Ownership Change, Productivity, and Human Capital:
New Evidence from Matched Employer-Employee Data in Swedish Manufacturing

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Abstract

Empirical studies of the impact of changes in ownership of manufacturing plants on productivity (e.g., Lichtenberg and Siegel (1987, 1990a, 1990b), McGuckin and Nguyen (1995, 2001), and Maksimovic and Phillips (2001)) have provided limited evidence on how such transactions affect investment in human capital and have been based strictly on U.S. and U.K. data. We attempt to fill these gaps, based on an analysis of matched employer-employee data from over 19,000 Swedish manufacturing plants for the years 1985-1998. The sample covers virtually the entire population of manufacturing plants with 20 or more employees and a probability-based sample of smaller plants. We assess whether there are differential effects on productivity and human capital for different <u>types</u> of ownership changes, such as partial and full acquisitions and divestitures, and related and unrelated acquisitions.

Our results suggest that ownership change results in an increase in relative productivity. We also find that plants involved in these transactions experience increases in average employee age, experience, and the percentage of employees with a college education. Ownership change also leads to an increase in wages and a reduction in the percentage of female workers. All of these patterns emerge most strongly for full acquisitions and divestitures and unrelated acquisitions.

I. INTRODUCTION

In the 1990s, there was a substantial increase in the volume of assets transferred through mergers, acquisitions, and divestitures. This trend was especially pronounced outside the U.S. Gugler, Mueller, Yurtoglu, and Zulehner (2003) report that the number of deals consummated in Continental Europe increased from 986 during 1981-1990 to 8,609 during 1991-1998. The authors also note that the average value of these transactions rose from $186.1M in 1991 to $414.1M in 1998 (in constant dollars). This new wave of corporate restructuring has stimulated an important debate concerning whether these changes in ownership improve economic efficiency.

Researchers typically address this question by analyzing the impact of ownership change on short-run stock prices ("event studies"), long-run stock prices, or accounting profits (e.g., Ravenscraft and Scherer (1987), Jensen (1988, 1993), and McWilliams and Siegel (1997)). There are several problems with the use of such performance indicators. One problem with the use of stock prices is that many economists question the validity of the "efficient markets" hypothesis (see Shleifer (2001)), which conjectures that changes in share prices following announcements of ownership changes reflect changes in future real economic performance. This is a critical issue, since market efficiency provides the basis for use of the event study methodology. Furthermore, McWilliams and Siegel (1997) have demonstrated that inadequate attention has been paid to research design issues in many event studies. Accounting profitability has long been known to be an imperfect measure of economic performance (see Fisher and McGowan (1983).

Policy decisions regarding the optimal level of ownership change should be based on analysis of the effects of these transactions on economic efficiency. It is also important to note that many ownership changes involve privately-held companies or occur below the firm level (e.g., divisions of large, publicly-traded firms), which makes it virtually impossible to assess stock price or accounting

profitability effects, except for those transactions involving large, publicly-traded firms. The end result is that analyses of ownership changes based solely on information from public companies could yield misleading estimates of the antecedents and consequences of ownership changes.

To overcome these limitations, several authors (e.g., Lichtenberg and Siegel (1987, 1990a, 1990b), McGuckin and Nguyen (1995), Maksimovic and Phillips (2001), Harris, Siegel, and Wright (2005)) have asserted that a more desirable methodology is to assess the total factor productivity (TFP) of plants before and after ownership changes. Empirical evidence from the U.S. has been derived from the Census Bureau's Longitudinal Research Database (LRD).[1] The LRD is a plant-level file constructed by linking information from the quinquennial Census of Manufactures and the Annual Survey of Manufactures. Empirical evidence from the U.K. has been derived from the Annual Respondents Database (ARD). The ARD consists of plant-level records from the U.K. Annual Census of Production. Several of these studies have been based on restricted samples (e.g., a sample consisting mainly of long-lived plants or the universe of plants in one or two industries), which potentially limits the ability to generalize from these findings.

A method to examine the relationship between productivity and ownership change, as well as an interesting welfare analysis, is to examine how ownership change relates to characteristics of the workforce. Existing plant-level studies have provided limited evidence on how changes in corporate control affect the demand for different types of workers. For example one might examine impacts of these transactions on male vs. female, Swedish-born vs. immigrant, young vs. old, and highly-educated vs. non-highly-educated workers.

The purpose of this study is to fill this gap, by relating productivity patterns associated with ownership changes to such worker characteristics. Our empirical analysis is based on matched

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[1] Excellent reviews of LRD-based studies are presented in Caves (1998) and Bartelsman and Doms (2000).

employer-employee data for over 19,000 Swedish manufacturing plants, which constitute the majority of the country's population of manufacturing plants, for the years 1985-1998. Our sample also includes information on every worker in those plants, along their complete work history during this 14 year period.

We also assess whether there are differential effects on productivity and human capital for different _types_ of ownership changes: partial and full acquisitions and divestitures, and unrelated and related diversification. Finally, we present the first plant-level findings from Continental Europe and also, compared to previous studies, have more recent data on ownership change.

The remainder of this paper is organized as follows. Section II provides a review and critique of existing plant-level studies of the consequences of ownership change. A discussion of various theories relating to the impact of ownership change on economic performance is presented in Section III. Section IV describes the construction of the micro data set and its salient characteristics. Section V outlines the econometric methodology. Section VI presents empirical results. The final section contains preliminary conclusions.

II. REVIEW AND CRITIQUE OF PLANT-LEVEL STUDIES OF THE RELATIONSHIP BETWEEN OWNERSHIP CHANGE, PRODUCTIVITY, AND LABOR DEMAND

A. Productivity

Table 1 presents a summary of plant-level studies of the relationship between ownership change and productivity. Several stylized facts emerge from this table. The first is that there have been no studies based on evidence from Continental Europe. Second, most authors report that plants involved in an ownership change experience an improvement in productivity after the change in ownership. Third, the magnitude of the productivity increase appears to vary by type of ownership change (e.g., leveraged buyouts vs. management buyouts), which underscores the

importance of disaggregating ownership change. Fourth, evidence on relative productivity before

ownership change is mixed. Some authors report that plants involved in ownership changes are less

productive than comparable plants before the change in ownership, while others report the

opposite.

These mixed results could be due to differences in the nature of the samples and the time

frames of the analyses. Some authors have analyzed mostly large plants (e.g. Lichtenberg and Siegel

(1987, 1990b), while others have focused on a single industry (e.g., McGuckin and Nguyen (1995).

Several papers use quinquennial Census of Manufactures data, which makes it difficult to analyze

timing effects with sufficient precision. This is potentially important since studies based on annual

data indicate that major changes occur soon after the change in ownership.

The first plant-level study of the relationship between ownership change and TFP was

Lichtenberg and Siegel (1987), based on a balanced panel of 20, 493 U.S. LRD establishments in 450

manufacturing industries. In subsequent empirical work (Lichtenberg and Siegel 1990a, 1990b), the

authors were able to analyze an unbalanced sample of LRD plants. Their econometric analysis was

based on the following two-stage approach. In the first stage, the authors computed residuals from

within-industry (4-digit Standard Industrial Classification (SIC)) OLS regressions of log-linear

Cobb-Douglas production functions of the following form (with error term suppressed):

(1) $\qquad \ln Q_{it} = \beta_1 \ln K_{it} + \beta_2 \ln L_{it} + \beta_3 \ln M_{it}$,

where Q_{it}, K_{it}, L_{it}, and M_{it} refer to output, capital, labor, and materials, respectively, in plant i

and year t. The residuals from equation (1) can be interpreted as an estimate of the relative

productivity of each plant (i.e., relative to plants in the same industry). In the second stage of their

model, the authors regressed the productivity residuals on a set of dummy variables denoting

whether the plant had changed owners:

(2) $RELPROD_{it} = f(OC_{it+\ell})$

where $RELPROD_{it}$ is the productivity residual of plant i in year t, the error term is again

suppressed, and $OC_{it+\ell}$ is a dummy variable that equals 1 if plant i was involved in an ownership

change in year $t + \ell$ (where ℓ can be negative or positive) or 0 otherwise.

McGuckin and Nguyen (1995) conducted a similar analysis of the effects of ownership

change on economic efficiency, based on the complete population of plants in the food

manufacturing industry (SIC 20) in the U.S. Census of Manufactures. They used the same method

as in the previous LRD-based studies to construct estimates of relative TFP, as well as labor

productivity. However, they did not employ precisely the same second-stage approach, since they

do not observe <u>annual</u> ownership changes, only those occurring between the <u>quinquennial</u> Census of

Manufactures.

Maksimovic and Phillips (2001) computed similar measures of relative TFP, based on the

following translog production function (error term suppressed):

$$
\begin{aligned}
\ln Q_{it} = \alpha_i &+ \beta_1 \ln K_{it} + \beta_2 \ln L_{it} + \beta_3 \ln M_{it} + \beta_4 (\ln K_{it})^2 + \beta_5 (\ln L_{it})^2 + \beta_6 (\ln M_{it})^2 \\
&+ \beta_7 \ln K_{it} \ln L_{it} + \beta_8 \ln K_{it} \ln M_{it} + \beta_9 \ln L_{it} \ln M_{it} + \beta_{10} AGE_i + \mu_t,
\end{aligned}
$$

(3)

where α_i is a plant-specific fixed effect, μ_t is a technology shift parameter, and AGE_{it} denotes the

age of the plant.

Table 1 reveals that most authors have used a two-stage method to assess the antecedents

and consequences of ownership change. In contrast, we estimate within industry (4-digit SIC), one-

stage, augmented Cobb-Douglas production functions. We also experimented with using similar

one-stage translog production functions, and found that this had little effect on our empirical results. We conjecture that a one-stage estimation procedure provides more efficient econometric estimates of the conventional arguments of the production function and other determinants of productivity (e.g. a set of ownership change dummies) than those generated using the two-stage approach.

B. Labor Demand

Table 2 summarizes plant and firm-level studies of the impact of ownership change on employment and wages. Much of the plant-level evidence seems to indicate that ownership change does not result in statistically significant declines in the employment and wages of production workers at production establishments. In fact, the most comprehensive evidence, presented in McGuckin and Nguyen (2001), suggests that wages and employment increase after ownership change. On the other hand, Lichtenberg and Siegel (1990a) find that employment and wage growth are lower in central office or "auxiliary" establishments in the aftermath of an ownership change, suggesting that white-collar workers suffer more than blue-collar employees when such transactions occur.

Table 2 also reveals that these effects vary by type of ownership change. For instance, Baldwin (1998) reported that mergers had a negative impact on the employment and compensation of non-production workers. Similar patterns emerge in the aftermath of leveraged and management buyouts. Bhagat, Shleifer, and Vishny (1990) find that 45% of the firms involved in hostile takeovers laid off workers, affecting about 6% of the workforce.

To the best of our knowledge, there have been no empirical studies of the impact of the effects of ownership change on the demand for different types of workers (e.g., men vs. women, Swedish-born vs. immigrant, younger vs. older, highly-educated vs. non-highly-educated). In the

following section, we provide a brief summary of theories relating to the impact of ownership

change on performance.

III. BRIEF REVIEW OF THEORIES OF THE IMPACT OF OWNERSHIP CHANGE ON ECONOMIC PERFORMANCE

Scholars have proposed numerous theories relating to the antecedents and consequences of

changes in ownership.   Several authors have asserted that corporate control changes reduce firm

performance. This class of theories usually focuses on several managerial flaws. For instance,

Dennis Mueller (1969) hypothesizes that managers attempt to maximize growth, instead of

shareholder wealth. This leads corporate executives to adopt policies that benefit them financially

and professionally, at the expense of profit or shareholder wealth maximization. Unfortunately,

these actions could lead to expansion of the firm beyond an optimal point.

In a similar vein, Richard Roll (1986) and Mathew Hayward and Donald Hambrick (1997)

argue that the "hubris" of CEOs and other managers causes them to systematically overestimate

their ability to manage the companies they wish to acquire. According to this view, "hubris"

induces managers to overpay for target firms, resulting in a decline in the economic performance of

the acquirer.

Michael Gort (1968) advanced a theory predicting that ownership change has a neutral

impact on economic performance.   In his framework, ownership change is induced by divergent

expectations between buyers and sellers regarding the future value of corporate assets. He also

seeks to explain fluctuations in merger activity over time. Thus, his model predicts that the

magnitude of differences in buyer and seller expectations of the share prices of target firms is likely

to be higher during periods of "economic disturbance," which he defines as periods of sustained

share price increases or when firms experience rapid technological change. Note that Gort's model is

a variation of the familiar theme of stockholder wealth maximization. That is, he assumes that the market expects no gain to result from the merger because acquirers have different expectations than the market. Therefore, the premium earned by the acquired firm is exactly offset by a loss to the acquiring firm's shareholders.

Several theories predict that ownership change has a <u>positive</u> effect on economic performance. James Meade (1968) asserted that takeovers are part of a process of "natural selection," whereby efficient managers are "rewarded" through survival, while inefficient managers are "punished" via takeovers. According to Henry Manne (1965) and Michael Jensen (1988), the takeover threat constrains the self-serving behavior of managers, and induces them to pursue profit maximizing strategies. Jensen (1993) extends this theory by noting that certain types of ownership changes (e.g., management buyouts) result in changes in governance and incentive structures that reduce agency costs. These agency costs could be substantial in large corporations, where there is considerable separation of ownership and control.

Frank Lichtenberg and Donald Siegel (1987) advanced a "matching" theory of ownership change, in which the "fit" between heterogeneous plants and owners is reflected in productivity. The matching theory of ownership change borrows heavily from the theory of labor turnover or job separation proposed by Jovanovic (1979). In the Lichtenberg and Siegel framework, low productivity signals a bad match, which is the key determinant of the firm level decision to maintain or relinquish ownership of a given plant. The model has two empirical implications. The lower the productivity of a plant, relative to average productivity in its industry, the higher the probability of ownership change. When an ownership change occurs, even an average match can be expected to lead to above average productivity growth because a better match will result.

Thomas Holmes and James Schmitz (1990) outlined an equilibrium model of ownership change (or "business transfer") that pertains mainly to smaller firms. In their model, high quality managers buy companies that implement high quality projects based on new ideas. Jovanovic and Rousseau (2002, 2004) also assert that high quality projects and high quality managers are complements. Moreover, they assert that mergers and takeovers play a role in spreading new technologies and reallocating capital to more efficient uses and to better managers.   Thus, according to the authors, ownership change plays a role that is similar to the efficiency-enhancing, dynamic adjustment associated with entry and exit. The notion that technological change and ownership change are complements suggests that these transactions should result in a decline in employment and "skill upgrading."[2]

Many of the above theories of ownership change do not have obvious implications for changes in the workforce below the top management level. Indeed, for ownership changes that occur according to the logic of the theories advanced by Mueller, Roll, Hayward and Hambrick, and Gort, one might be surprised to observe in the wake of ownership change any substantial changes in a plant's workforce. In contrast, at least some of the theories that predict an improvement in productivity suggest that this enhancement may arise due to new managers' changes to the workforce. Indeed, the theory of Jovanovic and Rousseau specifically addresses such changes. Thus, evidence on the degree to which workforce changes occur may shed light on the frequency with which at least the latter theories of ownership change apply to actual plants.

In the following section, we describe the data set that allows us to assess the impact of ownership on performance and workforce characteristics.

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[2]   There is considerable evidence in the literature on "skill-biased technological change" (see Siegel (1999) for a comprehensive review of this literature) that technological change is associated with downsizing and skill-upgrading of the workforce.

IV. DATA

Our empirical analysis is based on a special file that links detailed information on Swedish

workers and the establishments that employ them. This file has data on the output and inputs of

these plants, which enables us to construct estimates of total factor productivity (TFP). It also

contains information on a wide variety of worker characteristics, such as level of education, age,

gender, and national origin.

A. Plants

The primary unit of observation in our study is the plant. Following conventional

international standards, the plant or establishment is defined as a physically independent unit within

a firm. It is assumed that each plant focuses on just one "line of business" (i.e., one activity). If a

company is involved in multiple activities at the same physical address, the firm is asked to report

separate figures for each activity. Each figure is then tied to a separate plant. In most cases,

however, firms focus on a single activity, implying that the local units are seldom split into several

plants. Plants that were considered to be "non-active" and "help plants," such as sales offices (or

what would be considered "auxiliary" establishments in the U.S.), were also excluded from the data.

According to Swedish law, each business is required to report information to Statistics

Sweden on an annual basis. In 1946, the certainty criterion for inclusion in the annual survey of

manufacturing plants was established at a minimum of 5 employees and 10,000 SEK (about 1,300

US dollars) in production value. In 1990, this certainty threshold was raised to a minimum of 10

employees, while a sampling procedure is applied to the smaller plants. In 1997, the certainty

threshold officially was raised to a minimum of 20 employees, but as will be seen shortly, evolving sampling procedures for smaller plants meant that this change had little effect.[3]

Tables 3 through 5 compare our sample of 19,010 plants to the population of Swedish manufacturing establishments. The top panel of Table 3 indicates that over half of our establishments fall in the range of 10-49 employees, although both tails of the size distribution are well represented. Comparing the counts of plants with less than 20 employees across years, the changes in sampling procedure in 1990 and 1997 appear to have had only a limited effect on the composition of the sample. As shown in the bottom panel of Table 3, the larger size classes represent a larger fraction of total (population) employment. This not only indicates that most workers tend to work for large plants, but also reflects the fact that larger establishments are sampled more thoroughly than smaller plants.

Table 4 compares the size distribution of our sample (top panel) with corresponding values for the population of Swedish manufacturing plants (bottom panel) in 1986, 1990, and 1995. These figures reveal that our sample is not completely representative in terms of size, since it is more heavily weighted towards plants with more than 10 employees. On the other hand, Table 5 indicates that the sample constitutes a large fraction of economic activity in the manufacturing sector, especially for plants with more than 10 employees.

B. Ownership Change

Table 6 presents statistics on the incidence of ownership change. Over the entire sample period (1985-1998), 5.1 % of plants experienced at least one ownership change. These rates of plant turnover appear to be slightly higher when they are weighted by value-added and employment

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[3] We have a small number of mining plants in our sample. The threshold increases in 1990 and 1997 only affected manufacturing plants.

(columns 2 and 3). An analysis of the annual figures reveals that the incidence of ownership change appears to have risen during the late 1980s, reaching a peak in the early 1990s.

In Table 7, we present evidence on the incidence of several types of ownership change involving our sample of plants during the sample period (1986-1998). We can identify whether an acquisition or divestiture involves the buying or selling of an entire firm. Note that the overwhelming majority of such changes are full acquisitions or divestitures, although the relative importance of such transactions diminishes when they are weighted by value-added or employment (columns 2 and 3). We have also identified whether the buyer has existing plants in the same (4-digit) industry, which we refer to as a related acquisition.

C. Capital

A critical issue in the calculation of total factor productivity (TFP) is construction of a capital measure. Some researchers avoid analyzing TFP, and instead, compute labor productivity (LP), which is easier to measure. We will present econometric results based on both TFP and LP. We calculated estimates of the capital stock as follows: initial values of capital were estimated in 1989, based on the assumption of a constant capital-to-sales ratio across all plants in each 2-digit SIC industry. Using these initial estimates, capital is constructed using the usual perpetual inventory algorithm, $K_{it}^c = (1 - \delta^c) K_{it-1}^c + \rho_t I_{it}^c$, where i denotes a plant, t denotes a year, c is either machinery or buildings & land, K denotes capital, I denotes investment, δ denotes the depreciation rate, and ρ denotes an investment deflator.[4] The capital estimates for machinery plus buildings and land were summed to create a single combined capital stock measure, K_{it}.

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[4] The depreciation rate for machinery was allowed to differ by 3-digit SIC industry and was taken from figures of the OECD, while a constant figure of 0.0314 was used for buildings and land. Investments were deflated using manufacturing-sector-wide annual investment deflators reported by Statistics Sweden. We rely on figures kindly provided by M. Carlsson and replicate and extend the methods he used.

D. Employees

   Matched employee-level data come from a database on the jobs and earnings of every

employee in Sweden. The data are based on tax filings and hence record each employee's annual

earnings, which distinguish year-long work-related earnings (which we term "wage") from other

earnings.[5] Employment is recorded in November of each year, and the records match employees

(with a tiny percentage of missing cases among our manufacturing employees) to specific plants,

firms, and (5-digit SIC) industries. Since the database covers all employees as needed for relevant

tax records, we are able to infer that any employee whose record is missing in a given year was not

employed in Sweden in that year. The full database contains 36,398,617 records across the 14 years

of data from 1985 to 1998, for an average of 2.6 million workers per year, consistent with the

Swedish population of close to 9 million. Among all of the records, 9,251,962 records pertain to

cases in which a person is employed by a manufacturing plant in our sample during the relevant

year.

   The employee data include information on the gender, national origin, year of birth, most

recent year of education, and number of years of education for each employee. We use this

information to construct measures at the plant and employee levels of workforce characteristics. At

the plant level, we assess (in each year) the percentage of workers who are male vs. female, the

percentage who were born in Sweden vs. immigrated, the mean age of employees, mean years of

experience, as proxied by the number of years elapsed since their last year of education, and the

percentage of employees with at least some college-level education. At the employee level, we

assess (in each year) the gender of the employee, whether he or she was born in Sweden, is below or

above the mean age, below or above the mean level of experience, and educational status, based on

the following four categories: (a) less than a high school education (up to 10 years apparently

equivalent to U.S. grade 8), (b) high school education (up to 14 years apparently equivalent to U.S.

grade 12), (c) at least some college- or technical-school education, (d) and at least some PhD-level

studies. For our analysis of employee turnover in the aftermath of ownership change (where do

"old" employees go and where do "new" employees come from), we also assessed whether

employees transitioned to jobs in the same 4-digit SIC industry versus jobs in other manufacturing

or non-manufacturing industries, and whether each employee was working in Sweden in each year.[6]

V. ECONOMETRIC MODELS

A. Types of Models

In this version of the paper, we estimate two types of model. For analyses of labor and

total factor productivity,

$$(4) \qquad \ln Q_{it} = f_{it} + \omega_{it}$$

where Q_{it} denotes plant i's output in year t, f_{it} is the logarithm of plant i's production function in

year t, and ω_{it} is an efficiency residual. The efficiency residual is assumed to be influenced by

ownership change and other variables, as follows:

$$(5) \qquad \omega_{it} = \sum_{\ell=-13}^{12} \gamma_{\ell} OC_{it-\ell} + \delta' x_{it} + \varepsilon_{it}$$

where $\sum_{\ell=-13}^{12} \gamma_{\ell} OC_{it-\ell}$ parameterizes the relation to ownership change as discussed below, δ is a

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[5] The data do not include hours worked or hourly wages, only the employee's annual total income from employment.
[6] Employees' 4-digit SIC industries of employment were assessed using 1969 SICs where possible, for comparability with the plant-level analyses. However, 1969 SICs were not available in all years of data, so 1992 SICs were used to assess industry of employment when 1969 SICs were not available in both the year in question and the comparator year.

vector of coefficients, $\mathbf{x}_{it}$ is a vector of control variables for plant i in year t, and ε_{it} is the remaining

efficiency residual. Rewriting (4) thus yields

$$(6) \qquad \ln Q_{it} = f_{it} + \sum_{\ell=-13}^{12} \gamma_\ell OC_{it-\ell} + \boldsymbol{\delta}' \mathbf{x}_{it} + \varepsilon_{it} \, .$$

Other analyses, which are not based on estimation of a production function, assume the same form:

$$(7) \qquad y_{it} = \alpha + \sum_{\ell=-13}^{12} \gamma_\ell OC_{it-\ell} + \boldsymbol{\delta}' \mathbf{z}_{it} + \varepsilon_{it} \, ,$$

where y_{it} is the dependent variable in question (e.g., employment or wages), α is an intercept

parameter, and the other terms are as defined above.

B. Ownership Change

The treatment of ownership change in the econometric analysis requires careful

consideration. In equations (5)-(7), ℓ denotes the year relative to the year of ownership change, so

that negative values of ℓ signify years preceding ownership change, $\ell = 0$ denotes the year during

which the plant changed owners, and positive values of ℓ pertain to years following ownership

change. $OC_{it-\ell}$ is a dummy variable that equals ℓ if plant i's owner changed (with certainty) ℓ

years preceding the current year t for $\ell > 0$, or $|\ell|$ years following the current year for $\ell < 0$, or 0

otherwise. Note that our sample allows us to identify each plant's owner for the years 1985

through 1998, so a new owner can be identified in each year for 1986 through 1998. For a plant

observed in 1985, we wish to know whether an ownership change will occur for up to 13 years in

the future, while for a plant observed in 1998, we wish to know whether an ownership change

occurred up to 12 years in the past. This consideration of past and future ownership changes yields

a possible range of leads and lags from -13 to $+12$.

The relation of past and future ownership change to productivity, size, or workforce characteristics can then be assessed, at each value of ℓ, by including in the model the terms

$$\sum_{\ell=-13}^{12} \gamma_\ell OC_{it-\ell} \text{, where } \gamma_\ell \text{ parameterizes the relation to ownership change at lead/lag } \ell. \text{ To avoid}$$

model specification bias, each γ_ℓ is unconstrained and is estimated over the full range of ℓ from -13 to $+12$. The fitted terms of γ_ℓ provide estimates of the relationship of ownership change to productivity, size, and workforce characteristics in each year.

C. Avoiding Biases

If just the ownership change dummies were included as regressors, the estimates would be subject to sample selection and measurement error biases. Sample selection bias would result because for large positive or negative values of ℓ, the ownership change variable $OC_{it-\ell}$ equals one only if the plant survived a large number of years (at least $-\ell+1$ years for $\ell < 0$ or at least $\ell + 2$ years for $\ell \geq 0$). Any characteristics of surviving plants, such as higher productivity, would thus be partially attributed to ownership change.

Measurement error bias would also result, given that ownership changes are unmeasured when they occur outside the sample time frame. For example, for $\ell = -13$, $OC_{it-\ell}$ can equal one only if $t = 1985$ (so $t - \ell = 1998$); for other values of t information about ownership changes is unavailable (since $t - \ell > 1998$, the last year of data), causing, by definition, $OC_{it-\ell} = 0$. Similarly; for $\ell = -12$, $OC_{it-\ell}$ can equal 1 only if $t \leq 1986$; ...; for $\ell = -1$, $OC_{it-\ell}$ can equal 1 only if $t \leq 1997$; for $\ell = 0$, $OC_{it-\ell}$ can equal 1 only if $t \geq 1986$; ...; for $\ell = 12$, $OC_{it-\ell}$ can equal 1 only if $t = 1998$. If observations are evenly dispersed across years and the probability of ownership change remains constant at p over time, the expected value of $OC_{it-\ell}$ would equal 1/14 p for

$\ell = -13$ (as it is artificially 0 in 13 of 14 years of data), 2/14 p for $\ell = -12$, …, 13/14 p for $\ell = -1$ or $\ell = 0$, …, 1/14 p for $\ell = 12$. Thus, values of $OC_{it-\ell}$ would constitute error-ridden indicators of ownership change, with the error greatest for the largest (absolute) values of ℓ. If these ownership change measures are uncorrelated with each other and with all other regressors, the resulting coefficient estimates would be biased toward zero, with the greatest bias for estimates at large (absolute) values of ℓ. If the true coefficients all equaled the same constant number c, the expected values of the estimates would follow a U-shape (if $c < 0$) or inverted-U-shape (if $c > 0$). Hence both sample selection and measurement biases could confound our analysis of the relationship between ownership change and plant performance.

Such biases can be especially severe when researchers use a balanced panel (e.g., Lichtenberg and Siegel (1987)), restrict the range of ℓ (McGuckin and Nguyen (1995)), or analyze pre- versus post-acquisition periods using a single coefficient for each. For example, the use of a balanced panel imparts a strong selection bias, because the analysis is based only on those plants that survived during the sample period. Restrictions on the range of ℓ effectively constrain γ_ℓ to equal zero outside of the range, yielding possible specification error. Pre- versus post-acquisition periods effectively constrain γ_ℓ to be identical across values of ℓ and hence constitute an additional source of specification error. Moreover none of these approaches entirely gets rid of the sample selection and measurement biases pointed out above, unless all data points are dropped from analysis if they are within L+1 years of the start and L years of the end of the sample and the range of ℓ is constrained to $-L \leq \ell \leq L$.

We hypothesize that there is a way to address this problem without excluding any observations. The intended comparison is between plants that experienced ownership change in year $t - \ell$ and those that could have but did not experience ownership change in year $t - \ell$ (not

between plants that did experience, versus those that might have or could not have experienced,

ownership change). For each ℓ, we divide the observations into three types of establishments: (i)

plants that did experience ownership change in year $t - \ell$, (ii) plants that could have but did not

experience ownership change in year $t - \ell$, and (iii) plants that did not exist or those for which it is

unknown whether they experienced ownership change in year $t - \ell$. To ensure that the coefficients

γ_ℓ describe the difference between categories (i) and (ii), it is sufficient to introduce into the model a

dummy variable $ND_{it-\ell}$ that equals 1 for any observations meeting condition (iii) in year $t - \ell$ and 0

for all other observations. This gives rise to one additional variable for each ℓ, yielding the sum

$$\sum_{\ell=-13}^{12} \delta_{1\ell} ND_{it-\ell},$$ comparable to the ownership change term in the models. $ND_{it-\ell}$ implies either no

data about whether ownership change occurred in year $t - \ell$, or nonexistence of the plant in year

$t - \ell$. Hence these controls potentially remove a substantial source of potential bias in the

estimates. Indeed, in simulations we have found substantial bias without these controls but no bias

once they are introduced.

To reduce another possible bias, caused by cross-industry, cross-year, or cross-plant-age

differences in both the probability of acquisition and the dependent variable (or productivity),

additional controls are used. Fixed effect dummies are included in all analyses for each year, 4-digit

industry (according to 1969 Swedish SICs), and plant age.[7,8] In addition, production function

parameters are each allowed to differ by industry, effectively, by including interaction terms that

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[7] Industries must be defined according to 1969 industries because only in the later years of the sample have plants been classified according to more recent industry definitions. Another limitation of the data is that they do not include plant ages, so plants are classified according to their minimum age (1+, 2+, …) if they existed in 1985 or their actual age if they entered after 1985. Fortunately an additional file was available that indicated (for nearly all plants) whether each plant existed in each year, even if it was not present in the sample used here; this file allowed identification of plant age without sample selection in years 1985-1998.
[8] We also experimented with including detailed geographic region dummies in the TFP equation, and found that their inclusion had almost no effect on our results.

equal industry-specific dummies ($I_{kit} = 1$ if plant i's primary industry is equal to k or $I_{kit} = 0$ otherwise) times each production function parameter. Use of these controls implies that the relations of ownership change are studied largely for plants of comparable industry and age at a comparable date.

D. The Endogeneity Issue and Descriptive Estimation

It is common in the estimation of production functions to use instrumental variables or related methods to ensure consistent parameter estimates, despite possible endogeneity in parameters. In our context, ownership change may be an endogenous variable since for example, as some of the theories conjecture, the sale of a plant or firm may be more likely when it has relatively low productivity. Just as instrumental variables can be used to estimate either a supply equation or a demand equation rather than a mixture of the two, so they could be used in our context to aid analyses of the causes or consequences of ownership change.

In the present paper, however, our aim is not to estimate either causes or consequences, but merely to describe patterns experienced on average before and after plants undergo ownership change. Since instrumental variable techniques would, by their intended nature, bias the estimates away from the unadulterated empirical patterns intended for observation here, they are reserved for other studies. Instead we descriptively estimate trends before and after ownership change.[9]

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[9] The focus on unadulterated empirical patterns matches the descriptive focus of the NBER conference for which this paper was developed, and accords with the wishes of the conference organizers.

VI. EMPIRICAL RESULTS

A. Descriptive Statistics for Plant-Level Variables

Table 8 contains descriptive statistics for key variables used in the econometric analysis, presented separately for plants that experience an ownership change and for those that do not. We find that plants involved in these transactions tend to be larger by about 60%.[10] They employ on average slightly smaller percentages of female workers and of workers with at least a college education, and have slightly more non-Swedish employees than plants that do not experience an ownership change.

B. Productivity, Output, and Employment as Related to Ownership Change

To begin, consider changes in productivity and plant size associated with ownership change. Table 9 presents OLS estimates of four equations: labor productivity, total factor productivity, output, and employment. The equations take the following forms:

<u>Labor Productivity</u>

$$
(14) \quad \ln(Q_{ijt}) = \alpha_{jt} + \beta_{1j} \ln(L_{ijt}) + \sum_{\ell=-13}^{12} \gamma_\ell OC_{ijt-\ell} + \sum_{\ell=-13}^{12} \delta_\ell ND_{ijt-\ell}
$$
$$
+ \text{Age Dummies} + \text{Industry Dummies} + \text{Time Dummies} + \varepsilon_{ijt}
$$

<u>Total Factor Productivity</u>

$$
(15) \quad \ln(Q_{ijt}) = \alpha_{jt} + \beta_{1j} \ln(L_{ijt}) + \beta_{2j} \ln(K_{ijt}) + \beta_{3j} \ln(M_{ijt}) + \sum_{\ell=-13}^{12} \gamma_\ell OC_{ijt-\ell} + \sum_{\ell=-13}^{12} \delta_\ell ND_{ijt-\ell}
$$
$$
+ \text{Age Dummies} + \text{Industry Dummies} + \text{Time Dummies} + \varepsilon_{ijt}
$$

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[10] The 60% greater size of plants experiencing ownership change than those not experiencing ownership change can be computed as exp(9.98-9.51)=1.6.

<u>Output or Employment</u>

$$(16) \qquad y_{ijt} = \alpha_{jt} + \sum_{\ell=-13}^{12} \gamma_{\ell} OC_{ijt-\ell} + \sum_{\ell=-13}^{12} \delta_{\ell} ND_{ijt-\ell}$$
$$+ \text{ Age Dummies} + \text{Industry Dummies} + \text{Time Dummies} + \varepsilon_{ijt}$$

where L_{ijt}, K_{ijt}, and M_{ijt} are labor, capital and materials for plant i in industry j at year t, $OC_{ijt-\ell}$

and $ND_{ijt-\ell}$ are the ownership change and "no-data" dummy variables described earlier, and y_{ijt} is

output or employment for plant i in industry j at year t.[11] Recall that each regression is estimated

with detailed industry level (4-digit SIC) fixed effects. Thus, the coefficients on the non-ownership

change variables (labor, capital and materials) are weighted means of industry-specific coefficients.

The coefficients on labor, capital, and materials in the two productivity models appear to be

plausible. They are reasonably close to their respective factor shares and strongly suggestive of

constant returns to scale.[12] The total factor productivity (TFP) equation is estimated for a

restricted sample of plants and years, because the capital measure is only available from 1989

onward and, in those years, for 92.3% of plants.

Next, we focus our attention on the coefficients on the ownership change dummies in Table

9. For example, the value -.042 for the estimated coefficient of OC_{-1} in the labor productivity

equation signifies that plants experiencing an ownership change one year hence were 4.2 percent less

productive, on average, than comparable establishments that did not change owners. Note that

while the relative performance of plants changing owners was significantly <u>worse</u> before the

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[11] The equations deliberately do not include plant fixed effects, only industry fixed effects, because including plant fixed effects would make it impossible to observe whether plants that experience ownership change tend to have persistently low or high productivity or indeed to know how these plants compare to their industry (and age and time) averages at all – all patterns that are important to be able to detect.

[12] 95% confidence intervals for returns to scale are (1.031, 1.047) in the LP equation and (1.008, 1.016) in the TFP equation.

transaction, relative efficiency appears to improve after the ownership change, in the sense that such establishments appear to converge to the average level of industry performance. The LP estimates indicate lower than average productivity before ownership change, followed by a rapid increase to the industry norm, and ultimately, higher productivity following the ownership change. The TFP estimates indicate productivity steadily deteriorating to a low of nearly 6 percent below average followed by a steady return to average and higher productivity after the ownership change. The output and employment results, which are presented in the last two columns of Table 9, help explain the productivity increase. Plants that change owners appear to have higher levels of output and employment than comparable plants both before and after ownership change. It appears that they reduce both output and employment after an ownership change. However, employment declines at a faster rate than output, which results in a productivity increase.

In Table 10, we present averages of the coefficients on the ownership change dummies in the LP, TFP, output, and employment equations for 5 years before and 5 years after the transaction (we exclude year 0, which is the year of the acquisition). In the third row of each panel, we report the growth in the average coefficient from the 5 years before to the 5 years after ownership change, and we formally test whether the post vs. pre ownership change effects are statistically significant. Our findings are also presented separately in Table 10 for various types of ownership change: full acquisitions and partial acquisitions, full divestitures and partial divestitures, related acquisitions, unrelated acquisitions, and changes in ownership involving a single firm.

The "post-pre" results in the first panel of Table 10 confirm our earlier assertion that plants involved in an ownership change become more productive after the transaction. From the 5 years before to the 5 years after ownership change, labor productivity is estimated to have increased by 4.1% ($p<.001$) and TFP by 1.7% ($p<.01$). We also find that output and employment are reduced

after ownership change, with employment declining more than output. Output is estimated to have declined by 8.6% (*p*<.001) from the pre- to post-ownership change 5-year periods, and employment is estimated to have decreased by 12.0% (*p*<.001).

The growth in labor productivity is estimated to be much higher for full acquisitions and divestitures than for partial acquisitions and divestitures (panels 2-5 of Table 10). In full-firm acquisitions and divestitures both, labor productivity grew an estimated 4.7% between the two 5-year periods (both *p*<.001). In contrast, partial acquisitions are associated with only 0.8% growth in labor productivity, while partial divestitures are associated with a decrease of 0.1% in labor productivity (both changes are insignificantly different from zero). The difference may stem from the fact that plants acquired through partial acquisition and divestiture had higher labor productivity to begin with, 1.1% above the norm form partial acquisitions and 1.9% above the norm for partial divestitures, versus labor productivity averaging 5.5% below the industry norm for full acquisitions and 5.2% below the industry norm for partial divestitures. [13]

Growth in TFP was much more similar across full versus partial acquisitions and divestitures. Partial acquisitions are estimated to have experienced slightly higher (2.6%) TFP growth between the two 5-year periods than either full acquisitions (1.4%) or any type of divestiture (1.5% to 1.7%), but the difference is not statistically significant. All types of acquisitions and divestitures involved plants whose TFP was about 3.0% to 3.8% below the norm before ownership change.

Labor productivity grew more in the aftermath of unrelated acquisitions, as opposed to related acquisitions, and even more in ownership changes that did not involve a second (manufacturing) firm. Among these three types of ownership change, the increase in labor

productivity was negatively related to initial productivity: single-firm ownership changes increased their LP an estimated 5.2% (*p*<.001) from 5.9% below the norm to 0.7% above the norm, while unrelated acquisitions saw LP increase an estimated 3.3% (*p*<.05) from 1.3% below the norm to 2.0% above the norm, and related acquisitions saw LP increase only an estimated 1.5% (statistically insignificant) from 0.5% above the norm to 2.1% above the norm. TFP growth was substantial and significant, but was greatest for related acquisitions, with 3.4% growth (*p*<.05) from an initial base 4.3% below the norm, whereas the unrelated and single-firm ownership changes respectively experienced only 2.4% (insignificant) and 1.3% (*p*<.10) TFP growth from initial bases 3.4% and 3.7% below the norm. The finding that unrelated acquisitions enhance plant productivity is consistent with U.S. evidence presented in Maksimovic and Phillips (2001) and Schoar (2002).

The decline in output and especially, employment was greatest in the aftermath of full acquisitions and divestitures, for which output declined 11.6% (*p*<.001) and 10.4% (*p*<.001), respectively, and employment declined 15.6% (*p*<.001) and 14.4% (*p*<.001) respectively. In contrast, partial acquisitions and divestitures respectively experienced an estimated 7.6% (*p*<.05) and 9.0% (*p*<.05) decline in output and 7.3% (*p*<.05) and 7.7% (*p*<.05) decline in employment. Partial acquisitions and divestitures tended to involve plants that were substantially larger to begin with, starting larger than the norm by an estimated 63.3% and 68.4% respectively, versus only 6.1% and 9.2% for full acquisitions and divestitures. The declines in output and employment are estimated to have been greater for unrelated acquisitions than for related acquisitions, but there is no statistically significant difference between the related and unrelated (and single-firm) acquisitions.

Both the annual coefficient estimates and the 5-year means for all ownership changes combined are shown graphically in Figures 1-4. These graphs make it easy to visualize the relation

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[13] These differences pre-ownership change might stem from higher labor productivity in larger plants or from cherry-

of the four variables to ownership change, and moreover clarify annual patterns that are not evident

in the 5-year means. The horizontal axis in each graph spans a 15-year period, from 7 years before

ownership change to 7 years after ownership change. The vertical axis corresponds to the values of

the estimated coefficients, and hence to the relation of ownership change to productivity, output, or

employment at a given time relative to the year of ownership change. The curve drawn across the

diagram shows the annually changing values of productivity relative to the industry (and age and

year) norm. For each coefficient estimate, its 95% confidence band clarifies the range of error in the

estimates. Lighter lines in the 5 years pre- and post-ownership change indicate 95% confidence

bands for means before and after ownership change, and a 95% band drawn at year 0 pertains to the

change between the 5-year periods pre- to post-ownership change.

The graphs demonstrate that the 5-year means discussed often hide important dynamics in

the variables, as related to the time of ownership change. For labor productivity, the 5-year means

are a reasonable summary, but for TFP, they hide a massive and statistically significant decline in

productivity up to the time of ownership change, followed by substantial growth in productivity

that begins immediately after the year of ownership change. The pattern indeed looks as if typical

plants had been losing TFP relative to the norm at a pace of about 1% per year before ownership

change, with the new owners apparently managing to enhance productivity by about 4% within one

year after ownership change and continuing to enhance productivity by about 0.5% per year

thereafter.

The graphs for real output and employment also indicate substantial disruptions in the year

of ownership change, with plants formally about 15% above the norm in output and 20% above the

norm in employment suddenly falling to levels near their industry (and age and year) means. Under

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picking by acquiring firms that purchase only some of a firm's plants.

the new ownership, output (especially) and employment (somewhat) then grew immediately in the year following ownership change, with very slow increases in subsequent years.

C. Labor Force Characteristics as Related to Ownership Change

In Table 11, we present similar results for six labor-related dependent variables: the average age of employees at the plant, average experience, the percentage of female employees, the percentage of non-Swedish employees, the percentage of college-educated workers, and wages. As before, the table includes estimates for the various types of ownership change. Figures 5-10 present graphical representations of the annual coefficient estimates for all ownership changes combined.

The findings in Table 11 imply that plants involved in ownership change experience estimated increases in average employee age by 0.16 year or about 2 months of age ($p<.05$) , in experience by 0.17 year ($p<.01$), and in the percentage of employees with a college education by (an absolute amount of) 0.18% ($p<.05$). The age and experience results suggest some tendency for newer workers to be laid off or leave more often than older workers. The education result suggests that ownership change leads to a reduction in the demand for less-educated workers. We also find that ownership change results in an increase in employees' mean wages (as always, relative to the industry and plant age and year norm) by 1.3% ($p<.001$) and a decline in the percentage of female workers by (an absolute amount of) 0.65% ($p<.01$). The increase in wages is consistent with more experienced employees remaining, while newer workers leave, if indeed the older and more experienced workers receive higher wages. The decline in the percentage of female workers might be related to women workers often having shorter job durations than men, and hence being more likely to lose a job because of short job tenure and experience.

Paralleling the declines in output and employment, most of these patterns are strongest for full acquisitions and divestitures and unrelated acquisitions. If employers shed workers with low

tenure most frequently, and full acquisitions and divestitures and unrelated acquisitions experience the greatest decrease in workforce, then these patterns are to be expected. The percentage of female workers, for example, falls by an estimated (absolute amount of) 0.83% for full acquisitions ($p<.001$) versus only 0.26% for partial acquisitions (insignificant).

The different types of ownership change appear to relate differently to human capital. Although the differences are not all statistically significant, partial acquisitions and divestitures (compared to full acquisitions and divestitures) involved plants that start with higher mean percentages of college-educated workers, and are associated with larger increases in the percentage of college-educated workers. This suggests a tendency for plants involved in partial acquisitions or divestitures to use more highly-educated employees and for new owners to increase the plant's reliance on highly-educated employees.

The annual estimated coefficients in Figures 5-10 reaffirm the above conclusions, but suggest that at least some of the estimated changes are gradual processes. In particular, mean employee age and experience increase gradually, and the percentage of female workers declines gradually, over a period of several years following ownership change. There are multiple possible interpretations of these patterns, but one interpretation involves employees not fully losing their connection with a plant even if they were laid off temporarily during the year of ownership change, and the new owners often gradually shifting to a workforce that suits their demands.

Two additional stylized facts emerge from these figures. The percentage of college-educated workers may actually increase in the year before ownership change, although the ranges of error involved leave some uncertainty in this conclusion. Note also that wages plummet (significantly) relative to the norm in the year preceding ownership change. Interpretations of the decrease in wages include lower salary increases in times of low plant profitability, and fewer hours worked by

the average worker as plants experiencing problems begin to curtail production activities. (As the latter interpretation reminds the reader, the wage variable is total wages paid over the year, not an hourly wage.)

D. Where Pre-Ownership Change Employees Go

Next, we make use of the <u>individual-level</u> data, in order to track the movement and relative compensation of workers whose establishments were involved in ownership change. In doing so, we attempt to answer two questions: (1) where do the "old" employees go? and (2) where do the "new" employees come from?

Table 12 presents statistics on the destination (if any) of employees who plants experienced ownership change. The top panel of Table 12 pertains to all employees, while the second panel relates to all employees who leave their plant. Each panel indicates the percentage of employees who have the following characteristics: female, non-Swedish born, age above the mean of all manufacturing employees, experience above the mean of all manufacturing employees, and four categories of educational achievement: less than high school, at least some high school, at least some college-level study, and at least some PhD-level study. The bottom panels of the table show the corresponding sample sizes for all employees and for employees who leave their plant.[14]

The first column is the base case, pertaining to employees whose plants did not change owner in the subsequent year. In this and other columns on the table, observations in which ownership change occurred in the previous or following year are excluded to avoid contaminating data in nearby years. Also, the observations considered are all employee-year combinations for whom their plant meets the required categorization regarding the type of ownership change it was

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[14] Because the years of experience and education level variables are not available for some employees, sample sizes are also reported for the number of employees for whom values of these variables are available.

about to experience. Subsequent columns of the table address the various types of ownership change considered earlier.

Table 12 confirms the findings of the plant-level analyses, concerning which types of employees are most likely to leave in the wake of an ownership change. For example, the percentages of female and non-Swedish born employees in plants experiencing ownership change are lower than the corresponding percentages among employees leaving plants that experience ownership change, consistent with the slight decreases in these types of employees observed at a time of high loss of workforce. Similarly the table shows a disproportionately low percentage of older and more-experienced employees leaving plants that experience ownership change.

The individual-level results differ somewhat from the plant-level results presented earlier. Table 12 reveals that even among plants that do not experience ownership, relatively high percentages of women and non-Swedish born employees leave plants. Thus, while ownership change may result in substantial job loss for these types of workers, it appears as though they are not treated more unfairly in plants experiencing ownership change than in representative plants (in fact, the evidence suggests they are treated slightly more fairly, perhaps because of differing job roles).[15]

In Tables 13 and 14, we follow workers at the end of year T-1 and measure their employment status and wage growth, respectively, at the end of year T+1, cross-classified by a set of dummy variables denoting whether the plant that employed them during year T-1 experienced an ownership change (also by type of ownership change) during year T.[16] Note that if an ownership

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[15] Some care must be taken in comparing findings at the plant and employee levels not only because of the complexity of deciphering the flows of employees, but also because the plant-level analyses control for industry, plant age, and year effects while the employee-level results simply present outcomes for average employees.

[16] The focus on years T-1 and T+1, rather than times separated by only one year, is necessitated by the timing of when ownership changes occur and when employee information is reported. Recall that employee information pertains to November, while ownership change can occur at any time during the reporting year. If years T-1 and T were used, it

change occurs, workers can be employed at the same plant, at another plant owned by the previous owner, at another plant owned by the new owner, by another firm in the same industry, by another firm in a different industry, in an unknown industry or plant (which likely includes workers who become self-employed or who are employed at an entrepreneurial startup), or they can be unemployed.

The findings in Table 13 are consistent with the plant-level results cited earlier, in the sense that ownership change appears to be associated with an increase in worker turnover at plants and firms. For example, only 62.7% of the workers observed at the end of year of T-1 whose plants changed owners during year T were still employed at the same establishment at the end of Year T+1. Note that this pattern of "churning" is strongest for full acquisitions, full divestitures, and single-firm ownership changes. Turnover findings are also presented separately for different types of workers. Not surprisingly, these results imply that men, non-Swedes, younger employees, and less experienced workers are less likely than representative workers to remain at the same plant in the aftermath of an ownership change. We also find that workers with the highest levels of education have the greatest mobility across firms.

Two-year mean wage growth results for this same set of workers are presented in Table 14. A potentially interesting finding is that women who work for establishments that were involved in an ownership change experience higher wage growth than men. It is important to note, however, that we do not have information on hours worked. Thus, one explanation for this finding, which cannot be ruled out on the basis of our empirical analysis, is that women (who may relatively often have worked part-time) work more hours in the aftermath of an ownership change. The results also

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would be possible that ownership change could have occurred after the employee data were received in year T (not to mention that new owners policies may take some time to come into effect). If years T and T+1 were used, the employee's initial status normally would be recorded after ownership change occurred rather than before.

imply that wage growth is higher for Swedish employees, younger, less-experienced workers, and those with higher levels of education.

E. Where Post-Ownership Change Employees Come From

Table 15 presents information on employees who are employed in a plant that recently experienced an ownership change. As in Table 12, we report the percentages of all employees at these plants, and of employees newly coming to the plants, who match relevant employee characteristics. Also, as in Table 13, the bottom panel of the table reports pertinent sample sizes.

In Table 16, we reverse the analysis of Table 13 by identifying workers at the end of Year T+1 and then determining their employment status at the end of year T-1. The results presented in Table 16 imply that plants involved in an ownership change are more likely to hire new workers than plants that do not experience these transactions. Table 17 presents two-year mean wage growth results for the workers identified at the end of year T+1. The results of Tables 15 and 16 indicate greater mobility and higher wage growth for Swedish employees, younger, less-experienced workers, and those with higher levels of education.

VII. PRELIMINARY CONCLUSIONS

In this paper, we have generated some stylized facts concerning the consequences of ownership change on productivity and investment in human capital. The empirical analysis is based on a rich matched employer-employee dataset, containing information on 19,010 Swedish manufacturing plants for the years 1985-1998. As such, our paper is the first plant-level study based on evidence from Continental Europe and the first analysis of ownership change (in any country) using matched employer-employee data. In contrast to existing plant-level studies, we use

more robust econometric methods, i.e., a one-stage analysis of the determinants of relative

productivity, including adjustments for survivor and measurement error biases.

The results appear to confirm theories of ownership change predicting an improvement in

economic performance in the aftermath of such transactions. Our findings are consistent with recent

theoretical and empirical evidence (see Jovanovic and Rousseau (2002) and Maksimovic and Phillips

(2001, 2002)) suggesting that takeovers and asset sales result in the reallocation of a firm's resources

to more efficient uses and to better managers. Specifically, we find that establishments undergoing a

change in ownership are less productive (on average) than comparable establishments before a

transaction and experience an increase in productivity after a transaction. Short term patterns (5

years before and after transactions) are different than long-term patterns (10 years before and after

transactions), a stylized fact that underscores the benefit of having a long panel.

Plants involved in an ownership change have higher output and employment before the

transaction. The increase in labor productivity after the transfer of ownership appears to be the

result of a decline in output, combined with an even larger reduction in employment. We also find

that plants involved in an ownership change experience an upgrading in the "quality" of human

capital. That is, we observe increases in average employee age, experience, and the percentage of

employees with a college education. Ownership change also leads to an increase in wages and a

reduction in the percentage of female workers. These patterns emerge most strongly for full

acquisitions and divestitures and unrelated acquisitions.

In future work, we hope to implement the robustness tests outlined in Van Biesesbroeck

(2004), by using non-parametric and semi-parametric methods to calculate productivity and re-

estimating the various econometric models. Given our large sample size, we can also analyze

whether there are significant differences across industries in the impacts of ownership change on

economic performance and human capital. Finally, it would be useful to discriminate among the three theories that predict a positive effect on ownership change on economic performance: agency theory, matching theories of ownership change, and the "capital upgrading" theory of ownership change.

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Table 1
Plant-Level Studies of the Effects of Ownership Change on Productivity

Authors	Country/ Frequency/ Nature of Sample	Type of Ownership Change	Methodology	Results
Lichtenberg and Siegel (1987)	USA/ Annual Data/ Mostly Large Continuous Plants in the Longitudinal Research Database (LRD)	All Ownership Changes in the Entire Manufacturing Sector	Two-Stage Regressions of Residuals From Cobb-Douglas Production Functions	Plants Involved in Ownership Changes Are Less Productive Than Comparable Plants Before an Ownership Change; They Experience an Increase in Productivity After an Ownership Change
Lichtenberg and Siegel (1990b)	USA/Annual Data/ Mostly Large Plants in the LRD	Leveraged and Management Buyouts (LBOs and MBOs) in the Entire Manufacturing Sector	Two-Stage Regressions of Residuals From Cobb-Douglas Production Functions	Plants Involved in LBOs and MBOs Are More Productive Than Comparable Plants Before the Buyout; LBOs and especially MBO Plants Experience a Substantial Increase in Productivity After a Buyout
McGuckin, and Nguyen (1995, 1998)	USA/ Quinquennial Census of Manufactures /All Plants	All Ownership Changes in the Food Manufacturing Industry (SIC 20)	Two-Stage Regressions of Residuals From Cobb-Douglas Production Functions	Plants Involved in Ownership Changes Are More Productive Than Comparable Plants Before the Change in Ownership; They Experience an Increase in Productivity After the Change in Ownership

Table 1 (cont.)
Plant-Level Studies of the Effects of Ownership Change on Productivity

Authors	Country/ Frequency/ Nature of Sample	Type of Ownership Change	Methodology	Results
Baldwin (1998)	Canada/ Census of Manufactures in 1970 and 1979/ All Plants	Mergers and Divestitures in the Entire Manufacturing Sector	Regressions of Non-Parametric Estimates of Relative Productivity (Computed as Value-Added Per Worker) on Ownership Change Dummies	Plants Involved in Ownership Changes Are More Productive Than Comparable Plants Before the Change in Ownership; Plants Acquired by a Firm in the Same Industry Experience an Increase in Productivity
Maksimovic and Phillips (2001)	USA/ LRD/Full Sample/Plant-Level and Divisional Level	Mergers and Asset Sales	Two-Stage Regressions of Residuals From Translog Production Functions	Acquired Plants and Divisions Tend to be Less Productive; They Experience an Increase in Productivity After the Ownership Change, The Extent of Which Depends on the Whether the Buying or Selling Division is "Main" or "Peripheral"
Schoar (2002)	USA/ LRD Matched to Compustat	Diversification	Two-Stage Regressions of Residuals From Cobb-Douglas Production Functions	Plants That Are Acquired Via Diversification Become More Productive; However "Incumbent" Plants Become Less Productive
Harris, Siegel, and Wright (2004)	U.K./Annual Research Database (ARD)/Full Sample	Management Buyouts	One-Stage GMM Estimation of Augmented Cobb-Douglas Production Functions	Plants Involved in MBOs Are Less Productive Than Comparable Plants Before the Buyout; They Experience a Substantial Increase in Productivity After a Buyout

Table 2
Plant and Firm-Level Studies of the Effects of Ownership Change on
Employment and Wages

Authors	Country	Unit of Observation	Type of Ownership Change	Results
Lichtenberg and Siegel (1987)	USA	Plant	All Ownership Changes	Labor Input Growth Rates Were Lower For Plants Changing Owners Than Comparable Plants Before the Transaction; Slightly Higher After the Transaction
Brown and Medoff (1988)	USA	Firm	3 Types: Simple Sales, Assets-Only, Sale, Merger	Simple Sale: 9% Increase in Employment, 5% Decline in Wages; Assets-Only Sale: 5% Decline in Employment, 5% Increase in Wages; Mergers: 2% Increase in Employment, 4% Decline in Wages
Bhagat, Shleifer, and Vishny (1990)	USA	Firm	Hostile Takeovers	45% of the Firms Involved in Hostile Takeovers Laid Off Workers (Approximately 6% of the Workforce)
Lichtenberg and Siegel (1990a)	USA	Plant and Firm	Leveraged Buyouts (LBOs) and Management Buyouts (MBOs)	Employment and Wages of Non-production Workers (But Not Production Workers) Declines After an LBO; No Evidence of a Post-LBO Decline in R&D
Lichtenberg and Siegel (1990b)	USA	Manufacturing Plants and Auxiliary Establishments	All Ownership Changes	Employment and Wage Growth is Significantly Lower in Auxiliary Establishments Changing Owners Than in Those Not Changing Owners, But Not for R&D Employees; Much Smaller Effects at Production Establishments

Table 2 (cont.)
Plant and Firm-Level Studies of the Effects of Ownership Change on
Employment and Wages

Authors	Country	Unit of Observation	Type of Ownership Change	Results
Baldwin (1998)	Canada	Plant	Related and Unrelated Mergers; Spin-offs	Mergers and Spin-offs Had Very Little Impact on Labor Costs; Related Mergers Had a Positive Impact on Wages; Mergers Had a Negative Impact on Employment and Compensation of Non-Production Workers
McGuckin, and Nguyen (2001)	USA	Plant	All Ownership Changes	For Representative Plants, Wages and Employment Increase After Ownership Change; Effects Worse For Workers in Large Plants
Conyon, Girma, Thompson, Wright (2002)	U.K.	Firm	Related and Unrelated Mergers	19% Decline in Employment for Related Mergers; 8% Decline in Employment for Unrelated Mergers
Gugler and Yurtoglu (2004)	U.S. and Europe	Firm	Mergers	Mergers Do Not Reduce Labor Demand in the U.S.; There is a 10% Decline in Labor Demand in Europe in the Aftermath of Mergers
Harris, Siegel, and Wright (2005)	U.K.	Plant	Management Buyouts (MBOs)	Plants Involved in an MBO Experience a Substantial Reduction in Employment

Table 3
Distribution of Sample of Swedish Manufacturing Plants By Size Category (Percentages)

Year	<5 Employees	5-9 Employees	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500+ Employees
1985	0.9	14.9	28.6	27.2	13.6	7.7	4.9	2.8
1986	0.4	14.4	28.3	28.0	13.2	8.0	5.1	2.7
1987	0.5	13.0	29.0	28.4	13.0	8.1	5.0	2.9
1988	0.6	13.0	28.8	28.4	13.0	8.0	5.3	2.8
1989	1.3	13.5	28.7	28.8	12.9	7.4	4.8	2.7
1990	5.2	6.6	30.0	29.9	13.0	7.7	5.0	2.7
1991	5.3	6.3	30.7	29.7	12.9	7.2	5.1	2.7
1992	5.9	6.6	31.2	28.8	12.6	7.2	5.1	2.7
1993	7.1	6.6	31.2	28.8	12.0	6.9	4.9	2.4
1994	6.7	5.6	30.5	30.5	12.5	6.8	5.0	2.4
1995	5.8	5.9	30.6	30.8	12.7	7.1	4.9	2.3
1996	5.2	6.7	31.7	29.8	12.8	6.8	4.8	2.2
1997	0.5	7.2	37.1	28.8	13.1	7.1	4.3	2.0
1998	0.3	6.7	37.1	29.2	13.5	6.9	4.4	1.9

Percentage of Employment in Sample of Swedish Manufacturing Plants in Each Size Category

Year	<5 Employees	5-9 Employees	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500+ Employees
1985	0.0	1.4	5.1	10.6	11.4	13.6	18.6	39.2
1986	0.0	1.3	4.9	10.7	11.4	13.7	19.4	38.6
1987	0.0	1.2	4.9	10.7	11.1	13.8	18.9	39.3
1988	0.0	1.2	4.9	10.7	11.1	13.4	19.7	39.1
1989	0.0	1.3	5.2	11.6	11.7	13.2	19.0	38.0
1990	0.1	0.6	5.4	11.7	11.6	13.6	19.6	37.3
1991	0.1	0.6	5.5	11.7	11.5	12.9	19.8	37.9
1992	0.2	0.6	5.8	11.6	11.6	13.4	20.4	36.5
1993	0.2	0.6	6.0	12.2	11.5	13.2	20.6	35.7
1994	0.2	0.5	5.9	12.6	11.7	13.0	20.8	35.3
1995	0.2	0.6	5.8	12.5	11.7	13.0	20.2	36.1
1996	0.2	0.7	6.0	12.3	12.0	12.7	19.9	36.3
1997	0.0	0.7	7.5	13.0	13.5	14.7	19.1	31.6
1998	0.0	0.7	7.4	13.2	13.8	14.2	19.4	31.2

Table 4
Comparison of Size Distribution of Sample of Swedish Manufacturing Plants to
Population of Swedish Manufacturing Plants (Percentages)

Sample of Swedish Manufacturing Plants

Year	<5 Employees	5-9 Employees	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500+ Employees
1986	0.4	14.4	28.3	28.0	13.2	8.0	5.1	2.7
1990	5.2	6.6	30.0	29.9	13.0	7.7	5.0	2.7
1995	5.8	5.9	30.6	30.8	12.7	7.1	4.9	2.3

Population of Swedish Manufacturing Plants

Year	<5 Employees	5-9 Employees	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500+ Employees
1986	33.1	22.4	16.1	13.8	6.7	4.0	2.3	1.3
1990	36.0	22.6	15.8	12.8	5.9	3.6	2.2	1.0
1995	38.5	23.4	14.8	12.2	5.3	3.0	1.9	0.8

Table 5
Sample Plants (N=19010) Relative to Population of Swedish Manufacturing Plants

Variable	1986	1990	1995
% of Plants With More Than 20 Employees Included in Our Sample	85.6%	91.2%	94.5%
% of Total Employment in Plants With More Than 20 Employees Included in Our Sample	92.0%	95.7%	98.6%
% of Plants With More Than 10 Employees Included in Our Sample	79.8%	84.3%	87.5%
% of Total Employment in Plants With More Than 10 Employees Included in Our Sample	89.7%	92.4%	94.7%
% of Plants With More Than 5 Employees Included in Our Sample	63.6%	62.9%	62.4%
% of Total Employment in Plants With More Than 5 Employees Included in Our Sample	84.9%	87.0%	90.7%

Table 6
Incidence of Ownership Change for 19,010 Swedish Manufacturing Plants During 1986-1998

Year	% of Plants Involved in an Ownership Change	% of Value-Added Involved in an Ownership Change	% of Employment Involved in an Ownership Change
1986	3.2%	3.1%	3.3%
1987	4.3%	5.2%	5.7%
1988	5.5%	8.3%	7.5%
1989	5.0%	5.1%	5.6%
1990	4.8%	7.7%	8.2%
1991	4.8%	7.8%	7.4%
1992	5.6%	5.0%	5.7%
1993	6.0%	4.7%	5.2%
1994	4.6%	7.3%	6.7%
1995	3.9%	6.0%	5.3%
1996	3.9%	2.1%	3.1%
1997	3.7%	4.7%	3.8%
1998	3.2%	2.3%	3.0%
Entire Period	5.1%	5.4%	5.6%

Table 7
Incidence of Ownership Change for 19,010 Swedish Manufacturing Plants During 1986-1998
By Type of Ownership Change

Type of Ownership Change	% of Plants Involved in a Particular Type of Ownership Change	% of Value-Added Involved in a Particular Type of Ownership Change	% of Employment Involved in a Particular Type of Ownership Change
All Ownership Changes	5.1%	5.3%	5.6%
Full Acquisition	4.2%	2.7%	3.2%
Partial Acquisition	0.9%	2.6%	2.4%
Full Divestiture	4.5%	3.3%	3.9%
Partial Divestiture	0.7%	2.0%	1.8%
Related Acquisition	0.9%	1.2%	1.4%
Unrelated Acquisition	0.6%	0.8%	0.6%
Change in Ownership Involving a Single Firm	3.7%	3.4%	3.7%

Table 8
Means and Standard Deviations (in parentheses) of
Production Function Variables and Worker Characteristics

Variable	All Plants	Plants That Experience an Ownership Change	Plants That Do Not Experience an Ownership Change
Log Gross Output	9.68 (1.52)	9.98 (1.55)	9.51 (1.51)
Log Real Value of Plant & Machinery Capital Stock	9.21 (1.49)	9.60 (1.41)	9.01 (1.48)
Log Plant Employment	3.36 (1.21)	3.67 (1.22)	3.18 (1.17)
Log Materials	8.80 (1.82)	9.18 (1.75)	8.59 (1.82)
Average Age of Employees	39.49 (5.36)	39.57 (4.95)	39.45 (5.56)
Percentage of Female Employees	25.77 (21.64)	25.18 (20.61)	26.08 (22.17)
Percentage of Non-Swedish Employees	9.24 (11.49)	9.62 (11.17)	9.04 (11.66)
Percentage of Employees With At least A College Education	2.81 (7.11)	2.45 (5.85)	3.00 (7.68)
Log Wage	11.86 (0.37)	11.85 (0.36)	11.86 (0.38)

Table 9

Parameter Estimates from Labor Productivity, Total Factor Productivity, Output, and Employment
Regressions for All Ownership Changes (Standard Errors in Parentheses)

Coefficient on:	Labor Productivity	TFP (Cobb-Douglas)	Output	Employment
Labor $\ddagger$	1.054 *** (0.014)	.375 *** (0.14)	-------	-------
Capital $\ddagger$	-------	.270 *** (.018)	-------	-------
Materials $\ddagger$	-------	.347*** (.014)	-------	-------
OC_{-13}	-.052 (.035)	-------	.092 (.093)	.162 † (.085)
OC_{-12}	-.042 † (.025)	-------	.020 (.060)	.058 (.052)
OC_{-11}	-.010 (.020)	-------	.049 (.045)	.055 (.040)
OC_{-10}	-.027 † (.017)	-------	.060 (.039)	.083 * (.035)
OC_{-9}	-.036 * (.015)	.009 (.018)	.114 *** (.035)	.142 *** (.032)
OC_{-8}	-.035 *** (.013)	.012 (.011)	.136 *** (.029)	.163 *** (.026)
OC_{-7}	-.039 *** (.011)	.011 (.011)	.162 *** (.026)	.191 *** (.023)
OC_{-6}	-.041 *** (.010)	-.018 * (.008)	.186 *** (.023)	.216 *** (.020)
OC_{-5}	-.041 *** (.010)	-.031 *** (.008)	.205 *** (.022)	.232 *** (.019)
OC_{-4}	-.041 *** (.009)	-.028 *** (.006)	.179 *** (.020)	.208 *** (.017)
OC_{-3}	-.042 *** (.009)	-.039 *** (.006)	.178 *** (.019)	.208 *** (.016)
OC_{-2}	-.035 *** (.008)	-.036 *** (.005)	.179 *** (.018)	.202 *** (.015)
OC_{-1}	-.050 *** (.009)	-.056 *** (.006)	.153 *** (.018)	.195 *** (.015)
OC_0	-.022 ** (.008)	-.066 *** (.006)	-.001 (.017)	.022 *** (.015)
OC_{+1}	-.009 (.008)	-.032 *** (.005)	.082 *** (.018)	.086 *** (.015)
OC_{+2}	-.004 (.009)	-.024 *** (.005)	.092 *** (.019)	.087 *** (.016)
	.002	-.013 *	.101 ***	.092 ***

OC$_{+3}$	(.010)	(.006)	(.021)	(.018)
OC$_{+4}$	.002 (.010)	-.020 ** (.006)	.095 *** (.023)	.088 *** (.019)
OC$_{+5}$	.005 (.011)	-.014 * (.007)	.097 *** (.025)	.090 *** (.021)
OC$_{+6}$	.019 (.012)	-.006 (.007)	.142 *** (.028)	.120 *** (.024)
OC$_{+7}$	.043 ** (.014)	.017 * (.008)	.187 *** (.033)	.140 *** (.027)
OC$_{+8}$	.030 † (.013)	.009 (.011)	.159 *** (.037)	.119 *** (.030)
OC$_{+9}$	.037 * (.018)	.021 † (.012)	.139 *** (.041)	.096 *** (.034)
OC$_{+10}$	.040 † (.022)	.024 † (.014)	.175 *** (.050)	.124 *** (.041)
OC$_{+11}$	.061 * (.030)	.046 * (.021)	.201 *** (.069)	.121 ** (.057)
OC$_{+12}$	.024 (.054)	.028 (.038)	.171 *** (.108)	.104 (.091)
"No-Data" Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes
Intercept	6.150 *** (0.053)	2.084 *** (.143)	10.610 *** (.059)	4.049 *** (.049)
R^2	0.859	0.960	0.358	0.301
Number of Plants	18,495	15946	18,513	18,962
Number of Observations	124,381	82307	124,441	125,416

Notes: † p<.10, * p<.05, ** p<.01, *** p<.001. These are two-tailed significance levels using robust standard errors, allowing for correlated ("clustered") errors within plants. ‡ Weighted means of industry-specific coefficients at the detailed (4-digit SIC) industry level.

Table 10
Estimated Effects of Ownership Change on Labor Productivity (LP), Total Factor Productivity
(TFP), Output, and Employment for Various Types of Ownership Changes

All Ownership Changes

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	-0.042 ***	-0.038 **	0.179 ***	0.209 ***
Post-Ownership Change (Average-5 years After)	-0.001	-0.021 **	0.093 ***	0.089 ***
Post-Pre	0.041 ***	0.017 **	-0.086 ***	-0.120 ***

Full Acquisitions

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	-0.055 ***	-0.038 ***	0.061 **	0.111 ***
Post-Ownership Change (Average-5 years After)	-0.007	-0.024 ***	-0.055 **	-0.046 **
Post-Pre	0.047 ***	0.014 *	-0.116 ***	-0.156 ***

Partial Acquisitions

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	0.011	-0.037 *	0.633 ***	0.584 ***
Post-Ownership Change (Average-5 years After)	0.019	-0.011	0.556 ***	0.510 ***
Post-Pre	0.008	0.026 †	-0.076 *	-0.073 *

Full Divestitures

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	-0.052 ***	-0.039 ***	0.092 ***	0.137 ***
Post-Ownership Change (Average-5 years After)	-0.005	-0.022 ***	-0.012	-0.007
Post-Pre	0.047 ***	0.017 **	-0.104 ***	-0.144 ***

Partial Divestitures

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	0.019	-0.030 †	0.684 ***	0.628 ***
Post-Ownership Change (Average-5 years After)	0.018	-0.014	0.594 ***	0.551 ***
Post-Pre	-0.001	0.015 †	-0.090 *	-0.077 *

Notes: † $p<.10$, * $p<.05$, ** $p<.01$, *** $p<.001$. These are two-tailed significance levels using robust standard errors, allowing for correlated ("clustered") errors within plants.

Table 10 (cont.)
Estimated Effects of Ownership Change on Labor Productivity (LP), Total Factor Productivity
(TFP), Output, and Employment for Various Types of Ownership Changes

Related Acquisitions

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	0.005	-0.043 *** †	0.429 ***	0.402 ***
Post-Ownership Change (Average-5 years After)	0.021	-0.009	0.363 ***	0.324 ***
Post-Pre	0.015	0.034 *	-0.066 †	-0.079 *

Unrelated Acquisitions

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	-0.013	-0.034 *	0.345 ***	0.346 ***
Post-Ownership Change (Average-5 years After)	0.020	-0.010	0.234 ***	0.208 ***
Post-Pre	0.033 *	0.024	-0.111 †	-0.138 **

Change in Ownership Involving a Single Firm

Period	LP	TFP	Output	Employment
Pre-Ownership Change (Average-5 years Before)	-0.059 ***	-0.037 **	0.087 **	0.137 ***
Post-Ownership Change (Average-5 years After)	-0.007	-0.024 **	0.014	0.020
Post-Pre	0.052 ***	0.013 †	-0.075 ***	-0.118 ***

Notes: † p<.10, * p<.05, ** p<.01, *** p<.001. These are two-tailed significance levels using robust standard errors, allowing for correlated ("clustered") errors within plants.

Table 11
Estimated Effects of Ownership Change on Age, Experience, % Female, % Non-Swedish,
% College-Educated, and Wages for Various Types of Ownership Changes

All Ownership Changes

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	0.053	0.046	0.766 ***	0.360 *	-0.051	-0.009***
Post-Ownership Change (Average-5 years After)	0.213 ***	0.213 ***	0.117	0.245	0.126	0.004 †
Post-Pre	0.160 *	0.167 **	-0.649 **	-0.114	0.177 *	0.013 ***

Full Acquisitions

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	-0.026	0.010	0.540*	0.253	-0.112 †	-0.014***
Post-Ownership Change (Average-5 years After)	0.128†	0.176**	-0.289	0.111	0.028	0.001
Post-Pre	0.154 *	0.167 **	-0.829***	-0.143	0.140 †	0.015***

Partial Acquisitions

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	0.396 **	0.203 **	1.678 ***	0.787 *	0.225	0.012 *
Post-Ownership Change (Average-5 years After)	0.482 ***	0.339 ***	1.423 **	0.674 *	0.438 **	0.015 **
Post-Pre	0.086	0.136	-0.257	-0.113	0.213	0.003

Notes: † p<.10, * p<.05, ** p<.01, *** p<.001. These are two-tailed significance levels using robust standard errors, allowing for correlated ("clustered") errors within plants.

Table 11 (cont.)
Estimated Effects of Ownership Change on Age, Experience, % Female, % Non-Swedish,
% College-Educated, and Wages for Various Types of Ownership Changes
Full Divestitures

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	0.020	0.032	0.589 **	0.311 *	-0.087	-0.010 ***
Post-Ownership Change (Average-5 years After)	0.177 *	0.210 ***	-0.241	0.185	0.020	0.003
Post-Pre	0.157 *	0.177 **	-0.830 ***	-0.126	0.109	0.013 ***

Partial Divestitures

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	0.270	0.134	1.832 **	0.661	0.213	-0.003
Post-Ownership Change (Average-5 years After)	0.383 **	0.230 *	1.895 **	0.551	0.647 **	0.011
Post-Pre	0.113	0.096	0.063	-0.110	0.434	0.014 †

Notes: † p<.10, * p<.05, ** p<.01, *** p<.001. These are two-tailed significance levels using robust standard errors, allowing for correlated ("clustered") errors within plants.

Table 11 (cont.)
Estimated Effects of Ownership Change on Age, Experience, % Female, % Non-Swedish,
% College-Educated, and Wages for Various Types of Ownership Changes

Related Acquisitions

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	0.458 **	0.008	0.834 †	0.318	-0.001	0.018 **
Post-Ownership Change (Average-5 years After)	0.495 **	0.225 †	0.137	-0.080	0.196	0.025 ***
Post-Pre	0.037	0.218	-0.697	-0.398	0.197	0.007

Unrelated Acquisitions

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	0.182	0.287 *	0.857 *	0.039	0.186	-0.006
Post-Ownership Change (Average-5 years After)	0.754 ***	0.481 **	1.150	0.332	0.133	0.014 *
Post-Pre	0.571 **	0.193 †	0.282	0.294	0.053	0.020 *

Change in Ownership Involving a Single Firm

Period	Age	Experience	% Female	% Non-Swedish	% College-Educated	Wages
Pre-Ownership Change (Average-5 years Before)	-0.077	0.025	0.731 **	0.418 *	-0.096	-0.017
Post-Ownership Change (Average-5 years After)	0.090	0.180 **	-0.083	0.315 †	0.109	-0.002
Post-Pre	0.167	0.153	-0.727	-0.103	0.205 *	0.015 ***

Notes: † p<.10, * p<.05, ** p<.01, *** p<.001. These are two-tailed significance levels using robust standard errors, allowing for correlated ("clustered") errors within plants.

Table 12
Which Employees Go:
Statistics for Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Employee Type	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Among All Employees:									
% Female	26.38	27.45	27.80	26.93	26.99	28.56	28.05	27.79	27.19
% Non-Swedish	12.60	14.23	13.77	14.91	13.59	15.80	13.50	11.33	14.87
% Age Above Mean	47.81	49.12	50.26	47.46	50.39	46.05	48.17	48.59	49.51
% Experience Above Mean	50.98	49.72	50.79	48.13	50.86	47.06	49.88	52.32	49.30
% Education Less Than High School	39.40	41.00	40.88	41.18	41.51	39.75	40.69	41.03	41.11
% Education to High School	48.27	47.35	47.46	47.19	47.32	47.42	47.87	47.47	47.15
% Education Some College	12.09	11.37	11.30	11.49	10.84	12.68	11.18	11.32	11.45
% Education Some PhD	0.24	0.27	0.37	0.14	0.33	0.15	0.26	0.18	0.29
Among Employees Leaving Plant:									
% Female	28.50	28.07	28.33	27.64	28.05	28.13	29.66	30.60	27.35
% Non-Swedish	14.12	15.28	15.24	15.35	15.00	16.04	14.95	12.81	15.64
% Age Above Mean	39.15	45.35	46.49	43.48	46.83	41.36	42.73	43.75	46.25
% Experience Above Mean	36.45	40.04	41.45	37.66	41.52	36.18	38.18	42.45	40.32
% Education Less Than High School	37.30	38.75	38.66	38.89	39.32	37.19	38.40	37.42	39.00
% Education to High School	48.91	47.82	48.13	47.29	48.00	47.31	48.82	48.41	47.48
% Education Some College	13.52	13.08	12.75	13.63	12.27	15.30	12.49	13.91	13.15
% Education Some PhD	0.27	0.35	0.45	0.19	0.41	0.21	0.30	0.27	0.38
Sample Size for All Employees:									
All	6,586,368	352,094	208,526	143,568	249,265	102,829	81,442	32,011	238,641
With Experience Data	2,690,062	135,380	80,717	54,663	94,745	40,635	32,928	12,512	89,940
With Education Data	6,358,300	338,494	200,926	137,568	240,284	98,210	78,149	31,055	229,290
Sample Size for Employees Leaving Plant :									
All	1,782,949	131,495	81,930	49,565	96,059	35,436	26,049	10,572	94,874
With Experience Data	802,542	52,952	33,261	19,691	38,284	14,668	11,384	4,514	37,054
With Education Data	1,699,355	125,363	78,353	47,010	91,913	33,450	24,693	10,168	90,502

Table 13

Where Employees Go:

Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

All Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	72.9	62.7	60.7	65.5	61.5	65.5	68.0	67.0	60.2
Other Plant Owned By Same Firm	2.2	2.3	2.2	2.5	2.1	2.9	1.1	1.4	2.8
Other Plant Owned by Acquiring Firm	0.0	2.4	2.7	2.1	2.5	2.3	2.9	2.2	2.3
Same Industry, Other Firm	1.8	2.8	2.1	3.9	2.5	3.5	1.1	1.5	3.6
Other Manufacturing Industry, Other Firm	4.1	6.2	6.4	5.8	6.2	6.1	4.8	5.4	6.8
Other Non-Manufacturing Industry, Other Firm	4.9	5.9	6.2	5.5	6.1	5.4	5.3	5.1	6.2
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	2.5	2.7	2.1	2.8	1.6	1.8	2.9	2.6
Unemployed (at least in Sweden)	12.6	15.2	17.0	12.6	16.3	12.7	15.0	14.5	15.4

Table 13 (cont.)

Where Employees Go:

Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Male Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	73.7	63.0	61.0	65.8	62.0	65.3	68.7	68.3	60.3
Other Plant Owned By Same Firm	2.2	2.4	2.3	2.6	2.2	3.1	1.2	1.5	3.0
Other Plant Owned by Acquiring Firm	0.0	2.2	2.3	2.0	2.2	2.2	2.8	2.2	2.0
Same Industry, Other Firm	1.9	3.0	2.2	4.0	2.7	3.8	1.2	1.5	3.8
Other Manufacturing Industry, Other Firm	4.5	6.9	7.4	6.2	7.1	6.5	5.2	5.7	7.6
Other Non-Manufacturing Industry, Other Firm	4.9	6.0	6.3	5.6	6.1	5.7	5.3	5.0	6.4
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.5	2.6	2.9	2.3	2.9	1.9	1.8	3.0	2.9
Unemployed (at least in Sweden)	11.4	13.9	15.6	11.3	14.8	11.5	13.7	12.9	14.1

Female Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	70.8	61.8	60.0	64.6	60.0	66.1	66.2	63.6	60.0
Other Plant Owned By Same Firm	2.1	1.9	1.7	2.2	1.8	2.2	1.0	1.4	2.3
Other Plant Owned by Acquiring Firm	0.0	3.1	3.6	2.3	3.4	2.4	3.2	2.3	3.2
Same Industry, Other Firm	1.6	2.4	1.7	3.4	2.2	2.9	0.8	1.6	3.1
Other Manufacturing Industry, Other Firm	3.1	4.4	4.1	4.8	4.0	5.1	3.5	4.6	4.6
Other Non-Manufacturing Industry, Other Firm	4.9	5.7	6.0	5.1	6.1	4.7	5.3	5.1	5.9
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	2.0	2.2	1.6	2.4	1.0	1.8	2.7	1.9
Unemployed (at least in Sweden)	16.2	18.8	20.7	16.0	20.2	15.7	18.3	18.8	19.0

Table 13 (cont.)

Where Employees Go:

Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Swedish Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	73.4	63.1	61.4	65.7	62.1	65.6	68.6	67.5	60.6
Other Plant Owned By Same Firm	2.2	2.3	2.1	2.5	2.0	2.8	1.2	1.5	2.8
Other Plant Owned by Acquiring Firm	0.0	2.5	2.8	2.0	2.6	2.3	3.0	2.3	2.3
Same Industry, Other Firm	1.8	2.8	2.1	3.9	2.5	3.6	1.1	1.5	3.6
Other Manufacturing Industry, Other Firm	4.2	6.2	6.4	6.0	6.2	6.2	4.8	5.2	6.9
Other Non-Manufacturing Industry, Other Firm	5.1	6.2	6.4	5.8	6.4	5.7	5.6	5.2	6.5
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.5	2.5	2.6	2.2	2.8	1.7	1.8	3.0	2.6
Unemployed (at least in Sweden)	11.9	14.4	16.1	11.9	15.4	12.0	14.0	13.8	14.6

Non-Swedish Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	69.7	59.9	56.5	64.5	57.5	65.0	64.6	62.7	58.2
Other Plant Owned By Same Firm	2.3	2.4	2.3	2.6	2.2	3.0	0.9	1.1	3.0
Other Plant Owned by Acquiring Firm	0.0	2.2	2.1	2.3	2.1	2.3	2.7	1.5	2.1
Same Industry, Other Firm	1.9	2.8	2.2	3.5	2.7	2.9	0.9	2.2	3.4
Other Manufacturing Industry, Other Firm	3.7	6.0	6.8	4.9	6.3	5.3	4.4	6.3	6.4
Other Non-Manufacturing Industry, Other Firm	3.4	4.2	4.5	3.8	4.5	3.7	3.3	3.7	4.6
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.3	2.3	2.8	1.6	2.9	1.1	2.0	2.2	2.4
Unemployed (at least in Sweden)	17.7	20.2	22.7	16.8	21.8	16.7	21.2	20.3	19.8

Table 13 (cont.)
Where Employees Go:
Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Employees Whose Age is Below the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	68.4	59.9	57.7	62.9	58.7	62.5	64.7	63.9	57.7
Other Plant Owned By Same Firm	2.2	2.0	1.8	2.1	1.7	2.4	1.0	1.3	2.4
Other Plant Owned by Acquiring Firm	0.0	2.3	2.4	2.0	2.3	2.1	2.5	2.0	2.2
Same Industry, Other Firm	2.1	3.0	2.3	3.9	2.6	3.8	1.3	1.5	3.8
Other Manufacturing Industry, Other Firm	5.9	7.8	8.1	7.3	7.9	7.5	6.2	7.2	8.4
Other Non-Manufacturing Industry, Other Firm	7.1	8.1	8.6	7.5	8.5	7.4	7.2	7.1	8.6
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.6	2.6	2.7	2.4	2.9	1.9	2.0	3.1	2.7
Unemployed (at least in Sweden)	12.7	14.5	16.3	11.9	15.4	12.3	15.0	13.8	14.4

Employees Whose Age is Above the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	77.8	65.5	63.7	68.4	64.2	69.1	71.6	70.3	62.9
Other Plant Owned By Same Firm	2.2	2.7	2.5	2.9	2.4	3.4	1.2	1.6	3.3
Other Plant Owned by Acquiring Firm	0.0	2.6	2.9	2.2	2.7	2.4	3.4	2.4	2.4
Same Industry, Other Firm	1.5	2.6	1.9	3.8	2.4	3.2	0.8	1.6	3.4
Other Manufacturing Industry, Other Firm	2.2	4.6	4.8	4.2	4.6	4.4	3.3	3.4	5.2
Other Non-Manufacturing Industry, Other Firm	2.4	3.6	3.8	3.3	3.8	3.1	3.2	2.9	3.9
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.2	2.3	2.7	1.9	2.7	1.3	1.6	2.7	2.6
Unemployed (at least in Sweden)	12.6	16.0	17.8	13.4	17.1	13.2	15.0	15.3	16.5

Table 13 (cont.)

Where Employees Go:

Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Employees Whose Experience is Below the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	61.3	53.4	51.0	56.7	51.9	56.5	57.4	56.5	51.5
Other Plant Owned By Same Firm	2.1	1.7	1.7	1.7	1.7	1.7	1.2	1.4	2.0
Other Plant Owned by Acquiring Firm	0.0	2.3	2.4	2.2	2.3	2.4	2.4	1.9	2.4
Same Industry, Other Firm	2.2	2.9	2.4	3.5	2.6	3.6	1.6	1.6	3.5
Other Manufacturing Industry, Other Firm	7.4	9.1	9.4	8.7	9.2	9.0	7.7	9.0	9.7
Other Non-Manufacturing Industry, Other Firm	9.1	10.4	10.6	10.0	10.6	9.9	9.4	9.3	10.8
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.7	2.5	2.7	2.2	2.8	1.8	2.2	3.1	2.5
Unemployed (at least in Sweden)	16.1	17.7	19.8	14.9	19.0	15.1	18.2	17.4	17.6

Employees Whose Experience is Above the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	78.7	68.5	66.4	71.8	67.0	72.2	73.5	70.7	66.3
Other Plant Owned By Same Firm	2.6	2.0	1.8	2.3	1.8	2.4	1.3	1.6	2.3
Other Plant Owned by Acquiring Firm	0.0	3.3	4.0	2.2	3.7	2.5	3.4	2.9	3.4
Same Industry, Other Firm	1.8	2.6	2.0	3.4	2.2	3.4	0.9	1.6	3.3
Other Manufacturing Industry, Other Firm	3.7	5.8	5.9	5.7	5.9	5.8	5.2	6.1	6.0
Other Non-Manufacturing Industry, Other Firm	4.3	6.0	6.1	5.7	6.1	5.6	5.3	5.3	6.3
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.2	1.9	2.2	1.6	2.3	1.0	1.6	2.6	2.0
Unemployed (at least in Sweden)	7.6	9.9	11.5	7.2	11.0	7.1	8.8	9.3	10.4

Table 13 (cont.)
Where Employees Go:
Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Employees With Less Than A High School Education

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	74.7	65.0	63.1	67.7	63.8	68.1	70.2	70.1	62.6
Other Plant Owned By Same Firm	1.7	2.4	2.2	2.5	2.0	3.1	1.1	1.5	2.9
Other Plant Owned by Acquiring Firm	0.0	2.0	2.1	1.9	2.0	2.0	2.7	1.6	1.8
Same Industry, Other Firm	1.5	2.4	1.6	3.5	2.1	3.1	0.9	1.0	3.1
Other Manufacturing Industry, Other Firm	3.0	4.7	4.9	4.4	4.8	4.5	3.2	3.5	5.4
Other Non-Manufacturing Industry, Other Firm	3.4	4.0	4.4	3.5	4.4	3.2	3.7	3.1	4.2
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	2.4	2.5	2.3	2.6	1.7	1.6	2.4	2.6
Unemployed (at least in Sweden)	14.3	17.2	19.3	14.2	18.4	14.2	16.6	16.7	17.4

Employees With a High School Education

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	72.9	62.6	60.5	65.8	61.2	66.0	67.8	66.6	60.3
Other Plant Owned By Same Firm	2.2	2.2	2.1	2.3	2.0	2.6	1.2	1.4	2.6
Other Plant Owned by Acquiring Firm	0.0	2.3	2.6	1.9	2.4	2.1	3.0	2.5	2.0
Same Industry, Other Firm	1.8	2.9	2.1	4.0	2.5	3.7	1.1	1.6	3.7
Other Manufacturing Industry, Other Firm	4.5	6.9	7.1	6.5	6.9	6.6	5.5	5.5	7.5
Other Non-Manufacturing Industry, Other Firm	5.4	6.5	6.8	6.0	6.8	5.7	5.9	5.7	6.8
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	2.5	2.7	2.1	2.8	1.6	1.6	3.1	2.7
Unemployed (at least in Sweden)	11.7	14.2	16.1	11.5	15.3	11.7	13.9	13.6	14.4

Table 13 (cont.)
Where Employees Go:
Employment Status at the End of Year T+1 (in %) of Workers at Year T-1 Whose Plants Experienced an Ownership Change During Year T

Employees With At Least Some College or University Education

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	70.1	57.4	56.0	59.5	56.7	58.9	64.7	59.8	54.7
Other Plant Owned By Same Firm	3.8	2.6	2.2	3.2	2.4	3.1	1.6	1.7	3.1
Other Plant Owned by Acquiring Firm	0.0	4.7	5.4	3.6	4.9	4.1	4.0	3.6	5.0
Same Industry, Other Firm	2.7	3.8	3.3	4.6	3.6	4.2	1.7	2.7	4.7
Other Manufacturing Industry, Other Firm	5.5	8.1	8.3	7.7	8.0	8.2	6.6	10.3	8.2
Other Non-Manufacturing Industry, Other Firm	7.2	10.2	9.9	10.7	9.7	11.3	8.7	8.8	10.9
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	2.4	2.8	1.9	2.9	1.3	2.6	3.0	2.3
Unemployed (at least in Sweden)	9.3	10.8	12.1	8.9	11.8	8.8	10.1	10.2	11.1

Employees With a Ph.D.

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	70.0	52.4	52.2	53.1	52.4	52.7	64.6	52.6	48.6
Other Plant Owned By Same Firm	5.4	3.1	2.4	5.7	2.7	5.5	0.5	0.0	4.2
Other Plant Owned by Acquiring Firm	0.0	16.8	20.2	3.6	19.2	4.1	10.2	1.8	20.1
Same Industry, Other Firm	2.9	4.1	3.7	5.7	3.8	5.5	1.9	0.0	5.1
Other Manufacturing Industry, Other Firm	4.9	4.7	4.1	7.3	4.0	8.9	3.4	8.8	4.8
Other Non-Manufacturing Industry, Other Firm	6.0	6.9	5.8	10.9	6.0	11.6	7.8	12.3	6.2
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.9	2.8	2.4	4.2	3.1	1.4	2.9	22.8	1.1
Unemployed (at least in Sweden)	8.8	9.1	9.1	9.4	8.9	10.3	8.7	1.8	9.9

Table 14

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

All Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.126	1.106	1.114	1.097	1.102	1.116	1.090	1.127	1.110
Other Plant Owned By Same Firm	1.168	1.066	1.074	1.056	1.072	1.055	1.055	1.143	1.062
Other Plant Owned by Acquiring Firm	N/A	1.203	1.252	1.113	1.236	1.114	1.075	1.127	1.268
Same Industry, Other Firm	1.256	1.176	1.170	1.180	1.157	1.209	1.157	1.094	1.183
Other Manufacturing Industry, Other Firm	1.628	1.410	1.463	1.326	1.434	1.351	1.466	1.344	1.404
Other Non-Manufacturing Industry, Other Firm	1.519	1.369	1.412	1.300	1.386	1.324	1.264	1.293	1.408
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.139	1.046	1.070	1.002	1.059	0.993	1.126	1.108	1.018

Table 14 (cont.)

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

Male Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.073	1.058	1.054	1.064	1.049	1.079	1.037	1.080	1.063
Other Plant Owned By Same Firm	1.093	1.050	1.052	1.047	1.047	1.054	1.022	1.095	1.051
Other Plant Owned by Acquiring Firm	N/A	1.047	1.038	1.062	1.044	1.053	1.033	1.042	1.054
Same Industry, Other Firm	1.202	1.133	1.144	1.124	1.131	1.136	1.108	1.067	1.139
Other Manufacturing Industry, Other Firm	1.551	1.363	1.400	1.301	1.373	1.338	1.485	1.317	1.340
Other Non-Manufacturing Industry, Other Firm	1.390	1.293	1.332	1.230	1.312	1.241	1.218	1.211	1.322
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.115	1.018	1.023	1.008	1.021	1.005	0.978	1.048	1.022

Female Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.281	1.237	1.272	1.187	1.250	1.208	1.229	1.257	1.236
Other Plant Owned By Same Firm	1.394	1.121	1.154	1.084	1.154	1.060	1.158	1.274	1.102
Other Plant Owned by Acquiring Firm	N/A	1.497	1.605	1.236	1.570	1.257	1.170	1.341	1.627
Same Industry, Other Firm	1.431	1.315	1.257	1.359	1.238	1.450	1.351	1.160	1.322
Other Manufacturing Industry, Other Firm	1.946	1.608	1.757	1.415	1.727	1.395	1.393	1.430	1.690
Other Non-Manufacturing Industry, Other Firm	1.879	1.585	1.628	1.509	1.588	1.574	1.380	1.504	1.660
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.211	1.146	1.229	0.980	1.185	0.940	1.516	1.286	1.002

Table 14 (cont.)

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

Swedish Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.127	1.111	1.120	1.098	1.108	1.118	1.090	1.136	1.115
Other Plant Owned By Same Firm	1.167	1.068	1.079	1.055	1.068	1.069	1.053	1.156	1.064
Other Plant Owned by Acquiring Firm	N/A	1.228	1.277	1.131	1.261	1.136	1.084	1.126	1.305
Same Industry, Other Firm	1.261	1.181	1.171	1.189	1.165	1.209	1.160	1.100	1.188
Other Manufacturing Industry, Other Firm	1.624	1.379	1.418	1.319	1.390	1.353	1.471	1.378	1.357
Other Non-Manufacturing Industry, Other Firm	1.522	1.365	1.399	1.309	1.378	1.328	1.267	1.294	1.402
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.147	1.054	1.077	1.014	1.067	1.002	1.151	1.116	1.022

Non-Swedish Employees

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.119	1.078	1.068	1.091	1.063	1.107	1.088	1.049	1.079
Other Plant Owned By Same Firm	1.177	1.053	1.046	1.061	1.098	0.985	1.069	1.010	1.053
Other Plant Owned by Acquiring Firm	N/A	1.032	1.042	1.020	1.051	0.996	1.007	1.143	1.034
Same Industry, Other Firm	1.228	1.142	1.165	1.123	1.107	1.212	1.127	1.060	1.149
Other Manufacturing Industry, Other Firm	1.653	1.606	1.729	1.380	1.712	1.341	1.431	1.124	1.691
Other Non-Manufacturing Industry, Other Firm	1.484	1.411	1.530	1.221	1.459	1.289	1.221	1.283	1.464
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.075	0.992	1.029	0.906	1.005	0.921	0.985	1.020	0.992

Table 14 (cont.)

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

Employees Whose Age is Below the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.263	1.236	1.254	1.213	1.234	1.239	1.203	1.244	1.247
Other Plant Owned By Same Firm	1.316	1.176	1.182	1.168	1.189	1.155	1.142	1.192	1.180
Other Plant Owned by Acquiring Firm	N/A	1.423	1.521	1.255	1.490	1.262	1.207	1.282	1.526
Same Industry, Other Firm	1.407	1.317	1.274	1.351	1.287	1.363	1.271	1.221	1.328
Other Manufacturing Industry, Other Firm	1.768	1.593	1.664	1.486	1.628	1.512	1.525	1.499	1.622
Other Non-Manufacturing Industry, Other Firm	1.648	1.533	1.605	1.421	1.570	1.439	1.396	1.388	1.590
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.279	1.216	1.284	1.110	1.250	1.099	1.353	1.242	1.175

Employees Whose Age is Above the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	0.995	0.984	0.988	0.979	0.983	0.986	0.979	1.014	0.981
Other Plant Owned By Same Firm	1.006	0.982	0.994	0.966	0.988	0.971	0.976	1.100	0.975
Other Plant Owned by Acquiring Firm	N/A	1.009	1.028	0.970	1.026	0.958	0.968	0.993	1.030
Same Industry, Other Firm	1.028	1.010	1.043	0.985	1.016	0.997	0.949	0.963	1.017
Other Manufacturing Industry, Other Firm	1.208	1.088	1.129	1.015	1.109	1.030	1.345	0.994	1.042
Other Non-Manufacturing Industry, Other Firm	1.110	0.988	0.984	0.995	0.985	0.998	0.943	1.042	0.995
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	0.940	0.854	0.855	0.852	0.860	0.820	0.807	0.941	0.852

Table 14 (cont.)

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

Employees Whose Experience is Below the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.321	1.311	1.351	1.260	1.324	1.286	1.227	1.392	1.333
Other Plant Owned By Same Firm	1.359	1.311	1.300	1.328	1.301	1.334	1.222	1.273	1.334
Other Plant Owned by Acquiring Firm	N/A	1.285	1.279	1.296	1.291	1.274	1.254	1.439	1.281
Same Industry, Other Firm	1.472	1.449	1.356	1.538	1.371	1.570	1.399	1.217	1.470
Other Manufacturing Industry, Other Firm	1.847	1.627	1.681	1.545	1.642	1.592	1.525	1.565	1.663
Other Non-Manufacturing Industry, Other Firm	1.685	1.528	1.579	1.452	1.563	1.447	1.422	1.573	1.556
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.365	1.375	1.486	1.186	1.415	1.240	1.711	1.354	1.272

Employees Whose Experience is Above the Mean

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.158	1.128	1.133	1.121	1.123	1.141	1.116	1.098	1.138
Other Plant Owned By Same Firm	1.196	1.058	1.061	1.054	1.064	1.046	1.042	1.125	1.055
Other Plant Owned by Acquiring Firm	N/A	1.490	1.607	1.160	1.574	1.175	1.151	1.181	1.656
Same Industry, Other Firm	1.193	1.146	1.145	1.147	1.160	1.124	1.084	1.250	1.145
Other Manufacturing Industry, Other Firm	1.343	1.217	1.251	1.163	1.217	1.219	1.182	1.098	1.247
Other Non-Manufacturing Industry, Other Firm	1.328	1.218	1.172	1.294	1.171	1.346	1.136	1.123	1.255
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.097	0.966	0.962	0.974	0.982	0.873	0.927	1.081	0.955

Table 14 (cont.)

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

Employees With Less Than A High School Education

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.070	1.059	1.065	1.050	1.055	1.067	1.047	1.151	1.049
Other Plant Owned By Same Firm	1.115	1.016	1.040	0.985	1.030	0.992	1.025	1.146	1.006
Other Plant Owned by Acquiring Firm	N/A	1.030	1.011	1.061	1.018	1.061	0.995	1.026	1.049
Same Industry, Other Firm	1.224	1.129	1.117	1.137	1.116	1.152	1.115	1.053	1.134
Other Manufacturing Industry, Other Firm	1.668	1.486	1.606	1.292	1.550	1.314	1.693	1.395	1.452
Other Non-Manufacturing Industry, Other Firm	1.595	1.466	1.581	1.261	1.517	1.290	1.265	1.212	1.552
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.076	0.995	1.003	0.983	1.005	0.959	0.931	1.131	0.992

Employees With a High School Education

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.157	1.126	1.124	1.129	1.116	1.150	1.121	1.107	1.131
Other Plant Owned By Same Firm	1.179	1.097	1.118	1.069	1.113	1.067	1.100	1.125	1.095
Other Plant Owned by Acquiring Firm	N/A	1.351	1.455	1.142	1.427	1.135	1.131	1.157	1.494
Same Industry, Other Firm	1.265	1.179	1.186	1.174	1.175	1.185	1.139	1.156	1.185
Other Manufacturing Industry, Other Firm	1.583	1.342	1.379	1.283	1.349	1.322	1.294	1.366	1.352
Other Non-Manufacturing Industry, Other Firm	1.495	1.320	1.313	1.331	1.308	1.354	1.279	1.380	1.325
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.177	1.041	1.049	1.025	1.048	1.010	0.983	1.126	1.040

Table 14 (cont.)

Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

Employees With At least Some College or University Education

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.177	1.191	1.246	1.116	1.220	1.131	1.088	1.117	1.242
Other Plant Owned By Same Firm	1.211	1.101	1.037	1.165	1.041	1.196	0.995	1.236	1.109
Other Plant Owned by Acquiring Firm	N/A	1.193	1.209	1.158	1.200	1.174	1.119	1.210	1.210
Same Industry, Other Firm	1.264	1.256	1.174	1.340	1.169	1.415	1.321	1.051	1.264
Other Manufacturing Industry, Other Firm	1.602	1.342	1.338	1.348	1.314	1.399	1.357	1.161	1.368
Other Non-Manufacturing Industry, Other Firm	1.463	1.316	1.338	1.285	1.319	1.309	1.186	1.178	1.364
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.205	1.035	1.049	1.006	1.035	1.036	1.075	1.052	1.017

Employees With a Ph.D.

Employment Status at the end of year T+1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.084	1.121	1.130	1.086	1.121	1.120	0.963	0.952	1.201
Other Plant Owned By Same Firm	1.068	0.948	0.920	0.995	0.938	0.977	0.956	N/A	0.948
Other Plant Owned by Acquiring Firm	N/A	1.076	1.068	1.244	1.067	1.284	0.985	1.004	1.090
Same Industry, Other Firm	1.111	1.072	1.108	0.983	1.098	0.975	1.431	N/A	1.030
Other Manufacturing Industry, Other Firm	1.203	0.965	0.951	0.997	0.949	1.006	0.956	0.947	0.970
Other Non-Manufacturing Industry, Other Firm	1.032	0.935	0.961	0.883	0.951	0.891	0.921	1.033	0.924
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	0.902	8.836	12.335	0.963	9.501	0.855	35.536	0.943	0.608

Table 15
Which Employees Come:
General Statistics for Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Employee Type	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Among All Employees:									
% Female	26.14	27.70	27.71	27.69	26.80	29.71	28.09	26.10	27.80
% Non-Swedish	12.33	13.08	12.76	13.53	12.64	14.05	12.29	11.38	13.59
% Age Above Mean	48.75	49.58	50.57	48.16	50.74	47.00	50.39	51.40	49.04
% Experience Above Mean	57.16	57.09	58.44	55.18	58.50	54.12	58.96	61.44	55.79
% Education Less Than High School	36.62	38.10	38.83	37.07	39.21	35.66	37.99	37.64	38.21
% Education to High School	49.84	49.11	49.28	48.88	49.23	48.86	48.65	50.20	49.12
% Education Some College	13.28	12.48	11.58	13.78	11.28	15.16	13.01	11.99	12.37
% Education Some PhD	0.26	0.30	0.32	0.27	0.29	0.32	0.34	0.17	0.30
Among Employees Coming to Plant:									
% Female	27.99	28.13	28.08	28.21	27.49	29.52	28.79	25.74	28.28
% Non-Swedish	13.16	12.53	13.23	11.43	13.02	11.46	11.84	13.04	12.64
% Age Above Mean	25.45	37.09	37.94	35.77	37.80	35.55	36.77	42.03	36.52
% Experience Above Mean	33.12	41.94	44.34	38.32	43.90	37.81	41.02	49.24	41.22
% Education Less Than High School	26.86	31.72	33.46	29.01	33.26	28.38	32.08	30.51	31.79
% Education to High School	55.01	52.56	52.86	52.09	53.16	51.25	52.11	54.34	52.43
% Education Some College	17.78	15.34	13.34	18.45	13.26	19.86	15.49	14.94	15.35
% Education Some PhD	0.35	0.38	0.34	0.45	0.32	0.52	0.32	0.21	0.42
Sample Size for All Employees:									
All	6,239,988	351,269	206,600	144,669	242,149	109,120	80,883	33,991	236,395
With Experience Data	2,858,277	156,689	91,587	65,102	106,028	50,661	37,021	15,146	104,522
With Education Data	6,090,512	343,979	202,508	141,471	237,298	106,681	79,610	33,512	230,857
Sample Size for Employees Coming to Plant :									
All	1,507,679	123,789	75,403	48,386	84,768	39,021	23,016	11,905	88,868
With Experience Data	910,481	65,410	39,357	26,053	44,365	21,045	12,658	6,208	46,544
With Education Data	1,445,262	120,071	73,124	46,947	82,222	37,849	22,503	11,672	85,896

Table 16

Where Employees Come From:

Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

All Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	75.8	64.8	63.5	66.6	65.0	64.2	71.5	65.0	62.4
Other Plant Owned By Same Firm	2.1	3.5	3.3	3.8	3.7	3.1	2.7	2.8	3.9
Other Plant Owned by Acquiring Firm	0.0	4.1	3.8	4.5	3.7	5.0	3.0	3.2	4.6
Same Industry, Other Firm	1.2	1.2	1.4	0.9	1.3	0.9	1.1	0.5	1.3
Other Manufacturing Industry, Other Firm	3.9	4.0	4.6	3.1	4.2	3.3	3.1	5.0	4.1
Other Non-Manufacturing Industry, Other Firm	4.1	3.9	4.3	3.4	4.1	3.5	3.3	3.5	4.2
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.5	5.4	6.7	3.5	6.1	3.9	5.2	7.6	5.1
Unemployed (at least in Sweden)	11.2	13.2	12.4	14.3	11.9	16.1	10.0	12.4	14.4

Table 16 (cont.)
Where Employees Come From:
Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Male Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	76.4	65.0	63.7	66.8	65.3	64.1	71.8	64.8	62.7
Other Plant Owned By Same Firm	2.1	3.8	3.3	4.4	3.9	3.5	2.7	2.8	4.3
Other Plant Owned by Acquiring Firm	0.0	3.8	3.4	4.4	3.3	5.0	2.9	3.0	4.2
Same Industry, Other Firm	1.3	1.2	1.5	0.9	1.3	1.0	1.2	0.5	1.3
Other Manufacturing Industry, Other Firm	4.3	4.3	5.1	3.2	4.7	3.5	3.3	5.3	4.6
Other Non-Manufacturing Industry, Other Firm	3.9	3.8	4.2	3.2	4.0	3.3	3.1	3.4	4.0
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.5	5.7	7.3	3.5	6.5	4.0	5.7	8.2	5.4
Unemployed (at least in Sweden)	10.4	12.4	11.6	13.5	11.0	15.5	9.3	11.9	13.5

Female Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	74.1	64.2	63.0	65.9	64.1	64.5	70.8	65.5	61.8
Other Plant Owned By Same Firm	2.0	2.8	3.2	2.2	3.2	2.0	2.8	2.7	2.8
Other Plant Owned by Acquiring Firm	0.0	4.8	4.9	4.8	4.8	5.0	3.4	4.0	5.5
Same Industry, Other Firm	1.1	1.1	1.2	0.9	1.2	0.9	0.8	0.4	1.3
Other Manufacturing Industry, Other Firm	2.9	2.9	3.2	2.6	3.0	2.8	2.5	4.1	2.9
Other Non-Manufacturing Industry, Other Firm	4.8	4.4	4.6	4.0	4.6	3.9	3.7	3.6	4.7
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.6	4.5	5.3	3.4	5.0	3.6	4.0	5.9	4.5
Unemployed (at least in Sweden)	13.6	15.2	14.5	16.2	14.1	17.5	11.9	13.9	16.5

Table 16 (cont.)
Where Employees Come From:
Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Swedish Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	76.1	64.5	63.7	65.7	65.1	63.2	71.4	65.6	62.0
Other Plant Owned By Same Firm	2.1	3.6	3.4	3.9	3.8	3.0	2.8	2.8	4.0
Other Plant Owned by Acquiring Firm	0.0	4.0	3.5	4.6	3.4	5.2	3.0	3.2	4.4
Same Industry, Other Firm	1.2	1.2	1.4	0.9	1.3	1.0	1.1	0.5	1.4
Other Manufacturing Industry, Other Firm	4.0	4.0	4.6	3.1	4.3	3.4	3.2	4.9	4.2
Other Non-Manufacturing Industry, Other Firm	4.3	4.1	4.5	3.6	4.3	3.7	3.5	3.5	4.5
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.5	5.6	6.9	3.7	6.2	4.2	5.2	7.4	5.5
Unemployed (at least in Sweden)	10.8	12.9	11.9	14.4	11.4	16.4	9.9	12.1	14.1

Non-Swedish Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	74.2	66.2	62.2	71.8	63.9	70.9	72.6	59.9	65.1
Other Plant Owned By Same Firm	2.3	3.0	2.7	3.5	3.0	3.2	2.7	2.6	3.2
Other Plant Owned by Acquiring Firm	0.0	4.8	5.6	3.8	5.3	3.9	3.2	3.7	5.5
Same Industry, Other Firm	1.1	0.9	1.1	0.7	1.1	0.7	0.9	0.5	1.0
Other Manufacturing Industry, Other Firm	3.5	3.5	4.1	2.8	3.8	3.0	2.1	5.8	3.7
Other Non-Manufacturing Industry, Other Firm	2.8	2.6	3.0	2.1	2.8	2.1	2.3	2.8	2.7
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.6	4.1	5.7	2.0	5.2	2.0	5.1	9.6	3.1
Unemployed (at least in Sweden)	14.3	14.7	15.6	13.4	14.9	14.3	11.2	15.2	15.7

Table 16 (cont.)
Where Employees Come From:
Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Employees Whose Age is Below the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	64.9	56.0	54.2	58.6	55.8	56.5	63.7	58.2	53.2
Other Plant Owned By Same Firm	1.9	2.9	2.9	3.0	3.3	2.2	2.4	2.3	3.2
Other Plant Owned by Acquiring Firm	0.0	3.7	3.4	4.0	3.3	4.5	2.5	2.5	4.2
Same Industry, Other Firm	1.4	1.3	1.5	1.0	1.4	1.0	1.1	0.5	1.4
Other Manufacturing Industry, Other Firm	5.5	5.3	6.1	4.2	5.8	4.4	4.1	6.2	5.6
Other Non-Manufacturing Industry, Other Firm	5.8	5.4	5.7	4.9	5.6	4.8	4.4	5.0	5.7
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.7	5.2	6.3	3.5	5.7	4.0	4.6	7.3	5.1
Unemployed (at least in Sweden)	19.0	20.2	19.8	20.8	19.1	22.5	17.2	17.9	21.6

Employees Whose Age is Above the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	87.4	73.6	72.6	75.2	73.9	73.0	79.2	71.4	72.0
Other Plant Owned By Same Firm	2.3	4.1	3.6	4.7	4.1	4.0	3.1	3.2	4.5
Other Plant Owned by Acquiring Firm	0.0	4.5	4.2	5.0	4.1	5.6	3.5	3.9	5.0
Same Industry, Other Firm	1.0	1.1	1.3	0.8	1.2	0.8	1.1	0.4	1.2
Other Manufacturing Industry, Other Firm	2.3	2.6	3.1	1.8	2.8	2.1	2.0	3.8	2.6
Other Non-Manufacturing Industry, Other Firm	2.4	2.5	2.9	1.9	2.7	2.0	2.3	2.0	2.7
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	5.6	7.1	3.4	6.4	3.7	5.8	8.0	5.2
Unemployed (at least in Sweden)	3.1	6.0	5.2	7.2	4.8	8.9	2.9	7.2	6.9

Table 16 (cont.)
Where Employees Come From:
Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Employees Whose Experience is Below the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	50.3	43.5	42.4	44.9	43.4	43.7	50.9	46.0	40.8
Other Plant Owned By Same Firm	1.6	2.5	2.6	2.3	3.0	1.4	2.3	1.9	2.6
Other Plant Owned by Acquiring Firm	0.0	3.3	2.9	4.0	2.8	4.3	2.3	2.2	3.8
Same Industry, Other Firm	1.5	1.2	1.4	0.9	1.4	0.9	1.1	0.7	1.3
Other Manufacturing Industry, Other Firm	6.7	6.4	7.3	5.3	7.0	5.4	5.0	8.0	6.7
Other Non-Manufacturing Industry, Other Firm	7.4	7.0	7.4	6.6	7.3	6.6	5.9	6.6	7.5
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.7	4.5	4.9	4.0	4.6	4.5	3.4	6.0	4.7
Unemployed (at least in Sweden)	30.9	31.4	31.0	32.0	30.4	33.3	29.0	28.6	32.6

Employees Whose Experience is Above the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	81.5	69.3	67.4	72.2	68.6	71.0	76.2	67.2	67.1
Other Plant Owned By Same Firm	2.4	3.4	3.3	3.6	4.0	2.2	2.4	3.2	3.9
Other Plant Owned by Acquiring Firm	0.0	4.7	4.3	5.2	4.1	6.0	3.5	3.3	5.3
Same Industry, Other Firm	1.3	1.3	1.4	1.1	1.3	1.2	1.1	0.4	1.5
Other Manufacturing Industry, Other Firm	3.9	4.0	4.7	2.9	4.3	3.2	3.1	5.0	4.2
Other Non-Manufacturing Industry, Other Firm	4.1	4.0	4.4	3.5	4.3	3.5	3.2	3.7	4.4
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.2	5.6	7.4	3.0	6.6	3.3	5.4	8.8	5.2
Unemployed (at least in Sweden)	5.5	7.6	7.0	8.5	6.8	9.6	5.2	8.4	8.4

Table 16 (cont.)
Where Employees Come From:
Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Employees With Less Than A High School Education

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	82.6	70.9	68.9	74.0	70.6	71.8	76.1	71.8	69.0
Other Plant Owned By Same Firm	1.8	3.8	3.3	4.5	3.6	4.2	2.9	2.8	4.2
Other Plant Owned by Acquiring Firm	0.0	3.8	3.9	3.7	3.7	4.1	2.8	2.7	4.3
Same Industry, Other Firm	1.0	1.0	1.3	0.7	1.2	0.7	0.9	0.5	1.2
Other Manufacturing Industry, Other Firm	2.8	2.9	3.4	2.3	3.1	2.5	2.3	3.8	3.0
Other Non-Manufacturing Industry, Other Firm	2.8	2.6	2.9	2.2	2.8	2.2	2.3	2.3	2.8
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.5	5.5	7.3	2.8	6.6	2.8	6.2	6.9	5.0
Unemployed (at least in Sweden)	7.4	9.4	9.1	9.9	8.5	11.7	6.5	9.3	10.4

Employees With a High School Education

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	73.8	62.6	61.3	64.6	62.6	62.8	69.7	62.3	60.3
Other Plant Owned By Same Firm	2.0	3.3	3.1	3.7	3.7	2.5	2.4	2.7	3.8
Other Plant Owned by Acquiring Firm	0.0	3.8	3.5	4.2	3.4	4.6	3.0	2.9	4.2
Same Industry, Other Firm	1.2	1.2	1.3	0.9	1.3	1.0	1.2	0.4	1.3
Other Manufacturing Industry, Other Firm	4.3	4.4	5.2	3.4	4.8	3.6	3.3	5.2	4.7
Other Non-Manufacturing Industry, Other Firm	4.6	4.5	4.9	3.9	4.8	3.9	3.7	3.9	4.9
Unknown Industry or Plant (could include Self-employed and/or Start-ups)Unemployed (at least in Sweden)	1.5	5.3	6.8	3.0	6.1	3.4	5.0	8.5	4.9
Unemployed (at least in Sweden)	12.6	14.8	13.8	16.3	13.3	18.2	11.8	14.1	16.0

Table 16 (cont.)

Where Employees Come From:

Employment Status at the End of Year T-1 (in %) of Workers at Year T+1 Whose Plants Experienced an Ownership Change During Year T

Employees With At Least Some College or University Education

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	68.2	57.1	58.4	55.6	59.3	53.5	66.4	56.6	53.8
Other Plant Owned By Same Firm	3.4	3.3	4.1	2.4	4.3	1.7	3.7	3.3	3.2
Other Plant Owned by Acquiring Firm	0.0	6.2	4.9	7.8	4.8	8.5	4.0	6.4	7.0
Same Industry, Other Firm	2.0	1.7	1.9	1.4	1.8	1.4	1.3	0.7	2.0
Other Manufacturing Industry, Other Firm	5.2	4.9	5.8	3.8	5.5	4.0	4.2	7.8	4.8
Other Non-Manufacturing Industry, Other Firm	5.8	5.6	6.1	5.0	5.9	5.1	4.7	5.1	6.0
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.4	5.8	5.0	6.8	4.6	7.8	3.6	6.3	6.5
Unemployed (at least in Sweden)	13.9	15.3	13.8	17.2	13.8	17.8	12.3	13.8	16.6

Employees With a Ph.D.

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	67.9	55.0	61.3	44.5	61.1	43.0	74.0	56.1	47.5
Other Plant Owned By Same Firm	4.6	3.6	3.6	3.6	4.0	2.9	4.0	1.8	3.6
Other Plant Owned by Acquiring Firm	0.0	13.4	11.1	17.2	10.7	18.7	5.5	8.8	16.8
Same Industry, Other Firm	2.0	1.2	0.8	1.8	1.0	1.5	1.5	1.8	1.0
Other Manufacturing Industry, Other Firm	4.4	4.0	3.7	4.4	3.7	4.7	3.7	15.8	3.2
Other Non-Manufacturing Industry, Other Firm	4.8	4.3	3.7	5.2	3.8	5.3	2.6	5.3	4.9
Unknown Industry or Plant (could include Self-employed and/or Start-ups)	1.3	5.8	1.7	12.5	1.8	13.7	2.2	0.0	7.6
Unemployed (at least in Sweden)	14.9	12.8	14.0	10.7	14.1	10.2	6.6	10.5	15.4

Table 17

Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

All Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.126	1.113	1.114	1.113	1.103	1.137	1.093	1.131	1.119
Other Plant Owned By Same Firm	1.176	1.077	1.092	1.059	1.088	1.048	1.062	1.090	1.080
Other Plant Owned by Acquiring Firm	N/A	1.187	1.192	1.182	1.189	1.185	1.207	1.087	1.193
Same Industry, Other Firm	1.359	1.253	1.256	1.245	1.261	1.229	1.234	1.494	1.246
Other Manufacturing Industry, Other Firm	1.774	1.533	1.471	1.665	1.504	1.614	1.453	1.513	1.556

Table 17 (cont.)

Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

Male Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.073	1.061	1.056	1.067	1.051	1.082	1.041	1.081	1.065
Other Plant Owned By Same Firm	1.084	1.068	1.079	1.057	1.078	1.044	1.059	1.090	1.068
Other Plant Owned by Acquiring Firm	N/A	1.069	1.031	1.111	1.041	1.112	1.095	1.024	1.068
Same Industry, Other Firm	1.321	1.240	1.247	1.222	1.243	1.227	1.224	1.395	1.235
Other Manufacturing Industry, Other Firm	1.692	1.500	1.423	1.674	1.445	1.670	1.414	1.463	1.528

Female Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.281	1.253	1.267	1.234	1.247	1.265	1.229	1.271	1.260
Other Plant Owned By Same Firm	1.456	1.108	1.126	1.070	1.122	1.065	1.069	1.091	1.124
Other Plant Owned by Acquiring Firm	N/A	1.430	1.485	1.349	1.466	1.360	1.450	1.221	1.446
Same Industry, Other Firm	1.485	1.292	1.285	1.303	1.312	1.234	1.272	1.858	1.272
Other Manufacturing Industry, Other Firm	2.120	1.657	1.670	1.633	1.753	1.444	1.584	1.696	1.671

Table 17 (cont.)

Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

Swedish Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.127	1.118	1.120	1.116	1.108	1.142	1.093	1.140	1.125
Other Plant Owned By Same Firm	1.178	1.084	1.095	1.071	1.095	1.053	1.064	1.100	1.087
Other Plant Owned by Acquiring Firm	N/A	1.149	1.138	1.163	1.142	1.161	1.219	1.105	1.138
Same Industry, Other Firm	1.362	1.251	1.255	1.242	1.259	1.226	1.227	1.405	1.250
Other Manufacturing Industry, Other Firm	1.765	1.522	1.458	1.658	1.479	1.645	1.448	1.531	1.540

Non-Swedish Employees

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.120	1.081	1.072	1.092	1.067	1.107	1.096	1.052	1.080
Other Plant Owned By Same Firm	1.169	1.023	1.066	0.978	1.024	1.021	1.044	1.013	1.019
Other Plant Owned by Acquiring Firm	N/A	1.396	1.431	1.328	1.401	1.383	1.122	0.960	1.482
Same Industry, Other Firm	1.336	1.269	1.271	1.266	1.274	1.255	1.300	2.175	1.208
Other Manufacturing Industry, Other Firm	1.845	1.613	1.565	1.710	1.696	1.401	1.502	1.396	1.673

Table 17 (cont.)

Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

Employees Whose Age is Below the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.282	1.260	1.265	1.253	1.247	1.287	1.221	1.224	1.281
Other Plant Owned By Same Firm	1.379	1.207	1.209	1.206	1.227	1.149	1.210	1.209	1.207
Other Plant Owned by Acquiring Firm	N/A	1.401	1.431	1.365	1.421	1.370	1.445	1.274	1.402
Same Industry, Other Firm	1.512	1.405	1.408	1.398	1.411	1.387	1.384	1.953	1.382
Other Manufacturing Industry, Other Firm	1.924	1.702	1.623	1.856	1.664	1.803	1.631	1.677	1.722

Employees Whose Age is Above the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.004	1.000	1.004	0.995	0.998	1.005	0.993	1.058	0.994
Other Plant Owned By Same Firm	1.008	0.981	0.999	0.959	0.980	0.984	0.950	1.009	0.985
Other Plant Owned by Acquiring Firm	N/A	1.012	1.002	1.024	1.008	1.018	1.036	0.974	1.011
Same Industry, Other Firm	1.135	1.072	1.086	1.040	1.090	1.014	1.084	0.975	1.074
Other Manufacturing Industry, Other Firm	1.392	1.172	1.169	1.182	1.176	1.160	1.096	1.259	1.174

Table 17 (cont.)
Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

Employees Whose Experience is Below the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.407	1.420	1.467	1.362	1.437	1.389	1.327	1.533	1.442
Other Plant Owned By Same Firm	1.452	1.438	1.359	1.554	1.459	1.354	1.357	1.413	1.464
Other Plant Owned by Acquiring Firm	N/A	1.376	1.309	1.439	1.335	1.428	1.505	1.424	1.347
Same Industry, Other Firm	1.775	1.636	1.651	1.605	1.626	1.664	1.604	2.704	1.579
Other Manufacturing Industry, Other Firm	2.275	1.978	1.954	2.021	1.976	1.981	1.864	2.018	2.000

Employees Whose Experience is Above the Mean

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.157	1.128	1.121	1.138	1.111	1.164	1.109	1.104	1.140
Other Plant Owned By Same Firm	1.246	1.075	1.125	1.008	1.078	1.065	1.087	1.083	1.072
Other Plant Owned by Acquiring Firm	N/A	1.320	1.430	1.186	1.409	1.186	1.264	1.091	1.358
Same Industry, Other Firm	1.207	1.121	1.095	1.168	1.093	1.186	1.197	1.279	1.093
Other Manufacturing Industry, Other Firm	1.498	1.296	1.253	1.400	1.321	1.218	1.189	1.222	1.340

Table 17 (cont.)

Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

Employees With Less Than A High School Education

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.056	1.050	1.056	1.041	1.047	1.056	1.040	1.137	1.041
Other Plant Owned By Same Firm	1.083	0.997	1.022	0.970	1.007	0.978	0.955	1.046	1.003
Other Plant Owned by Acquiring Firm	N/A	1.031	1.019	1.049	1.028	1.037	1.089	1.019	1.019
Same Industry, Other Firm	1.274	1.185	1.206	1.122	1.210	1.077	1.057	1.245	1.215
Other Manufacturing Industry, Other Firm	1.559	1.424	1.341	1.609	1.355	1.632	1.442	1.460	1.413

Employees With a High School Education

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.168	1.149	1.134	1.170	1.127	1.200	1.133	1.128	1.159
Other Plant Owned By Same Firm	1.217	1.120	1.116	1.126	1.130	1.089	1.082	1.122	1.128
Other Plant Owned by Acquiring Firm	N/A	1.309	1.342	1.268	1.328	1.275	1.252	1.157	1.338
Same Industry, Other Firm	1.408	1.283	1.276	1.298	1.284	1.282	1.317	1.646	1.256
Other Manufacturing Industry, Other Firm	1.885	1.604	1.548	1.727	1.600	1.615	1.464	1.576	1.642

Table 17 (cont.)
Mean Wage Growth of Post-Ownership Change Workers Classified By Pre-Ownership Change Employment Status

Employees With At Least Some College or University Education

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.186	1.197	1.247	1.133	1.224	1.147	1.111	1.133	1.244
Other Plant Owned By Same Firm	1.222	1.181	1.208	1.125	1.170	1.225	1.262	1.091	1.161
Other Plant Owned by Acquiring Firm	N/A	1.192	1.204	1.182	1.194	1.190	1.323	1.049	1.183
Same Industry, Other Firm	1.365	1.263	1.276	1.241	1.270	1.246	1.217	1.745	1.250
Other Manufacturing Industry, Other Firm	1.773	1.504	1.454	1.595	1.457	1.610	1.489	1.434	1.524

Employees With a Ph.D.

Employment Status at the end of year T-1	No Ownership Change	All Ownership Change	Full Acquisition	Partial Acquisition	Full Divestiture	Partial Divestiture	Related Acquisition	Unrelated Acquisition	Single Firm Ownership Change
Same Plant	1.092	1.130	1.138	1.112	1.129	1.132	1.017	0.958	1.216
Other Plant Owned By Same Firm	1.126	1.036	1.095	0.938	1.070	0.943	1.055	1.269	1.018
Other Plant Owned by Acquiring Firm	N/A	1.091	1.061	1.123	1.058	1.128	1.000	0.941	1.109
Same Industry, Other Firm	1.225	1.087	1.251	0.970	1.149	1.001	1.306	1.079	0.963
Other Manufacturing Industry, Other Firm	1.141	1.205	1.097	1.357	1.110	1.353	1.017	1.035	1.359

Figure 1
Graphs of the Coefficients on the Ownership Change Dummies in the LP Equation

Relation of Ownership Change to Labor Productivity

Coeff. Est. | 95% C.I. | Pre or Post Mean 95% C.I. | Post-Pre Diff. 95% C.I.
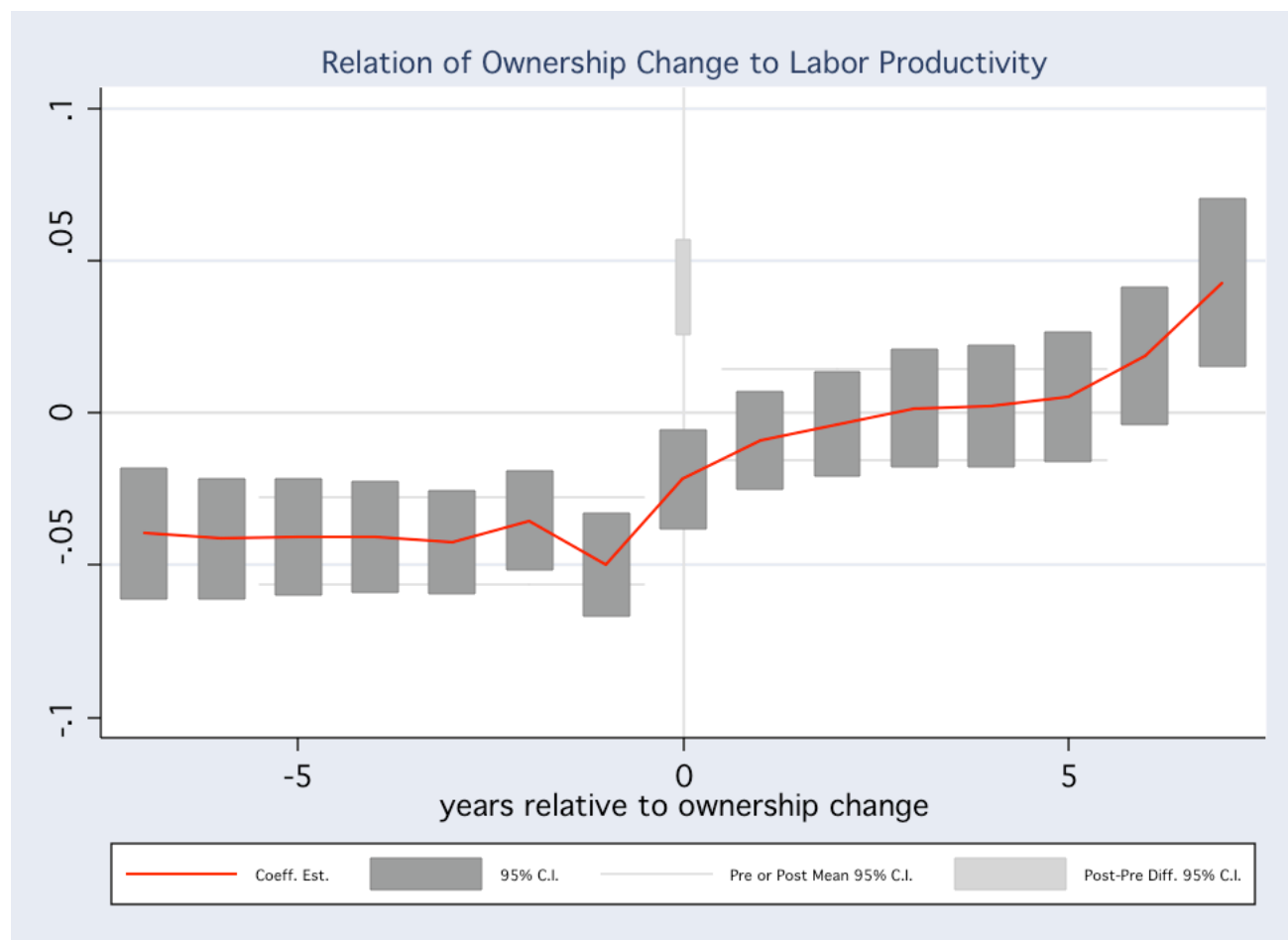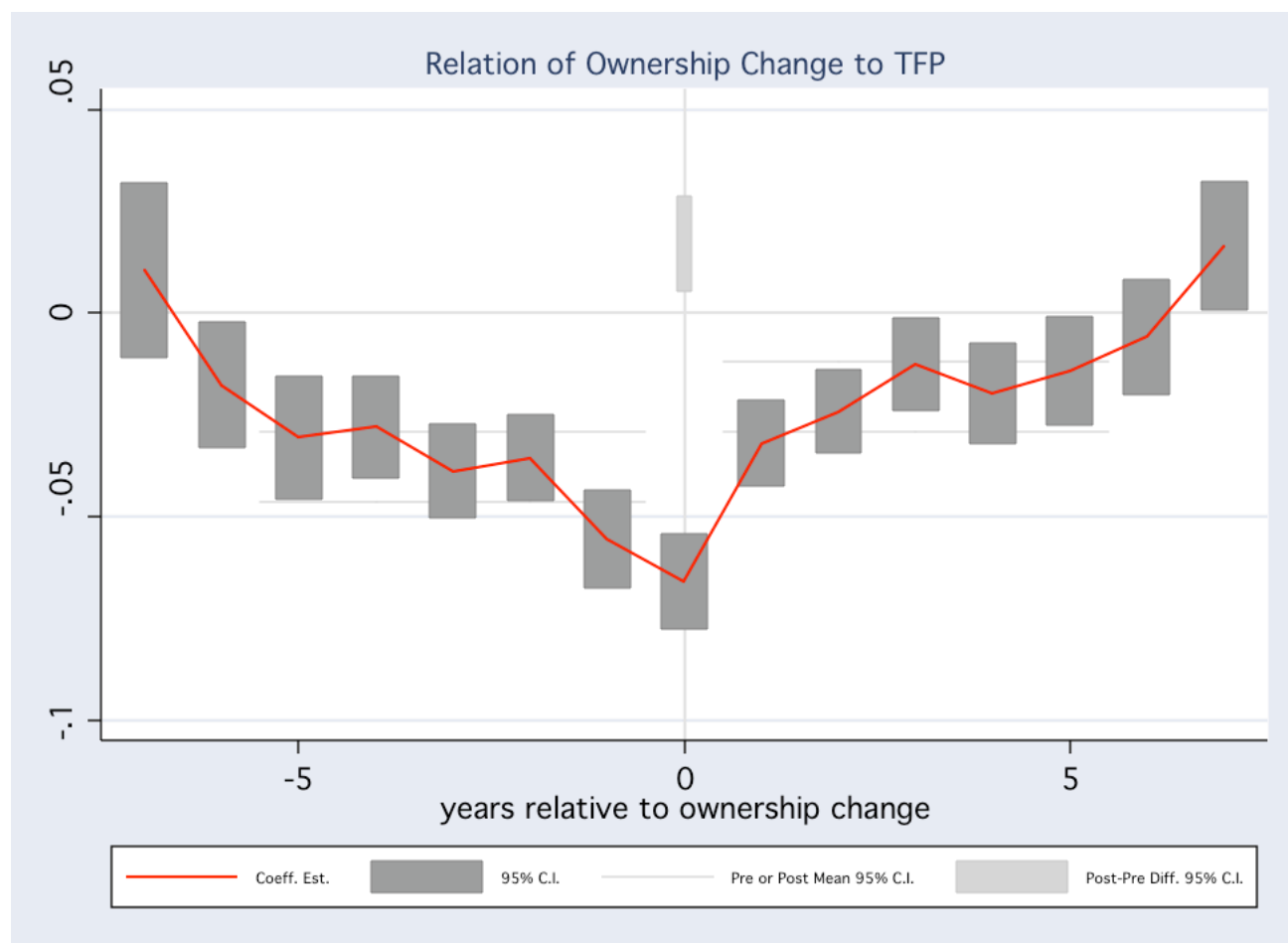
Figure 2
Graphs of the Coefficients on the Ownership Change Dummies in the TFP Equation

Figure 3
Graph of the Coefficients on the Ownership Change Dummies in the Output Equation
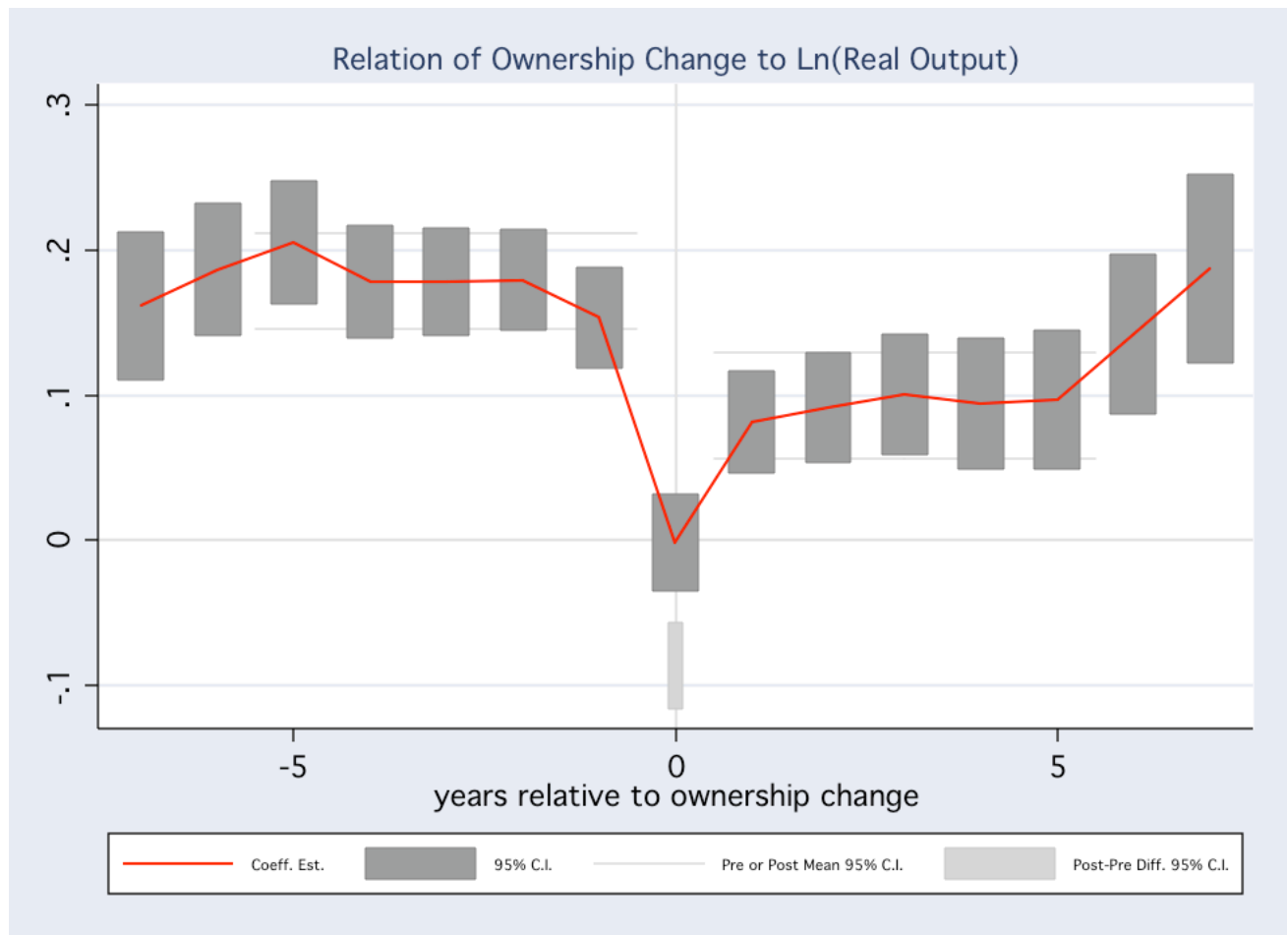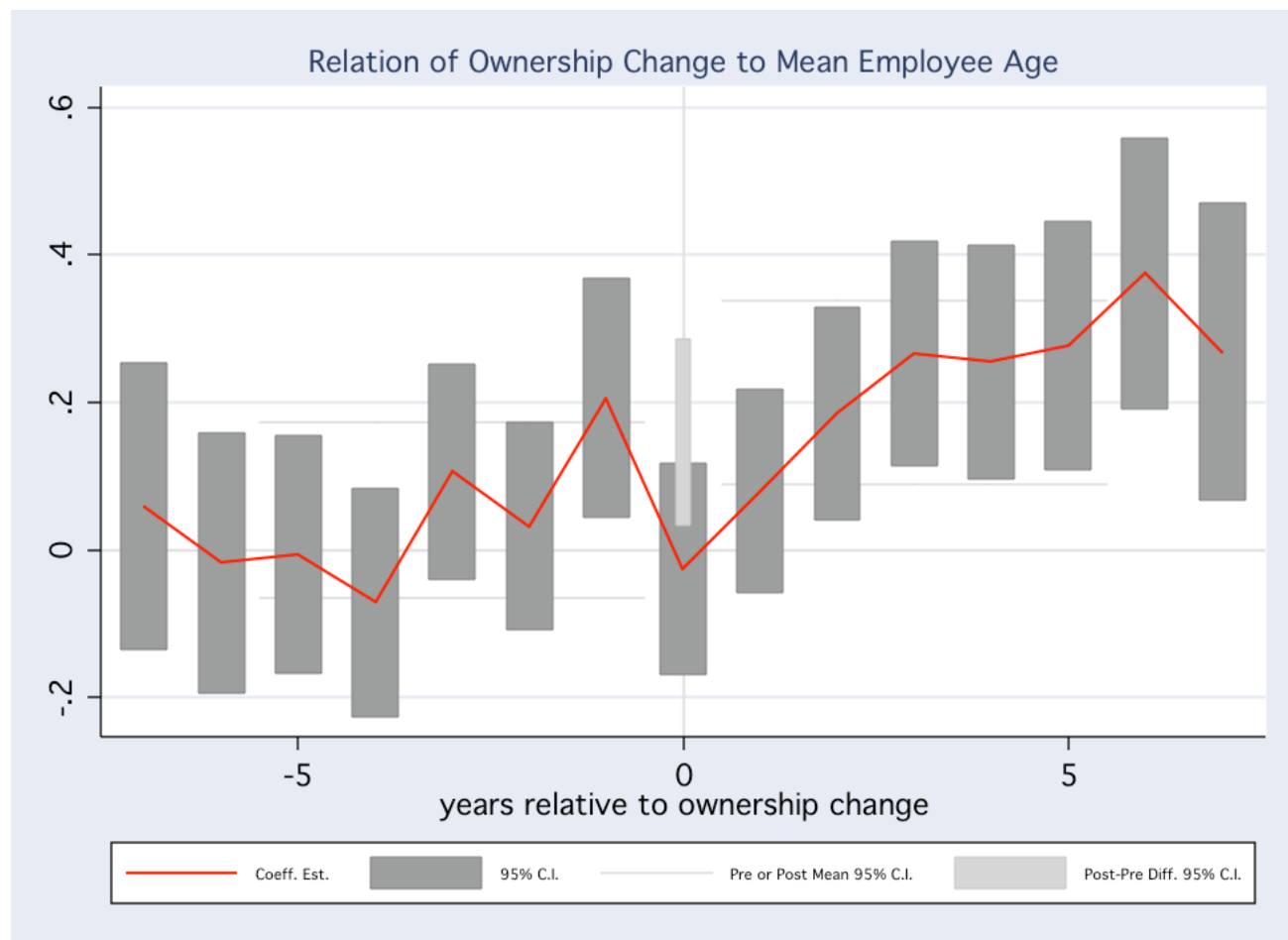
Figure 4
Graph of the Coefficients on the Ownership Change Dummies in the Employment Equation

Figure 5
Graph of the Coefficients on the Ownership Change Dummies in the Mean Employee
Age Equation

Figure 6
Graph of the Coefficients on the Ownership Change Dummies in the Mean
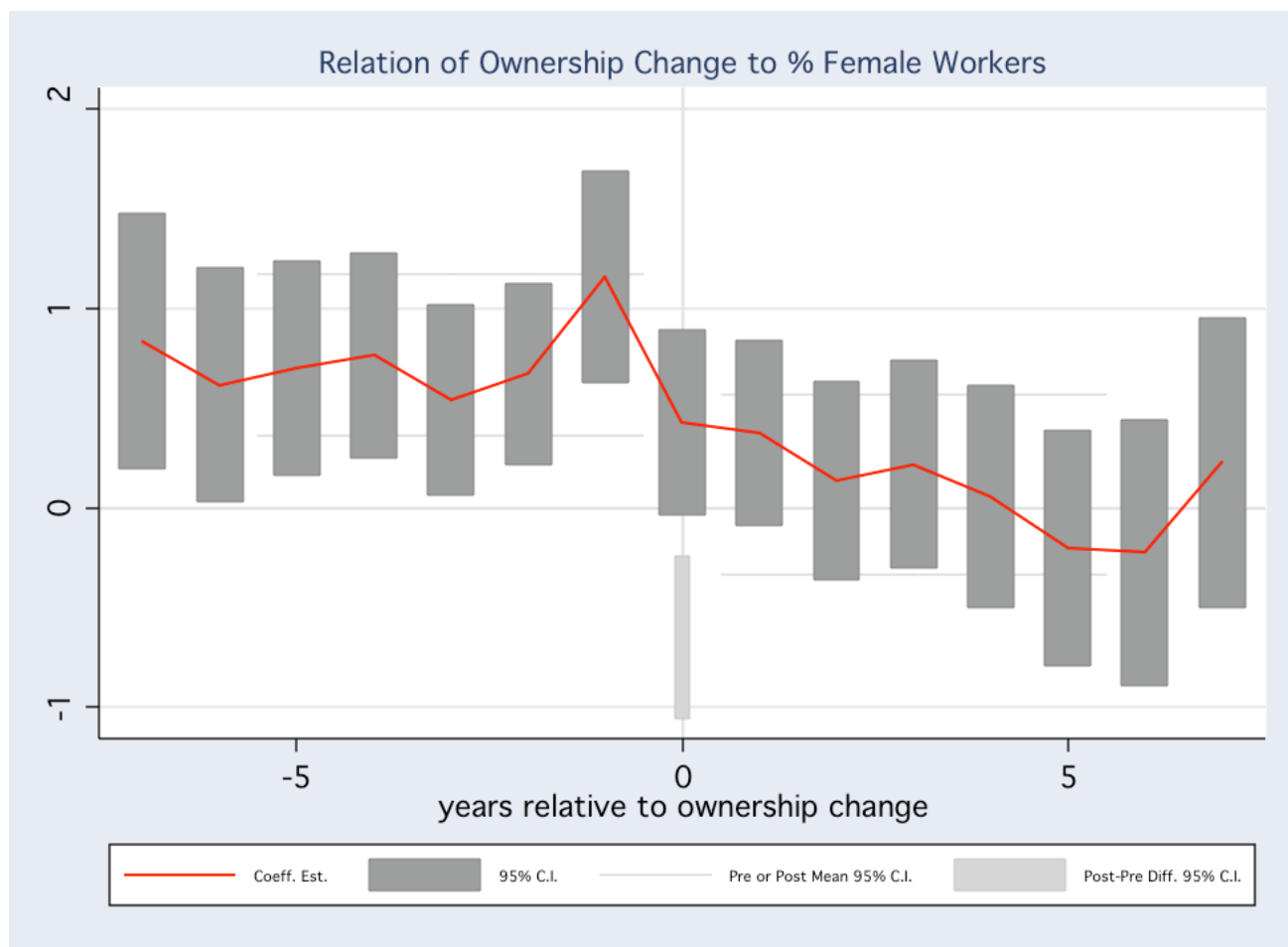Employee Experience Equation

Figure 7
Graph of the Coefficients on the Ownership Change Dummies in the Percentage Female Workers
Equation

Figure 8
Graph of the Coefficients on the Ownership Change Dummies in the Percentage of Non-Swedish
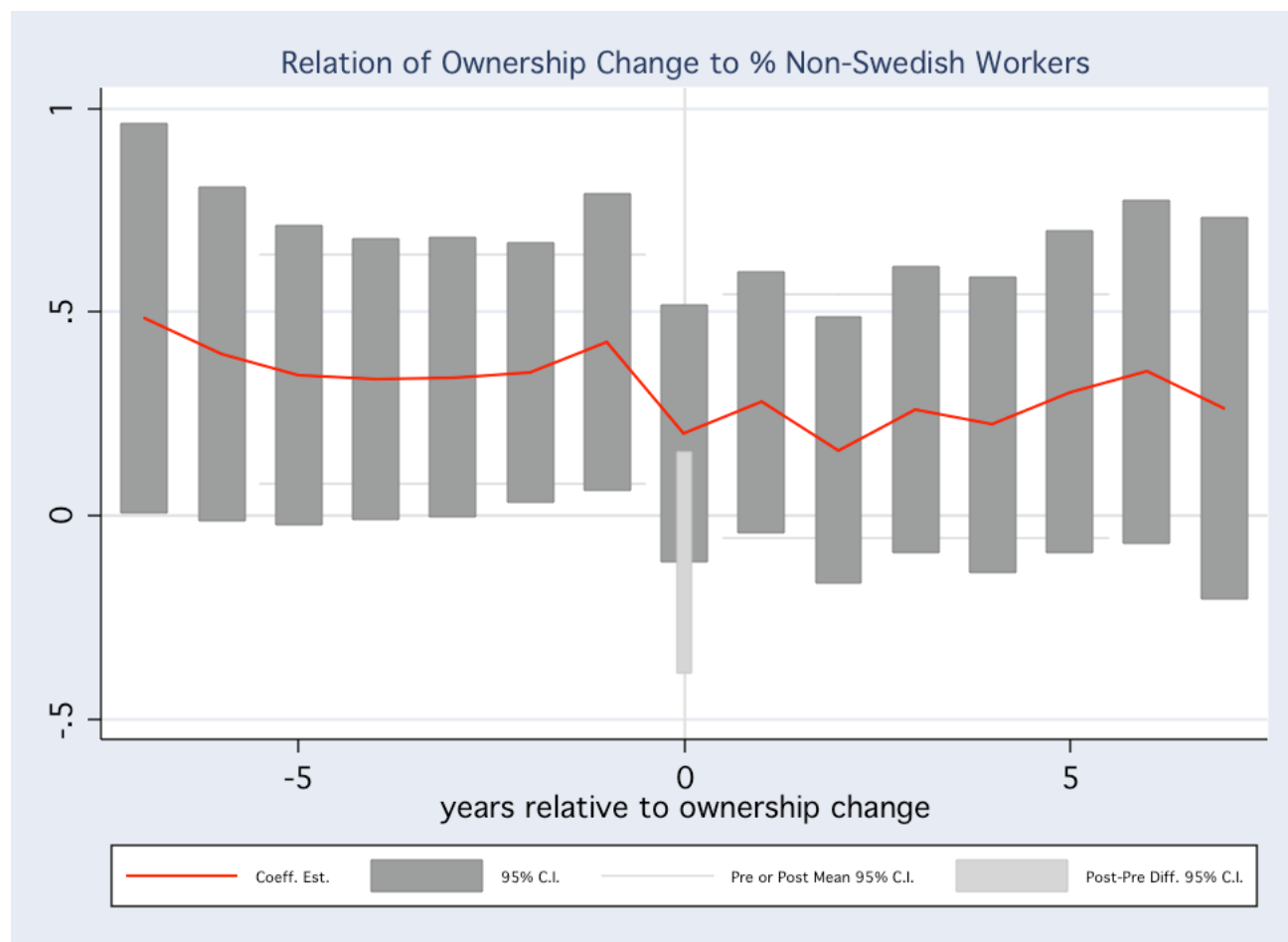Workers Equation

Figure 9
Graph of the Coefficients on the Ownership Change Dummies in the Percentage of College-Educated
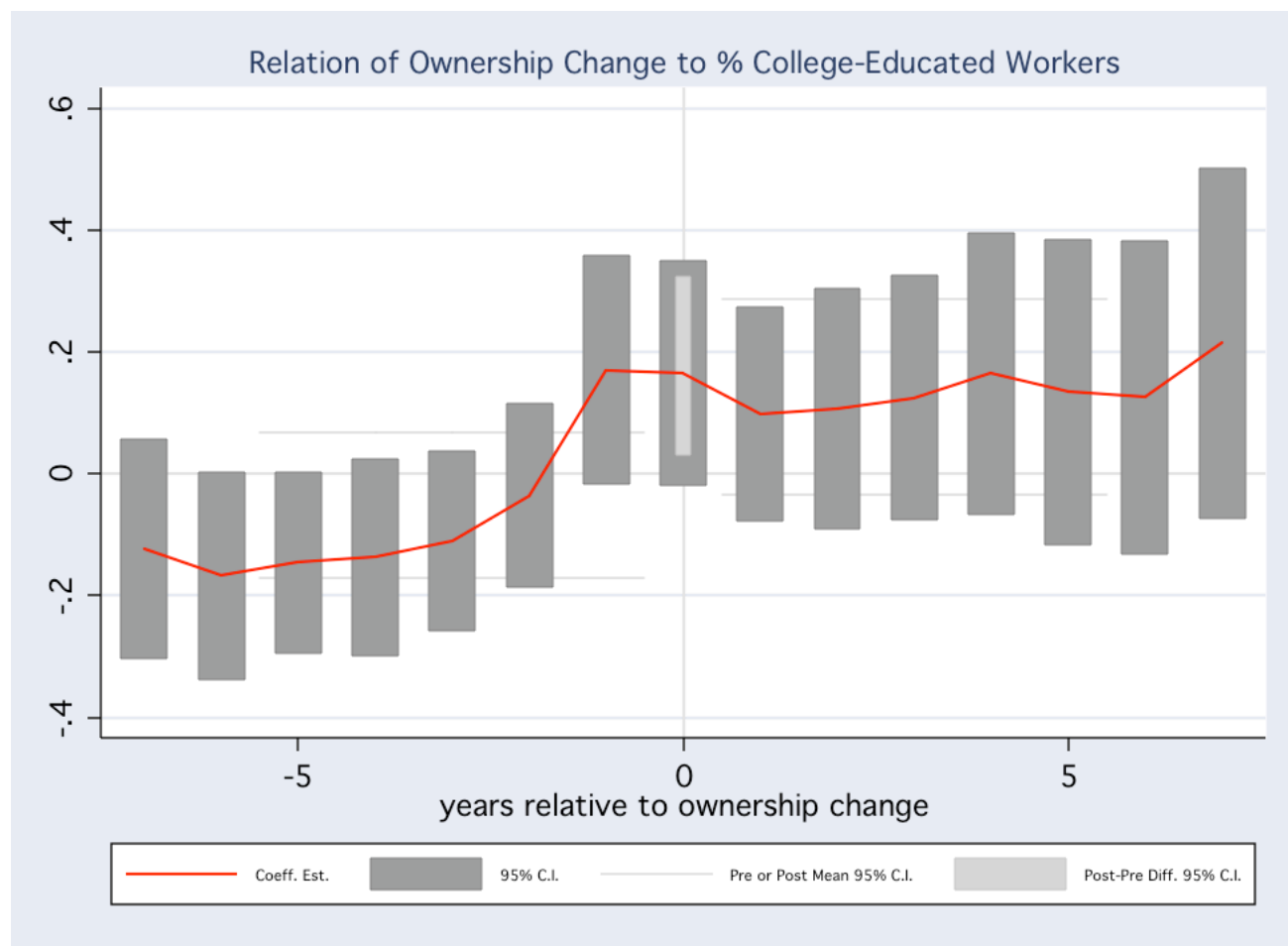Workers Equation

Figure 10
Graph of the Coefficients on the Ownership Change Dummies in the Mean Wage Equation