direct control of the declared tax and may have different incentives than the firm owners (principal), leading to agency costs. For example, the manager could have a self-interest in evading taxes if (s)he sees a private gain from concealing the firm's taxable resources. Firm owners' objective is then to minimize agency costs by finding the optimal control and incentive mechanisms (Hanton and Heitzman, 2010). In such circumstances, the incentives of firm owners and the tax authority are well aligned because increased monitoring by the tax authority constrains the tax manager's possibility of diverting the firm's resources. Moreover, penalties imposed directly on tax managers, rather than on firm owners, could also be more efficient for tackling firm-level tax evasion (Crocker and Slemrod, 2005).

3. Data and methods

3.1. Data

3.1.1. Data sources

The data used in this thesis are extracted from four different databases provided by Statistics Sweden. The first essay exploits data from all four databases, which are described below. The empirical analyses of the last three essays are solely built on one of the databases, namely, the LISA database.

LISA (*Longitudinal Integration Database for Health Insurance and Labour Market Studies*) is an individual-level database covering all Swedish residents who are at least 16 years old from 1990 onwards. It is possible to obtain information for each individual regarding employment status, employer (if any), education level, income, gender and region of birth. The LISA database also includes information on industry affiliation in accordance with the SNI2002 (*Swedish Standard Industrial Classification*) system, which proves particularly useful in essays 3-4. Each individual and employer are assigned unique identification numbers, making it possible to match employed individuals with their employers. Aggregating individual-level data to the firm level entails the possibility of constructing the yearly panel data of firms, which serves as the point of departure for the empirical analyses in essays 2-4.

The Structural Business Statistics (*FEK*) register includes the population of private nonfinancial firms and provides information on, for instance, firms' value added and turnover. The Firm and Plant Dynamics (*FAD*) register provides information on firms' internal employment dynamics and traces the flows of a firm's workforce from one year to the next, assigning numerical codes based on whether a majority of a firm's workforce in one year constitutes the majority or minority of the workforce in the following year. The FAD register therefore makes it possible to evaluate (but not with certainty) whether large employment changes in firms are organic or due to mergers and/or acquisitions. The fourth and final database is the Enterprise Group Register (*KCR*), which enables the possibility of distinguishing firms that are part of an enterprise group and, moreover, whether enterprise groups are foreign or domestically owned.

3.1.2. Key variables

In the LISA database, an individual's employment status is measured in the month of November and is derived from the RAMS (*Labour Statistics based on Administrative Sources*) register. To be registered as employed, an individual has to have received an income equivalent to a minimum of one work hour during the measurement week in November. In turn, this entails a very heterogeneous sample of employed individuals, including both part-time and full-time workers. Since employment is measured specifically in the month of November, employees and their corresponding employers are linked at this timepoint, while information regarding an individual's employment status throughout the rest of the year is lacking. For this reason, income-based employment definitions are utilized in essays 2-3. These definitions require individuals, in addition to being registered as employed in the RAMS register, to have received incomes corresponding to the given thresholds. The income-based employment definitions allow for an analysis of whether the empirical results are robust to which individuals are defined as employed.

Essays 2-4 utilize data on firm-level gross wages. Unlike employment status, gross wages are not measured in November. Instead, the LISA database includes information on the total gross wages received from the primary (largest income source) employer throughout the year. To aggregate individual-level wages to the firm level, a firm observed in November must, thus, also have been an individual's primary employer in that year, which implies that the firm-level gross wage sums do not include the wages of individuals who have had another primary employer throughout the year. In other words, firms' total wages are in some cases underestimated, which is merely due to different levels of measurement but constitutes a limitation of the data.

In the first essay, we study how recruiting managers and professionals affect subsequent firm-level productivity. To identify managers and professionals, we use the occupational classification SSYK (*Swedish Occupational Classification System*), which ranks occupations into ten hierarchical main levels. The SSYK is built from its international counterpart, the ISCO (*International Standard Classification of Occupations*), and ranks occupations based on their skill requirements and job complexities. In the SSYK, managers and professionals include CEOs, mathematicians, engineers, etc.

Crucial for the third essay, the LISA database includes variables on individuals' regions of birth. In addition, it is possible to identify the region of birth of each parent. Utilizing this information, I identify both first- and second-generation immigrants. The variables include 11 regions, such as Africa, Asia, South America and Oceania. Based on these regions, I distinguish between immigrants of western and non-western origin.

3.2. Methodology

The essays in this thesis are all empirically oriented and aimed at estimating causal relationships. Various empirical models and approaches are used to determine causal effects. The first essay uses traditional regression techniques for its main findings, while quasi-experimental methods are used for a robustness analysis. The empirical analyses of the last three essays are entirely quasi-experimental.

In the first essay, we estimate the impact of hiring leading personnel on firms' subsequent productivity changes. Given our panel data, which trace firms on an annual basis, there are reasons to expect that unobserved, time-invariant firm-level heterogeneity could explain variations in both recruitment and productivity outcomes among firms. A firm might, for instance, be exposed to a one-time productivity shock that induces a productivity change and affects its hiring decisions. Such time-invariant and firm-specific heterogeneity, known as fixed effects, will lead to biased estimates if not accounted for. For our main results, we therefore use an OLS within-firm regression model. This model demeans the variables and thereby eliminates firm-level fixed effects since they remain constant over time. We use various specifications including fixed effects at multiple levels and a number of covariates, e.g., firm size and firm age.

The three remaining essays all rely on quasi-experimental methods. Their common focus is to evaluate policy effects by comparing the outcomes of treated and nontreated units. In social sciences, it is rare to find policies with a randomly assigned treatment (intervention), meaning that a natural control group does not exist. Therefore, statistical matching methods are frequently used to identify control groups. The procedure involved in statistical matching is usually to define a vector of matching variables that affects both the treatment assignment and the outcome of interest and then to locate treated and control units with similar characteristics of those variables. If the treated and control units share similar pretreatment characteristics of variables that affect treatment assignment, treatment should be *as if* randomly assigned. Consequently, the treatment effect can be accurately measured since there is no selection bias present, implying that the outcome for the control units resembles the counterfactual outcome for the treated units. This thesis uses two different statistical matching methods. In the fourth essay (and partly in the first), propensity score matching (PSM) is used (Rosenbaum and Rubin, 1983). The third essay instead uses coarsened exact matching (CEM) (Blackwell et al., 2009, Iacus et al., 2011; 2012). In PSM, a binary response model is estimated, in which the dependent variable is a binary indicator for treatment assignment and the matching variables constitute the independent variables. From this model, each unit of observation is assigned a propensity score, reflecting the likelihood of receiving treatment. The treated and control units are then matched based on the similarity of their propensity scores.

In contrast to PSM, CEM accounts for each variable separately in the matching process. Each matching variable is coarsened into bins (intervals), and values located within the same bin are considered identical. A key advantage of using CEM is that the user is able to set the degree of coarsening and, thus, has control over the heterogeneity between matched treated and control units. Another advantage of CEM is that an improved balance (similarity) in one covariate does not affect the maximum imbalance (dissimilarity) of the other covariates. This is in contrast to PSM, where improved balance on one covariate might come at the expense of a loss in balance on the other covariates. However, despite their differences, both statistical matching methods manage to provide representative control groups in the associated essays.

In the fourth essay, a difference-in-difference (DiD) model is used to estimate the treatment effect. Difference-in-difference analysis compares the outcome of treated and control units in the pretreatment and posttreatment stages. Under the assumption that the outcome of the control group is a valid representation of the counterfactual outcome among the treated units, it is sufficient to use a DiD model to estimate the effect of treatment. Since the counterfactual outcome for the treated units, for obvious reasons, is unobservable, the validity of this assumption is usually evaluated by analyzing whether the pretreatment trends in the outcome variable are parallel. Parallel trends in the pretreatment period suggest that the treated and control groups would have continued to evolve similarly in the absence of treatment.

In the second essay, there are, however, reasons to suspect that the control group does not represent the counterfactual outcome and therefore that this assumption is violated. Consequently, we instead utilize a difference-in-difference-in-difference (DDD) model. Technically, this model measures the difference between two DiD estimates that are separated in time and estimates the treatment effect by deducting the nonparallel pretreatment trends among the treated and control units. What sets the DDD model apart from the usual DiD model is, thus, that it aims at identifying the treatment effect also in the event of nonparallel pretreatment trends.

4. Essay summaries

Essay 1. Recruiting for small business growth: Micro-level evidence

The first essay, coauthored with Magnus Lodefalk, analyzes the link between new employees entering leading positions and the subsequent productivity development among Swedish small and medium-sized enterprises (SMEs).

We focus specifically on the recruitment of managers and professionals. The reason for this choice is twofold. First, managers and professionals are, arguably, likely to possess tacit knowledge and experiences, which through knowledge spillovers, can be productivity-enhancing. Interaction between coworkers constitutes the major channel through which such new knowledge enters a firm. Second, managers and professionals are generally in influential positions, in which their knowledge is made to count. We focus particularly on SMEs since the previous literature has shown these firms to be essential for net job creation (Henrekson and Johansson, 2010). Additionally, we expect a new manager or professional to be in a more influential role in an SME than in a large firm. We exploit a detailed matched employer-employee dataset of SMEs over the 2001-2010 period and split managers and professionals into subcategories based on their work background. Using within-firm estimation and accounting for multiple covariates, e.g., firm size and firm age, we find that the recruitment of professionals is linked to increases in productivity. Notably, the findings suggest the impact to be especially large when professionals arrive from international firms and enterprise groups. For managers, the estimates are mixed in terms of both sign and statistical significance. Managers entering a firm within the same enterprise group seem to have a positive productivity impact, whereas the opposite is found for managers moving between enterprise groups.

We conclude that SMEs recruiting managers and professionals with unique backgrounds and experiences can provide these firms with a comparative advantage. However, strict labor market legislation and difficulties in matching the salaries of large firms may hinder SMEs from making such recruitments. We thus argue that policymakers should aim at making SMEs more competitive in the recruitment process by, for instance, making firing regulations less restrictive and by enabling SMEs to offer favorably taxed employee stock options as a substitute for the job offers provided by large firms.

Essay 2. How do firms respond to reduced labor costs? Evidence from the 2007 Swedish payroll tax reform

In the second essay, coauthored with Sven-Olov Daunfeldt and Niklas Rudholm, we study the labor market effects of the 2007 Swedish payroll tax reform. The reform lowered the employer-borne payroll tax level by 11 percentage points for 19-25-year-olds and was introduced with the purpose of raising youth employment.

An important yet for the most part ignored aspect of the reform was that not only new employees but also those already employed were eligible for the reduced payroll tax. As a result, employers who initially had many young employees were able to considerably reduce their labor costs. Since the magnitude of these savings was directly related to firms' initial number of young employees (technically, their wages), we consider these firms to have received different treatment intensities from the reform. Our study is partly related to previous work by Egebark and Kaunitz (2017) and Saez et al. (2019), who considered firms as receiving different treatment intensities, contingent on the size of their labor cost savings. We do, however, depart from these studies in that we measure firms' treatment intensities in absolute, rather than relative, terms. In turn, this means that we observe firms' labor cost savings in monetary terms rather than in percentage terms. Our distinction enables us to estimate the total number of jobs created by the reform and whether the job creation effect was conditional on the absolute size of firms' savings.

In our empirical approach, we split the treated firms into five equally sized quintiles across the labor cost savings distribution. We then compare their employment and wage changes over 2006-2008 to the corresponding changes within the control group consisting of firms that did not receive initial savings. A potential source of bias stems from the fact that the size of firms' savings is positively correlated with their number of employees and that large firms generally experience a higher growth in absolute terms than that of small firms (Henrekson and Johansson, 2010). We address this issue by utilizing a difference-in-difference-in-difference (DDD) model, which accounts for the fact that the observed differences in employment growth may be biased by initial differences between the treated and control firms.

Our findings suggest that there is a positive link between the size of firms' labor cost savings and their subsequent employment growth. Firms that received large savings at the time of reform introduction increased their employment significantly more than firms that received small or no savings at all. Calculating the number of jobs created, we find that in total, 18,100 jobs were created over the 2006-2008 period, which is a considerably larger number than previously found (Egebark and Kaunitz, 2013). The vast majority of these jobs were provided for young employees who were eligible for the reform. We also estimate the effect of these savings on the total wages of noneligible incumbent workers and find an inverse relationship; the total wages increased in firms with minor savings and decreased in firms with large savings. For firms with large savings, this finding suggests that some work tasks previously performed by incumbent personnel were overtaken by new employees of younger age, causing a decrease in the number of hours worked by the former group. We conclude that general labor cost reductions can be instrumental for firm-level employment.

Essay 3. Firms' labor cost savings and recruitment of non-western immigrants: The unintended effect of a payroll tax reform

A frequently implemented labor market policy aimed at stimulating the employment of disadvantaged individuals is to offer hiring subsidies to employers (Martin and Grubb, 2001). The third essay utilizes the same payroll tax reform as the second essay to investigate whether the labor cost savings were particularly beneficial for the employment of non-western immigrants.

The efficiency of hiring subsidies for disadvantaged groups is not clear-cut since they, for instance, have been shown to have the risk of causing deadweight losses, displacing regular employment and to have a limited net employment gain (Martin and Grubb, 2001; Kluve, 2006; Nekby, 2008). Katz (1996) and Neumark (2013) argue that targeted subsidies may have stigmatizing effects on disadvantaged groups and that broader, nontargeted hiring subsidies may prove to be more efficient. The labor cost savings generated by the payroll tax reform were general and not tied to certain groups or time periods, making them interesting to study in this context.

Coarsened exact matching (CEM) is used to locate treated and control firms that were similar job providers for non-western immigrants in the pretreatment stage. Next, the effect of the created labor cost savings on immigrant employment is estimated over the time period 2006-2008 by using a DDD model. In addition, the estimated immigrant employment effect is compared for firms active within the retail, hospitality, manufacturing and knowledge-intensive business services (KIBS) industries. This is of interest since job complexity and educational requirements vary considerably among these industries.

Three main results emerge from the empirical analysis. First, there is a positive link between the size of firms' savings and their recruitment of first-generation non-western immigrants. The total job creation effect for non-western immigrants is found to be more than proportionate to the group's population share, indicating that the employment of this group was particularly favored. Second, most jobs were provided for older individuals who were not explicitly targeted by the reduced payroll tax. Combining this finding with the fact that the total employment effect of the reform was shown to be mainly driven by young employees (essay 2), it may suggest that even if these groups were generally considered to be substitutes, the former group may have benefitted from a limited youth labor supply. Third, the industry-level comparison implies that the positive employment effects cannot merely be ascribed to industries that provide low-skilled jobs.

Hence, although the aim of the payroll tax reform was to promote youth employment, it had the unintended and additional effect of increasing the employment of non-western immigrants. From a broader perspective, the third essay illustrates that general labor cost reductions for firms can enhance labor market opportunities for non-western immigrants. Such savings may, for example, reduce the barriers that make firms reluctant to hire immigrants, whose previous experiences and skills are difficult to assess.

Essay 4. Compulsory staff registers as a way of increasing firms' wage reporting: A revenue-cost analysis

Tax evasion constitutes a major problem in many countries, and it has been shown that tax evasion among employers could be as problematic as that among individuals (Fisher and Goddeeris, 1988). One of the most common ways for an employer to evade taxes is to deliberately understate its wage payments (Yaniv, 1988). A natural response by policymakers is to improve tax authorities' opportunity to detect and penalize such behavior. The 2007 introduction of compulsory staff registers within the Swedish restaurant and hairdresser industries constitutes a recent example. Firms within these industries became required to fill out detailed information on the work times of their employees and gather this information in a staff register. The aim of this staff register reform was to decrease unreported wages, thereby improving competition among firms and leveling the playing field within these industries.

The final essay of this thesis, coauthored with Sven-Olov Daunfeldt and Niklas Rudholm, has two purposes. The first purpose is to evaluate whether the staff register requirement led to increased wage reporting among firms and, thus, if the reform had its intended effect. Second, we assess whether the reform was economically motivated. The reform introduced administrative costs for the targeted firms and increased labor costs for the responsible tax authority since additional resources were needed to monitor the firms and to administer the staff register requirement. Using propensity score matching, we identify control industries that have similar pretreatment characteristics as those of the restaurant and hairdresser industries, e.g., number of employees and wage development. Next, we estimate a firm-level difference-in-difference model to compare how the average wages per employee evolved among the treated firms and firms within the control industries. We first provide estimates for the wage development among all employees and then restrict the analysis to incumbent employees, i.e., those who were working for the same firm throughout the study period. Due to the parallel introduction of the youth payroll tax reform (evaluated in essays 2 and 3), we argue that it is likely that the former estimate understates the effect of staff registers, while the latter estimate in contrast is likely to overstate the effect.

Our findings provide no evidence of increased wage reporting within the hairdresser industry. For restaurant firms, we find that the staff register requirement is associated with an increase in the average wage per incumbent employee by 2.17 percent and 10.2 percent over the time periods 2006-2007 and 2006-2010, respectively. Although our findings imply a positive effect on wage reporting within the restaurant industry, we consider these estimates to overestimate the effect of the reform and to not be sufficient for making the reform economically motivated. Specifically, in a revenue-cost analysis, we compare the estimated gain in tax revenues to the costs imposed on both firms and the tax authority. We find that the total costs exceed the tax revenues in each of the four years following the reform introduction. Specifically, we find that the total deficit amounts to more than 355 million SEK (approx. $36.6 million) over the 2006-2010 period. Our conclusion is therefore that it is highly unlikely that the staff register requirement is economically motivated. In addition to the measurable costs for firms and the tax authority, the reform is also likely to have increased the regulatory burden for firms, which can have indirect costs that are difficult to measure. We emphasize the need for more research on how firm behavior is affected by the institutional reforms that are supposed to reduce tax evasion.

5. Conclusions, implications and limitations

The pervading theme of this thesis is firm behavior in terms of productivity, employment and tax evasion. This thesis studies how institutional reforms and the employment decisions made by firms alter their subsequent firm behavior. The institutional setting in which firms operate is crucial for their performance and growth opportunities. A general conclusion from this thesis is that institutional reforms can have a large impact on firm behavior. To foster firm behavior, it should thus be of high priority for policymakers to implement accurate institutional reforms. However, such reforms should be carefully planned prior to implementation since they may have unintended consequences for firm behavior.

Being able to recruit personnel that have unique and complementary skills is crucial for the development of small and medium-sized enterprises (SMEs) and may provide them with a comparative advantage over large firms. SMEs represent a large part of the total net job creation and are thus essential for economy-wide employment growth (Henrekson and Johansson, 2010). However, SMEs are arguably unable to easily compete with larger firms in the recruitment process of key personnel. Policymakers should therefore make attempts to improve the attractiveness of SMEs. In the first essay of this thesis, we make two such proposals. We suggest that policymakers liberalize restrictive labor market legislations and thereby induce key employees to make the jump to smaller firms and reduce the risk that particularly small firms face when hiring (Millán et al., 2013). Enabling SMEs to offer favorably taxed employee stock options is another proposal that can work as a substitute for the generally higher wages offered by larger firms. These are examples of institutional changes that may foster the growth of SMEs and thus of the economy as a whole.

In the second and third essays, the focus is shifted towards the 2007 Swedish youth payroll tax reform and its labor market implications. In highly unionized countries, such as the Scandinavian welfare states, it is challenging for policymakers to utilize minimum wage adjustments as an instrument in stimulating the employment of marginalized labor groups. Reducing employer-borne payroll taxes constitutes an alternative way to reduce firms' labor costs within this institutional context. An overall conclusion emerges from these two essays: general labor cost reductions incentivize firms to increase their employment. Positive employment effects are not only ascribed to labor groups that are generally considered insiders in the labor market but also found for first-generation immigrants from non-western countries. The positive immigrant employment effect holds for multiple industries that have large variations in skill and educational requirements. Therefore, reduced labor costs are employment-promoting for both insiders and outsiders and across the full population of firms.

To facilitate labor market opportunities for marginalized workers, policymakers should find ways to reduce the total labor costs for firms. Importantly, introducing general reductions in firms' labor costs does, to a large extent, resemble general hiring subsidies, which have been suggested to be more efficient than hiring subsidies that are applicable only for certain labor groups (Katz, 1996; Neumark, 2013). To locate and implement such reforms is particularly urgent considering the large number of refugees that have applied for asylum in Europe.

The final essay evaluates the effects and efficiency of the 2007 introduction of compulsory staff registers within the Swedish restaurant and hairdresser industries. The explicit aim of this reform was to prevent the concealment of wage payments, thereby preventing tax evasion and providing firms with fair competitive conditions. The major conclusion is that the staff register requirement is not economically justified when taking the costs borne by the tax authority for administering the system and the administrative costs borne by the firms into consideration. The gain in collected tax revenues is found to fall short of the associated costs in every instance, and the staff register requirement is therefore concluded to be an inefficient way of addressing firm-level tax evasion. Furthermore, we emphasize that the reform is likely to have indirect costs, e.g., increased regulatory and administrative burden, that may have negative implications for firm behavior (Klapper et al., 2006; Schivardi and Viviano, 2011; Dreher and Gassebner, 2013; Braunerhjelm and Eklund, 2014).

Therefore, policymakers should search for alternative ways to prevent firms from intentionally misreporting their tax payments. One proposal is to give the Swedish Companies Registration Office (*Bolagsverket*) extended mandate to audit firms' annual account reports and thereby detect evading behavior. Such institutional reforms should, however, be transparent and strive to minimize the administrative and regulatory burden borne by firms.

This thesis is not without limitations. The most prevalent limitation is that all research questions are analyzed within the institutional context of Sweden, and therefore, whether the findings and conclusions are applicable in a wider and more international context is yet unknown. For example, it is concluded that general labor cost reductions are employment-promoting in Sweden, where it is difficult for policymakers to adjust the minimum wage, while the efficiency may differ under another institutional setting. A discussion of internal and external validity is furthermore applicable within the population of Swedish firms. For firms to be included in the empirical analyses, numerous requirements and restrictions are imposed, related to, for instance, their entry and exit and number of employees. These conditions are necessary in the aim of estimating causal relationships but may limit the external validity of some results.

Finally, I acknowledge some notable suggestions for future research. First, research should focus on how to improve the institutional context of firms since it is of major importance for their development. Delving deeper into the mechanisms through which reduced labor costs induce the employment of disadvantaged individuals and how related reforms are optimally designed constitute important avenues for future research.

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