

Evaluating the Effects of Mergers and Acquisitions on Employees: Evidence from Matched Employer-Employee Data

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Abstract

The unit of analysis in empirical studies of the employment and wage effects of mergers and acquisitions is typically the plant or firm. In contrast, the unit of observation in this study is the individual worker, which allows us to provide direct, systematic empirical evidence on the effects of different types of mergers and acquisitions on employees. Specifically, we analyze linked employer-employee data for the entire population of Swedish workers and over 19,000 manufacturing plants for the period 1985-1998. For each worker, we have data on gender, age, national origin, level of education, type of education, location, industrial sector, annual earnings, as well as each employee's complete work history both before and after a merger or acquisition. We can also identify whether the plant was involved in a full or partial acquisition or divestiture, as well as a related or unrelated acquisition. The empirical evidence suggests that employee outcomes are more favorable when only part of the company is bought or sold or when the firm engages in an unrelated acquisition.

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JEL Codes: G34, J23, J31, C81

I. INTRODUCTION

There are contrasting views on the impact of mergers and acquisitions on employees. In a highly influential article, Shleifer and Summers (1988) conjectured that mergers and acquisitions constitute a transfer of wealth from workers to shareholders. According to the authors, this occurs because acquirers do not honor implicit contracts with employees concerning wages and benefits. Thus, in their view, the abrogation of these commitments enables the new owners of the company to use the deal as a mechanism for enhancing the profitability of the firm, and ultimately, shareholder wealth, at the expense of workers. Others have alleged that mergers and acquisitions lead to substantial downsizing or even mass layoffs, usually basing their conclusions on data from a small number of large, publicly-traded corporations. Such layoffs have been alleged to have a traumatic, lasting negative impact on workers who are fired and also on “survivors,” or those who remain with the firm in the aftermath of the layoff (Brockner et al. (1987), Brockner (1988)).

On the other hand, some economic theories predict that mergers and acquisitions can benefit workers. This allegedly occurs because the transaction constitutes a mechanism for stimulating additional investment in human capital and promoting “skill upgrading” of the workforce, particularly if these transactions result in the implementation of new technologies. For example, Jovanovic and Rousseau (2002, 2004) conjecture that high quality managers and high quality projects are complements. Moreover, they assert that takeovers result in the diffusion of new technologies and the reallocation of capital to more efficient uses and to better managers. An empirical implication of their model is that technological change and ownership change are complements, which implies that these transactions should lead to some job reduction (e.g., labor-

saving technological innovations), but also “skill upgrading” and wage increases for employees that remain with the firm.¹

Several authors have examined the employment and wage effects of mergers and acquisitions (e.g., Lichtenberg and Siegel (1987, 1990a, 1990b), McGuckin and Nguyen (2001), Conyon et al. (2002a, 2002b, 2004), and Gugler and Yurtoglu (2004)). However, the unit of observation in such studies is typically the plant or firm. In contrast, the unit of analysis in this study is the individual worker, which allows us to provide direct, systematic empirical evidence on the effects of ownership change on worker outcomes. The use of data on individual workers is quite useful, since an ability to track workers who are involved in a merger or acquisition might allow us to discriminate between the alternative theories mentioned earlier. We are also able to disaggregate these effects for different types of mergers and acquisitions.

While there has been some attention in the management and finance literatures devoted to assessing the consequences of mergers and acquisitions for top-level managers (e.g., CEOs), there has been little analysis of the effects of such events on other types of employees. It is also important to note that much of the empirical work on this topic has been based on non-representative samples of corporate control changes and companies, typically, full-firm mergers and acquisitions of publicly-traded companies. That is unfortunate, since it is well known that most ownership changes involve privately-held companies and that these transactions occur below the firm level (e.g., the sale of an individual plant or division of a company).

In this paper, we address these gaps in the literature on the labor market consequences of mergers and acquisitions. The remainder of the paper is organized as follows. In the following

¹ A review of the literature on skill-biased technological change” in Siegel (1999) reveals that technological change is associated with downsizing and skill-upgrading of the workforce. Bresnahan, Brynjolfsson and Hitt (2002) present evidence on the connection among technological change, organizational change, and organizational performance.

section, we review some recent studies of the employment and wage effects of ownership change. Section III outlines our econometric methods. Section IV describes the data. Section V presents empirical results. Section VI contains conclusions.

II. RECENT STUDIES OF THE EMPLOYMENT AND WAGE EFFECTS OF MERGERS AND ACQUISITIONS

Table 1 summarizes some recent studies of the impact of mergers and acquisitions on employment and compensation. There appears to be no strong consensus on the overall effects on workers, although most of the empirical evidence appears to contradict the Shleifer and Summers hypothesis. For instance, several studies based on plant-level data conclude that mergers and acquisitions do not lead to significant declines in levels of employment and wages for production workers. In fact, the paper by McGuckin and Nguyen (2001), which is based on the entire Census of Manufactures data for selected industries, actually finds that wages and employment increase at production establishments after a merger or acquisition. Lichtenberg and Siegel (1990a) compare employee outcomes at production and “central office” establishments in the aftermath of ownership change, where central office establishments are typically a corporate or divisional headquarters. The authors report that growth rates of employment and wages are lower in central office establishments after a merger or acquisition, implying that white-collar employees suffer more than production workers in the aftermath of such transactions.

However, it is important to note that these effects may also vary depending on the type of corporate control change. Using firm-level data, Conyon, Girma, Thompson, and Wright (2002a) reported that U.K. mergers resulted in a reduction in wages and compensation of non-production workers. The authors also find greater declines in employment associated with related mergers,

relative to those associated with unrelated mergers.² In a follow-up to this study, Conyon, Girma, Thompson, and Wright (2004)), the authors reported that wage increases tend to follow mergers, especially related mergers. Gugler and Yurtoglu (2004) analyzed the employment effects of U.S. and European mergers, concluding that there is a 10% decline in labor demand in the aftermath of mergers involving European firms. Bhagat, Shleifer, and Vishny (1990) find that slightly less than half of the companies involved in hostile takeovers instituted worker layoffs, which affected about 6% of their workforce. Siegel, Simons, and Lindstrom (2007) report that Swedish manufacturing plants involved in mergers and acquisitions experience lasting employment reductions of about 10%, with the largest reductions occurring for full acquisitions and divestitures and the smallest occurring for related-industry mergers and acquisitions.³

Some scholars have examined labor market outcomes following leveraged and management buyouts (henceforth, LBO and MBO). Lichtenberg and Siegel (1990b) analyze U.S. plant-level data and find that manufacturing plants involved in an LBO or MBO experience a decline in the employment and wages of non-production workers. However, the authors also find that similar patterns do not emerge for production workers. Based on U.K. plant-level data, Harris, Siegel, and Wright (2005) report that MBOs result in a reduction in the labor intensity of production.

Several studies have directly examined the effects of takeovers on the compensation of non-executive employees. Contrary to Shleifer and Summers (1988), Mitchell and Mulherin (1989) find that only a small percentage of corporate takeovers lead to a termination of a pension fund. In a similar vein, Pontiff, Shleifer, and Weisbach (1990) report that only 15% of hostile takeover bids and 8% of friendly takeover bids result in a pension fund termination. Rosett (1990) analyzes the

² Baldwin (1998) reports similar findings based on Canadian data, finding that mergers in Canada had a negative impact on employment and compensation of non-production workers.

³ Marsh, Siegel, and Simons (2007) explore the consequences of Swedish mergers and acquisitions for women and minority employees.

question of whether takeovers result in labor contract settlements that favor management, as opposed to workers. He finds that takeover activity is unrelated to wage growth. Most importantly, in contrast to the Shleifer and Summers (1988) hypothesis, he concludes that the gains to shareholders arising from corporate takeovers do not appear to be the result of losses to employees.

In order to provide more direct and comprehensive evidence on the wage and employment effects of mergers and acquisitions, we now present an empirical analysis based on worker-level data. The next section describes our econometric model, as well as other empirical issues.

III. ECONOMETRIC MODEL

To analyze how mergers and acquisitions relate to employment and earnings, we estimate earnings equations, the probability of employment, and the probability of different types of employment (self-employment versus organizational employment).

The benchmark model that that we estimate is:

$$(1) \ln(\text{EARN}_{iet+1}) = \alpha + \beta \ln(\text{EARN}_{iet-1}) + \gamma \text{MA}_t + \delta \text{INDIV}_{it-1} + \phi \text{PLANT}_{et-1} + \lambda_t + \varepsilon_{it}$$

where α is an intercept term, EARN denotes the annual earnings of individual i who worked at time $t-1$ in plant e , MA_t is a dummy variable equal to 1 if the plant experiences a merger or acquisition in year t or 0 otherwise, INDIV_{it} is a vector of *individual-specific* characteristics, PLANT_{et} is a vector of *plant-specific* characteristics, δ and ϕ are vectors of coefficients, λ_t is a year-specific fixed effect, and ε_{it} is the remaining classical disturbance term. The dependent variable is earnings following merger or acquisition, in the year $t+1$. All the right-hand-side variables are measured during the year before a merger or acquisition ($t-1$), except the dummy variable denoting whether the plant was involved in a merger or acquisition, which is assessed at time t . That is because a merger or

acquisition can occur at any point during year t , while the other variables are calculated at the end of the calendar year (at the same specific point in time).

Individual-specific variables in equation (1) include indicators of human capital investment (education, age, and experience) and other relevant characteristics. Equation (1) also incorporates several plant-level variables that have been shown to influence compensation, such as plant size and age. Finally, we also control for industry and location, since there is substantial variation in compensation across industries and regions.

\mathbf{INDIV}_{it} , the vector of individual-specific factors, includes dummy variables for gender, national origin, age, categories of educational attainment, field of education, location, and industry of occupation, along with a continuous measure of the employee's experience. The plant-specific variables, \mathbf{PLANT}_{et} , are the age, size (as measured by both the logarithm of employment and the logarithm of total sales), and average employee earnings of the plant. Industry dummies are included at the employee level, allowing industrial occupation to differ among workers in each plant.

We also wish to estimate the relationship between ownership change and employment status following these transactions for different types of mergers and acquisitions. To assess this issue, we estimate a multinomial logit equation of the following form:

$$(2) \text{Prob}(\text{EMPSTATUS}_{iet+1} = j) = \alpha + \beta \ln(\text{EARN}_{iet-1}) + \gamma \text{MA}_t + \delta \mathbf{INDIV}_{it-1} + \phi \mathbf{PLANT}_{et-1} + \lambda_t + \varepsilon_{it},$$

where $\text{EMPSTATUS}_{iet+1} = j$ refers to whether the employment status equals j in year $t+1$ for individual i who was employed in plant e as of year $t-1$, and the other variables are defined as in equation (1). There are three possible employment statuses: a worker can be employed by the original or acquiring organization, employed by another organization, or unemployed. Note that as in the earnings equation, we assume that employment status is related to a set of individual, plant, and industry-level factors.

IV. DATA

Our primary data source is linked, longitudinal employer-employee data on Swedish workers and plants that employ them. This file contains annual information on all Swedish employees for the years 1985 to 1998, consisting of over 36 million observations, representing an average of 2.6 million workers per year. Establishment level data are also available for the majority of employees if and when they were employed in the manufacturing sector, so that 9,251,962 records have matching information available regarding the employee's plant (and usually firm) workplace.

The database facilitates our investigation of employment status and earnings. Employment is recorded each year in November, and given that the database covers all employees, we infer that a worker whose record is missing in a given year was not employed in Sweden during that year. Annual earnings are recorded from employees' official tax filings, and are composed of earnings paid by an organization plus self-employment and other earnings.⁴

For individual employees, we have data on gender, national origin, age, geographic location, year of last educational exam, categorical variables for educational attainment and field of education, and 5-digit SIC industry classification of employment. In a previous paper (Siegel, Simons, and Lindstrom (2007)), we used parts of this information to construct plant-level measures of workforce characteristics, such as the percentage of workers who are female, the percentage who were born in Sweden versus immigrated, the mean age of employees, mean experience as proxied by years elapsed since last year of education, and the percentage of employees with at least some college-level education. Here we use the employee-specific data in each year as controls and to check for possible differences in effects of mergers and acquisitions across different types of people.

⁴ Unfortunately, we do not have data on hours worked or hourly wages, only annual total income, for specific employees.

Each record contains data on gender and national origin. The national origin is based on their birthplace, which is listed as being Sweden, other Nordic countries, the remainder of Europe, and five other world regions (Asia, Africa, North America, South America, and other nations). Employees' geographic locations, available for 99.6% of records, correspond to 338 local governments. Educational attainment and broad field of educational are likewise recorded categorically, and are available for 97% of records. Attainment is categorized as 0-8 years, 9-10 years (obligatory in Sweden), 11-12 years, 13-14 years (equivalent to a normal high school education similar to U.S. grade twelve), college or university education for one to two years (including extended high school engineering programs), college or university education for three or more years but not PhD education, or PhD education. Field of education is categorized as basic (general) education; esthetics, language, and religion; pedagogy; trade, office, economic, social, and behavioral degrees; industry-relevant education including handcrafts, engineering, mathematics, physics, chemistry, and biology; transportation and communication; caring including nursing, child care, and geriatric care; farming, gardening, forestry, and fishing; general service skills including private guards and military service; or other areas of education.

The data record the year of an employee's last educational examination in 45% of records, and a proxy for employee work experience is constructed in these cases as the logarithm of the number of years (including the last educational year) since finishing education. This proxy for experience is likely to be an adequate control despite the paucity of information on educational examination year, because examination year information is mainly lacking among older employees, for whom age dummies (also included as control variables) provide a good proxy for experience. Interactions of the experience proxy with gender and national origin allow for differences in career paths, including the probability of working in each year following the employee's last exam year.

The employee's current industry classification, available in 97.6% of records, divides employees into one of 1,092 categories based on either 1969 Standard Industrial Classification (SIC) codes, used where available, or 1992 SIC codes, used in later years. Given that 1969 and 1992 industrial classifications cannot be matched precisely, separate categories are used for 1969 versus 1992 industry codes.⁵ Categorical variables (gender, national origin, geographic locations, educational attainment, field of education, and industry) are represented in our analyses using 0-1 dummy variables.

Although employee, plant, or firm data are missing for some observations, we do not exclude any records from the sample on the basis of missing data, to avoid any potential sample selection bias. Instead, we set the values of missing variables equal to the population mean or zero, and add dummy variables that equal one when the relevant type of data is unavailable or zero otherwise. Hence all these variables are used as controls to the full extent possible, while records with missing observations are allowed a constant shift parameter in case they differ on average from records with available information.

The data on individual manufacturing employees were linked to data at the plant level.⁶ The plant-level data provide a means to control for potentially important effects of plant-related characteristics on earnings. Moreover, the measures of ownership change used here depend on the plant-level data.

⁵ This makes the industry categories perfectly multi-collinear with the year-specific dummy variables, requiring that an appropriately chosen dummy variable be dropped from the model, with the ramification that estimated coefficients of year and industry dummy variables cannot be construed to have their obvious meanings and hence are not reported but simply used as controls.

⁶ Consistent with conventional international standards, the plant or establishment is defined as a physically independent unit within a firm. Each plant is assumed to focus on one industry. Firms that are involved in multiple activities at the same physical address report separate figures for each activity, which are then assigned to a separate facility. 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.

Employment status is measured as follows. Individuals were defined to have maintained their existing employment if they were employed in $t+1$ at the same plant as in $t-1$ or if they were employed in another plant owned by either their original employer or by the acquirer of their original plant. Employees were defined to have found new employment if they reported employment in any other firm. The remaining individuals are classified as unemployed.⁷

From the overall data, we constructed a sample consisting of all manufacturing employees who were about to experience ownership change, plus a similar number of observations of manufacturing employees who were not destined to experience an ownership change. The sample includes all observations in which an employee i worked in plant e in the year $t-1$ (≤ 1996) before that plant experienced a merger or acquisition in year t , along with information about the corresponding employment status and earnings in corresponding year $t+1$. The sample also includes a 5.5% probability sample of remaining observations (again for $t-1 \leq 1996$), yielding roughly equal numbers of observations in which merger or acquisition was experienced, versus not experienced.

V. EMPIRICAL RESULTS

Table 2 presents some statistics on the incidence of ownership change during the sample period (1985-1998). Specifically, we report the percentage of plants whose parent companies were involved in a merger or acquisition. These percentages are reported for all transactions and then by type of acquisition or divestiture. The data enable us to identify whether an acquisition or divestiture involves the buying or selling of an entire firm. We also weighted each transaction by value-added and employment (not reported on the table) and found that rates of plant turnover are slightly higher when they are weighted.

⁷ It should be noted that the employees who found new jobs or became unemployed were not necessarily fired. These employees may simply have found another job, retired, or left their previous job for any number of personal reasons.

Table 2 indicates that 5.1 % of plants experienced at least one ownership change. 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. 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 (not reported in the table). The full and partial acquisition categories indicate whether all or part of a firm is acquired: 4.2% of plants in a year change owner as part of a full-firm takeover, and 0.9% change owner through a part-firm takeover, summing to the total annual figure of 5.1%. The full and partial divestiture categories indicate whether the original owner cedes ownership of all versus some plants in a firm, regardless of the new owner(s) of those plants. Related acquisitions are those where the buyer has an existing plant in the same (4-digit) industry. Unrelated acquisitions involve a buyer whose existing establishments are in other industries. The remaining set of ownership changes are referred to as “one-firm” acquisitions, since they involve a buyer who does not own an existing plant and hence, was not a known firm.

Next, we make use of the individual-level data, in order to track the movement and relative compensation of workers whose establishments were involved in merger or acquisition. In Tables 3-8, we identify workers at the end of year T-1 and assess their employment status and earnings growth, respectively, at the end of year T+1 (the year after a merger or acquisition).⁸ Within each panel, rows pertain to employees’ future job status: workers could be employed at the same plant, at another plant owned by the previous owner, at another plant owned by the new owner, at another

⁸ The focus on years T-1 and T+1, rather than a timeframe of a single 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 a merger or acquisition can occur at any time during the reporting year. If years T-1 and T were used, it would be possible that a merger or acquisition 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 a merger or acquisition occurred rather than before.

firm, in an unknown industry or plant (which likely includes workers who become self-employed or who are employed at an entrepreneurial startup), or they could be unemployed. In each of these tables, we present descriptive statistics for plants not involved in a merger or acquisition (column 1), those whose parent company was involved in such an event (column 2), and then separately for all the different types of mergers or acquisitions mentioned earlier. Turnover findings are also presented separately for different types of workers.

First, we present results for all employees (Tables 3 and 6) and then separately by gender (Tables 3 and 6), experience (Tables 4 and 7), and level of education (Tables 5 and 8). Table 3 indicates that mergers and acquisitions are associated with an increase in worker turnover at plants and firms. For example, only 62.7% of the workers observed the year before a merger or acquisition were still employed at the same establishment a year after the transaction, compared to 72.9% for workers whose plants were not involved in a deal. Males (Table 3) and less experienced workers (Table 4) were less likely than representative workers to remain at the same plant in the aftermath of an ownership change. Workers with the highest levels of education (Table 5) had the greatest mobility across firms.

Two-year mean earnings growth rates for the same groups of workers are presented in Tables 6-8. Women (Table 6) and less experienced workers (Table 7) experienced relatively high mean wage growth, yielding partial wage convergence with their male and more experienced counterparts. More highly educated employees (Table 8), with a high-school or especially, a university education, experienced higher mean earnings growth. These results should be interpreted with caution because we do not have individual-specific information on hours worked. For example, it could be that women (who could be more likely to work part-time) worked more hours in the aftermath of merger or acquisition.

Earnings growth was low, relative to the norm, for employees who left an establishment that experienced a merger or acquisition. Employees who remained at the same plant experienced 10.6% mean wage growth, if their establishment was involved in a merger or acquisition, while those workers whose plants were not sold experienced 12.6% mean wage growth. Similarly, employees who moved to another firm in the same industry had only 37.1% mean wage growth if they began in an establishment that experienced a merger or acquisition, versus 52.0% mean wage growth if they began in establishments that did not experience a merger or acquisition. This difference may reflect lower average human capital among leaving employees, as well as possible difficulties of job changes triggered by mergers and acquisitions.

Next, we focus on differences across types of mergers and acquisitions. Table 3 indicates that worker turnover rates are lower for partial acquisitions and divestitures, with little difference between related and unrelated acquisitions. These patterns are quite robust when we disaggregate our analysis by gender (Table 3), experience (Table 4), and level of education (Table 5). Table 6 indicates that wage growth is higher for workers whose plants experienced a partial acquisition or divestiture, as opposed to a full acquisition or divestiture, and substantially higher for unrelated acquisitions, relative to related acquisitions. Once again, these patterns are largely consistent when we disaggregate by gender (Table 6), experience (Table 7), and level of education (Table 8).

Although the descriptive patterns presented in Tables 3-8 are interesting, they do not include controls for the determinants of changes in earnings and worker mobility. Table 9 presents OLS estimates of earnings, based on the specification outlined in equation (1). Column (1) contains the base estimates, including a dummy variable for all mergers and acquisitions. In columns (2)-(5), we test for differential effects by adding an interaction term for each type of merger or acquisition separately, while in the final column, we include all these dummy variables. Similar results are

presented in Table 10, except that each variant of the regression includes interactions of the M&A dummies with gender and national origin (not shown in the table).

Consistent with the theory of human capital, we find that the coefficients on lagged earnings and a set of dummy variables for post-secondary education (not shown in the table) are all positive and highly statistically significant.⁹ Contrary to expectations, the coefficient on the experience term is negative and significant. However, the coefficient on the quadratic term is positive and significant, implying a U-shaped relation of earnings to experience with a minimum at the 25th year of experience. We also find that on average, women earn 19.5% less than men, controlling for the above variables plus location, industry, age, education, experience, and plant characteristics.

We now focus our attention on the coefficients of the mergers and acquisitions dummy variables (column 1) and the interaction terms relating to different types of transactions (columns 2-6). Consistent with previous plant-level studies (e.g., Siegel, Simons, and Lindstrom (2007)), we find that mergers and acquisitions are associated with a decline in earnings. On average, there appears to be a 1.5% reduction in post-merger or -acquisition earnings. Recall that we can also identify whether the plant was involved in a full or partial acquisition or divestiture, as well as a related or unrelated acquisition.

The empirical evidence suggests that employee outcomes are more favorable when only part of the company is bought or sold or when the firm engages in an unrelated acquisition. We conducted parametric tests for differences between partial and full acquisitions or divestitures, as well as related and unrelated acquisitions, and found that all were significant at the .01 level (not shown on the table). The findings also suggest that relative earnings decline the most for employees who worked at a plant that was sold to a new owner that did not previously own a (manufacturing)

⁹ We estimated a variant of the model with the coefficient on lagged earnings constrained to be one, which is equivalent to estimating an earnings growth equation. This had no discernable effect on our econometric results.

establishment. Most of the coefficient estimates for specific types of mergers and acquisitions remain constant when all types are included in the regression (column 6), the exception being partial divestitures. Although partial divestitures initially appear (in column 3) to be associated with a statistically significant 0.6% increase in earnings, the estimate falls to a statistically insignificant 0.1% (in column 6); apparently the benefit is really driven by partial acquisitions or other correlated types of ownership transactions. As shown in Table 10, the findings are robust (although some point estimates change) when we include interaction terms for the MA dummies with gender and national origin in the same set of regressions.

Next, we focus on another dependent variable: employment status. Recall that there are three possible employment outcomes: a worker can be employed by the original or acquiring organization, employed by another organization, or unemployed. These multinomial logit regression findings are presented in Table 11. The regressions include the same control variables as for Table 10. In the multinomial logit regressions, the base case is being employed by the same firm or by the new owner. In Columns (1) and (2), the effects of mergers and acquisitions are constrained to be the same for all mergers and acquisitions, while in the remaining columns, the effects of mergers and acquisitions are allowed to differ for different types of transactions.

The results in Table 11 suggest that the probabilities of moving to another firm or becoming unemployed are inversely related to earnings and experience. We also find that women are less likely, *ceteris paribus*, to leave the firm or become unemployed. On the other hand, mergers and acquisitions significantly increase the likelihood of inter-firm mobility and unemployment. An inspection of the numerous interaction terms for different types of transactions reveals that these deleterious effects for employees are substantially mitigated for partial acquisitions and divestitures (after which relatively few workers become unemployed) and unrelated acquisitions (after which

workers are more likely to switch jobs, but less likely to become unemployed). It appears that worst employee outcomes are observed in instances when a plant is sold to an owner who did not previously own a (manufacturing) establishment.

VI. CONCLUSIONS

This paper has yielded some new evidence regarding the effects of different types of mergers and acquisitions on employees. Our empirical analysis is based on a rich matched employer-employee dataset, which combines data on millions of Swedish workers and information on 19,010 Swedish manufacturing plants for the years 1985-1998. Our analysis of these individual-level data allows us to track directly the movement and relative compensation of workers whose establishments were involved in mergers and acquisitions.

For each worker, we have data on gender, age, national origin, level of education, type of education, location, industrial sector, and annual earnings, as well as each employee's work history both before and after a merger or acquisition. We can also identify whether the plant was involved in a full or partial acquisition or divestiture, as well as a related or unrelated acquisition. Thus, in contrast to most existing studies of the consequences of mergers and acquisitions, we have more detail on employee outcomes for different types of transactions.

Several stylized facts emerge from this analysis. The empirical evidence suggests that employee outcomes are more favorable when only part of the company is bought or sold, or when the firm engages in an unrelated acquisition. These results imply that human capital is valued differently by the new owners of establishments and firms, depending on the type of transaction. Specifically, it appears that new owners who have purchased a piece of a company (rather than an

entire firm), or those who are using the purchase as a mechanism to enter a new industry, place a higher value on the plant's existing stock of human capital than other types of owners.

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Table 1
Plant and Firm Level Studies of the Effects of Mergers and Acquisitions on Employment and Wages

| Authors | Unit of Analysis | Country | Type of Transaction | Empirical Results |
|---|------------------|---------------|--|---|
| Lichtenberg and Siegel (1987) | Plant | U.S. | All M&A | Lower Labor Input Growth Rates <u>Before</u> the Transaction; Slightly Higher After the Transaction |
| Mitchell and Mulherin (1989) | Firm | U.S. | Corporate Takeovers | Only a Few Takeovers Resulted in a Termination of a Pension Fund |
| Rosett (1990) | Firm | U.S. | Corporate Takeovers | Gains to Shareholders Arising From Corporate Takeovers Are Not the Result of Losses to Employees |
| Bhagat, Shleifer, and Vishny (1990) | Firm | U.S. | Hostile Takeovers | 45% of the Companies Involved in a Hostile Takeover Laid Off Workers |
| Pontiff, Shleifer, and Weisbach (1990) | Firm | U.S. | Tender Offers (Corporate Takeovers) | 15% of Hostile Takeover Bids and 8% of Friendly Takeover Bids Led to a Pension Fund Termination |
| Lichtenberg and Siegel (1990a) | Plant | U.S. | LBOs and MBOs of Divisions and Firms | After an LBO or MBO, Non-Production Employment and Wages Declined (Not for Production Workers) |
| Lichtenberg and Siegel (1990b) | Plant | U.S. | All M&A Involving Manufacturing and Auxiliary Establishments | Employment and Wage Growth is Lower in Auxiliary (“Central Office”) Establishments Changing Owners; Much Smaller Effects at Production Establishments |
| McGuckin, and Nguyen (2001) | Plant | U.S. | All M&A | Wages and Employment Increase After M&A; Effects Worse For Workers in Large Plants |
| Canyon, Girma, Thompson, Wright (2002a) | Firm | U.K. | Related and Unrelated Mergers | 19% Decline in Employment for Related Mergers; 8% Decline in Employment for Unrelated Mergers |
| Canyon, Girma, Thompson, Wright (2004) | Firm | U.K. | Related and Unrelated Mergers | Increases in Wages For All Mergers, But Especially for Related Mergers |
| Gugler and Yurtoglu (2004) | Firm | U.S. & Europe | Mergers | Mergers Reduced Labor Demand in Europe, But Not in the U.S. |
| Harris, Siegel, and Wright (2005) | Plant | U.K. | MBOs | MBOs Resulted in A Substantial Decline in Plant Employment |
| Siegel, Simons, and Lindstrom (2007) | Plant | Sweden | Partial and Full Acquisitions and Divestitures, Related and Unrelated Acquisitions | Plants Involved in Full Acquisitions and Divestitures and Unrelated Acquisitions Experience Increases in Average Employee Age, Experience, and the Percentage of Employees With a College Education |

Table 2
 Percentage of Manufacturing Plants Involved in a Merger or Acquisition (All M&A and by Type of M&A)
 During 1986-1998 (n=19,010)

| Year | Any Type of Merger or Acquisition | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
|------------------|--|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| 1986 | 3.4% | 2.6% | 0.8% | 2.7% | 0.6% | 0.5% | 0.1% | 2.7% |
| 1987 | 4.6% | 3.7% | 1.0% | 4.0% | 0.7% | 0.5% | 0.4% | 3.7% |
| 1988 | 5.9% | 4.4% | 1.5% | 4.7% | 1.2% | 0.7% | 0.2% | 5.0% |
| 1989 | 5.5% | 4.5% | 1.0% | 4.7% | 0.8% | 0.9% | 0.5% | 4.1% |
| 1990 | 6.1% | 4.7% | 1.4% | 5.4% | 0.7% | 1.2% | 0.6% | 4.3% |
| 1991 | 5.5% | 4.0% | 1.5% | 4.7% | 0.8% | 1.0% | 0.5% | 4.0% |
| 1992 | 6.5% | 5.4% | 1.1% | 5.6% | 0.9% | 1.2% | 0.6% | 4.7% |
| 1993 | 7.1% | 6.3% | 0.8% | 6.5% | 0.6% | 1.4% | 0.4% | 5.3% |
| 1994 | 5.4% | 4.7% | 0.6% | 4.9% | 0.5% | 1.0% | 0.3% | 4.0% |
| 1995 | 4.4% | 3.9% | 0.6% | 4.0% | 0.5% | 0.8% | 0.5% | 3.1% |
| 1996 | 4.4% | 3.9% | 0.5% | 4.0% | 0.4% | 1.0% | 0.4% | 3.0% |
| 1997 | 4.7% | 4.0% | 0.7% | 4.1% | 0.6% | 0.9% | 0.8% | 3.1% |
| 1998 | 3.5% | 3.1% | 0.4% | 3.2% | 0.3% | 1.0% | 0.6% | 1.9% |
| Entire Period | 5.1% | 4.2% | 0.9% | 4.5% | 0.7% | 0.9% | 0.5% | 3.7% |

Table 3
Employment Status of Plant Workers the Year After a Merger or Acquisition (All Employees and By Gender)

| <u>All Employees</u> | | | | | | | | | |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| <u>Employment Status at the end of year T+1</u> | | | | | | | | | |
| Same Plant | 72.9 | 62.7 | 65.5 | 71.5 | 65.5 | 71.4 | 68.0 | 67.0 | 60.2 |
| Another Plant Owned By Same Firm | 2.2 | 2.3 | 2.5 | 2.3 | 2.9 | 2.3 | 1.1 | 1.4 | 2.8 |
| Another Plant Owned by Acquiring Firm | 0.0 | 2.4 | 2.1 | 0.1 | 2.3 | 0.1 | 2.9 | 2.2 | 2.3 |
| Another Firm | 10.8 | 14.9 | 15.2 | 11.6 | 15.0 | 11.6 | 11.2 | 12.0 | 16.6 |
| Unknown Industry or Plant | 1.4 | 2.4 | 2.1 | 1.5 | 1.6 | 1.5 | 1.8 | 2.9 | 2.6 |
| Unemployed (at least in Sweden) | 12.6 | 15.2 | 12.6 | 13.1 | 12.7 | 13.1 | 15.0 | 14.5 | 15.4 |
| <u>Male Employees</u> | | | | | | | | | |
| | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| <u>Employment Status at the end of year T+1</u> | | | | | | | | | |
| Same Plant | 73.7 | 63.0 | 65.8 | 72.3 | 65.3 | 72.2 | 68.7 | 68.3 | 60.3 |
| Another Plant Owned By Same Firm | 2.2 | 2.4 | 2.6 | 2.3 | 3.1 | 2.3 | 1.2 | 1.5 | 3.0 |
| Another Plant Owned by Acquiring Firm | 0.0 | 2.2 | 2.0 | 0.1 | 2.2 | 0.1 | 2.8 | 2.2 | 2.0 |
| Another Firm | 11.2 | 15.9 | 15.8 | 11.9 | 15.9 | 12.1 | 11.7 | 12.2 | 17.7 |
| Unknown Industry or Plant | 1.4 | 2.6 | 2.3 | 1.5 | 1.8 | 1.5 | 1.8 | 2.9 | 2.8 |
| Unemployed (at least in Sweden) | 11.4 | 13.9 | 11.3 | 11.8 | 11.5 | 11.8 | 13.7 | 12.9 | 14.1 |
| <u>Female Employees</u> | | | | | | | | | |
| | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| <u>Employment Status at the end of year T+1</u> | | | | | | | | | |
| Same Plant | 61.8 | 64.6 | 69.3 | 66.1 | 69.2 | 66.2 | 63.6 | 60.0 | 61.8 |
| Another Plant Owned By Same Firm | 1.9 | 2.2 | 2.2 | 2.2 | 2.2 | 1.0 | 1.4 | 2.3 | 1.9 |
| Another Plant Owned by Acquiring Firm | 3.1 | 2.3 | 0.1 | 2.4 | 0.1 | 3.2 | 2.3 | 3.2 | 3.1 |
| Another Firm | 12.3 | 12.4 | 10.2 | 12.7 | 10.2 | 9.6 | 11.3 | 13.5 | 12.3 |
| Unknown Industry or Plant | 1.9 | 1.6 | 1.4 | 1.0 | 1.4 | 1.7 | 2.6 | 1.9 | 1.9 |
| Unemployed (at least in Sweden) | 18.8 | 16.0 | 16.8 | 15.7 | 16.8 | 18.3 | 18.8 | 19.0 | 18.8 |

Table 4

Employment Status of Plant Workers the Year After a Merger or Acquisition (Low vs. High Experience Workers)

| <u>Employees Whose Experience is Below the Mean</u> | | | | | | | | | |
|---|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | No | All | | | | | | | |
| <u>Employment Status at the end of year T+1</u> | Merger or | Mergers and | Full | Partial | Full | Partial | Related | Unrelated | One-Firm |
| | Acquisition | Acquisitions | Acquisition | Acquisition | Divestiture | Divestiture | Acquisition | Acquisition | Acquisition |
| Same Plant | 61.3 | 53.4 | 56.7 | 60.2 | 56.5 | 60.1 | 57.4 | 56.5 | 51.5 |
| Another Plant Owned By Same Firm | 2.1 | 1.7 | 1.7 | 2.2 | 1.7 | 2.2 | 1.2 | 1.4 | 2.0 |
| Another Plant Owned by Acquiring Firm | 0.0 | 2.3 | 2.2 | 0.1 | 2.4 | 0.1 | 2.4 | 1.9 | 2.4 |
| Another Firm | 18.7 | 22.4 | 22.3 | 19.4 | 22.5 | 19.4 | 18.7 | 19.9 | 24.0 |
| Unknown Industry or Plant | 1.7 | 2.4 | 2.2 | 1.7 | 1.8 | 1.7 | 2.2 | 3.1 | 2.5 |
| Unemployed (at least in Sweden) | 16.7 | 17.7 | 14.9 | 16.5 | 15.1 | 16.4 | 18.2 | 17.4 | 17.6 |

| <u>Employees Whose Experience is Above the Mean</u> | | | | | | | | | |
|---|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | No | All | | | | | | | |
| <u>Employment Status at the end of year T+1</u> | Merger or | Mergers and | Full | Partial | Full | Partial | Related | Unrelated | One-Firm |
| | Acquisition | Acquisitions | Acquisition | Acquisition | Divestiture | Divestiture | Acquisition | Acquisition | Acquisition |
| Same Plant | 78.7 | 68.5 | 71.8 | 77.1 | 72.2 | 77.1 | 73.5 | 70.7 | 66.3 |
| Another Plant Owned By Same Firm | 2.6 | 2.0 | 2.3 | 2.8 | 2.4 | 2.8 | 1.3 | 1.6 | 2.3 |
| Another Plant Owned by Acquiring Firm | 0.0 | 3.3 | 2.2 | 0.1 | 2.5 | 0.1 | 3.4 | 2.9 | 3.4 |
| Another Firm | 9.9 | 14.3 | 14.8 | 10.8 | 14.9 | 10.8 | 11.4 | 13.0 | 15.7 |
| Unknown Industry or Plant | 1.1 | 1.9 | 1.6 | 1.2 | 1.0 | 1.2 | 1.5 | 2.5 | 1.9 |
| Unemployed (at least in Sweden) | 7.6 | 9.9 | 7.2 | 8.0 | 7.1 | 8.0 | 8.8 | 9.3 | 10.4 |

Table 5
Employment Status of Plant Workers the Year After a Merger or Acquisition (For Various Level of Education)

Employees With Less Than A High School Education

| | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| <u>Employment Status at the end of year T+1</u> | | | | | | | | | |
| Same Plant | 74.7 | 65.0 | 67.7 | 73.2 | 68.1 | 73.1 | 70.2 | 70.1 | 62.6 |
| Another Plant Owned By Same Firm | 1.7 | 2.4 | 2.5 | 1.8 | 3.1 | 1.8 | 1.1 | 1.5 | 2.9 |
| Another Plant Owned by Acquiring Firm | 0.0 | 2.0 | 1.9 | 0.1 | 2.0 | 0.1 | 2.7 | 1.6 | 1.8 |
| Another Firm | 7.7 | 11.1 | 11.4 | 8.6 | 10.8 | 8.6 | 7.8 | 7.7 | 12.7 |
| Unknown Industry or Plant | 1.3 | 2.4 | 2.2 | 1.4 | 1.7 | 1.4 | 1.6 | 2.4 | 2.6 |
| Unemployed (at least in Sweden) | 14.3 | 17.2 | 14.2 | 14.9 | 14.2 | 14.9 | 16.6 | 16.7 | 17.4 |

Employees With a High School Education

| | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| <u>Employment Status at the end of year T+1</u> | | | | | | | | | |
| Same Plant | 72.9 | 62.6 | 65.8 | 71.5 | 66.0 | 71.4 | 67.8 | 66.6 | 60.3 |
| Another Plant Owned By Same Firm | 2.2 | 2.2 | 2.3 | 2.3 | 2.6 | 2.3 | 1.2 | 1.4 | 2.6 |
| Another Plant Owned by Acquiring Firm | 0.0 | 2.3 | 1.9 | 0.1 | 2.1 | 0.1 | 3.0 | 2.5 | 2.0 |
| Another Firm | 11.8 | 16.1 | 16.5 | 9.5 | 16.0 | 12.5 | 12.5 | 12.8 | 17.9 |
| Unknown Industry or Plant | 1.4 | 2.4 | 2.0 | 1.5 | 1.5 | 1.5 | 1.6 | 3.1 | 2.6 |
| Unemployed (at least in Sweden) | 11.7 | 14.2 | 11.5 | 12.2 | 11.7 | 12.2 | 13.9 | 13.6 | 14.4 |

Employees With At Least Some College or University Education

| | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| <u>Employment Status at the end of year T+1</u> | | | | | | | | | |
| Same Plant | 70.1 | 57.4 | 59.5 | 68.8 | 58.9 | 68.7 | 64.7 | 59.8 | 54.7 |
| Another Plant Owned By Same Firm | 3.8 | 2.6 | 3.2 | 3.9 | 3.1 | 3.9 | 1.6 | 1.7 | 3.1 |
| Another Plant Owned by Acquiring Firm | 0.0 | 4.7 | 3.6 | 0.2 | 4.1 | 0.2 | 4.0 | 3.6 | 5.0 |
| Another Firm | 15.3 | 22.1 | 23.0 | 16.1 | 23.7 | 16.2 | 17.0 | 21.8 | 23.8 |
| Unknown Industry or Plant | 1.4 | 2.4 | 1.8 | 1.4 | 1.3 | 1.4 | 2.6 | 2.9 | 2.2 |
| Unemployed (at least in Sweden) | 9.3 | 10.8 | 8.9 | 9.5 | 8.8 | 9.5 | 10.1 | 10.2 | 11.1 |

Table 6
Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

| <u>All Employees</u> | | | | | | | | | |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| <u>Employment Status at the end of year T+1</u> | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| Same Plant | 1.126 | 1.106 | 1.097 | 1.126 | 1.116 | 1.125 | 1.090 | 1.127 | 1.110 |
| Another Plant Owned By Same Firm | 1.168 | 1.066 | 1.056 | 1.161 | 1.055 | 1.161 | 1.055 | 1.143 | 1.062 |
| Another Plant Owned by Acquiring Firm | 1.297 | 1.203 | 1.113 | 1.252 | 1.114 | 1.236 | 1.075 | 1.127 | 1.268 |
| Another Firm | 1.520 | 1.371 | 1.302 | 1.503 | 1.328 | 1.501 | 1.264 | 1.293 | 1.410 |
| Unknown Industry or Plant | 1.148 | 1.051 | 1.003 | 1.136 | 0.997 | 1.135 | 1.138 | 1.115 | 1.148 |

| <u>Male Employees</u> | | | | | | | | | |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| <u>Employment Status at the end of year T+1</u> | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| Same Plant | 1.073 | 1.058 | 1.064 | 1.072 | 1.079 | 1.072 | 1.037 | 1.080 | 1.063 |
| Another Plant Owned By Same Firm | 1.093 | 1.050 | 1.047 | 1.090 | 1.054 | 1.089 | 1.022 | 1.095 | 1.051 |
| Another Plant Owned by Acquiring Firm | N/A | 1.047 | 1.062 | 1.038 | 1.053 | 1.044 | 1.033 | 1.042 | 1.054 |
| Another Firm | 1.390 | 1.294 | 1.231 | 1.377 | 1.244 | 1.375 | 1.218 | 1.211 | 1.324 |
| Unknown Industry or Plant | 1.132 | 1.024 | 1.014 | 1.119 | 1.014 | 1.118 | 0.990 | 1.054 | 1.027 |

| <u>Female Employees</u> | | | | | | | | | |
|---|--------------------------------|------------------------------------|---------------------|------------------------|---------------------|------------------------|------------------------|--------------------------|-------------------------|
| <u>Employment Status at the end of year T+1</u> | No Merger or Acquisition | All Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| Same Plant | 1.281 | 1.237 | 1.187 | 1.281 | 1.208 | 1.280 | 1.229 | 1.257 | 1.236 |
| Another Plant Owned By Same Firm | 1.394 | 1.121 | 1.084 | 1.376 | 1.060 | 1.375 | 1.158 | 1.274 | 1.102 |
| Another Plant Owned by Acquiring Firm | 1.503 | 1.497 | 1.236 | 1.605 | 1.257 | 1.570 | 1.170 | 1.341 | 1.627 |
| Other Non-Mfg Industry, Other Firm | 1.880 | 1.586 | 1.513 | 1.852 | 1.580 | 1.849 | 1.380 | 1.504 | 1.662 |
| Unknown Industry or Plant | 1.211 | 1.146 | 1.229 | 0.980 | 1.185 | 0.940 | 1.516 | 1.286 | 1.002 |

Table 7
Mean Two-Year Real Wage Growth of Employees Whose Plants Experienced an Ownership Change During Year T

| <u>Employees Whose Experience is Below the Mean</u> | | | | | | | | | |
|---|-----------------------|--------------------------|------------------|---------------------|------------------|---------------------|---------------------|-----------------------|----------------------|
| <u>Employment Status at the end of year T+1</u> | No | All | | | | | | | |
| | Merger or Acquisition | Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| Same Plant | 1.321 | 1.311 | 1.260 | 1.321 | 1.286 | 1.320 | 1.227 | 1.392 | 1.333 |
| Another Plant Owned By Same Firm | 1.359 | 1.311 | 1.328 | 1.349 | 1.334 | 1.349 | 1.222 | 1.273 | 1.334 |
| Another Plant Owned by Acquiring Firm | N/A | 1.285 | 1.296 | 1.279 | 1.274 | 1.291 | 1.254 | 1.439 | 1.281 |
| Another Firm | 1.685 | 1.528 | 1.453 | 1.676 | 1.448 | 1.674 | 1.422 | 1.573 | 1.557 |
| Unknown Industry or Plant | 1.387 | 1.192 | 1.356 | 1.250 | 1.353 | 1.722 | 1.363 | 1.284 | 1.387 |

| <u>Employees Whose Experience is Above the Mean</u> | | | | | | | | | |
|---|-----------------------|--------------------------|------------------|---------------------|------------------|---------------------|---------------------|-----------------------|----------------------|
| <u>Employment Status at the end of year T+1</u> | No | All | | | | | | | |
| | Merger or Acquisition | Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Related Acquisition | Unrelated Acquisition | One-Firm Acquisition |
| Same Plant | 1.158 | 1.128 | 1.121 | 1.157 | 1.141 | 1.157 | 1.116 | 1.098 | 1.138 |
| Another Plant Owned By Same Firm | 1.196 | 1.058 | 1.054 | 1.188 | 1.046 | 1.188 | 1.042 | 1.125 | 1.055 |
| Another Plant Owned by Acquiring Firm | N/A | 1.490 | 1.160 | 1.607 | 1.175 | 1.574 | 1.151 | 1.181 | 1.656 |
| Another Firm | 1.329 | 1.218 | 1.294 | 1.312 | 1.346 | 1.311 | 1.136 | 1.123 | 1.255 |
| Unknown Industry or Plant | 1.120 | 0.975 | 0.977 | 1.102 | 0.881 | 1.102 | 0.941 | 1.088 | 0.963 |

Table 8
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

| <u>Employment Status at the end of year T+1</u> | No | All | | | | Related | | Unrelated | One-Firm |
|---|-----------------------|--------------------------|------------------|---------------------|------------------|---------------------|-------------|-------------|-------------|
| | Merger or Acquisition | Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Acquisition | Acquisition | Acquisition |
| Same Plant | 1.070 | 1.059 | 1.050 | 1.069 | 1.067 | 1.069 | 1.047 | 1.151 | 1.049 |
| Another Plant Owned By Same Firm | 1.115 | 1.016 | 0.985 | 1.106 | 0.992 | 1.106 | 1.025 | 1.146 | 1.006 |
| Another Plant Owned by Acquiring Firm | N/A | 1.030 | 1.061 | 1.011 | 1.061 | 1.018 | 0.995 | 1.026 | 1.049 |
| Another Firm | 1.222 | 1.127 | 1.134 | 1.193 | 1.147 | 1.192 | 1.114 | 1.053 | 1.132 |
| Unknown Industry or Plant | 1.086 | 0.998 | 0.977 | 1.076 | 0.954 | 1.075 | 0.940 | 1.137 | 0.993 |

Employees With a High School Education

| <u>Employment Status at the end of year T+1</u> | No | All | | | | Related | | Unrelated | One-Firm |
|---|-----------------------|--------------------------|------------------|---------------------|------------------|---------------------|-------------|-------------|-------------|
| | Merger or Acquisition | Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Acquisition | Acquisition | Acquisition |
| Same Plant | 1.157 | 1.126 | 1.129 | 1.156 | 1.150 | 1.155 | 1.121 | 1.107 | 1.131 |
| Another Plant Owned By Same Firm | 1.179 | 1.097 | 1.069 | 1.174 | 1.067 | 1.174 | 1.100 | 1.125 | 1.095 |
| Another Plant Owned by Acquiring Firm | N/A | 1.351 | 1.142 | 1.455 | 1.135 | 1.427 | 1.131 | 1.157 | 1.494 |
| Another Firm | 1.262 | 1.177 | 1.174 | 1.241 | 1.185 | 1.240 | 1.138 | 1.156 | 1.183 |
| Unknown Industry or Plant | 1.045 | 1.030 | 1.174 | 1.018 | 1.173 | 0.995 | 1.129 | 1.042 | 1.045 |

Employees With At least Some College or University Education

| <u>Employment Status at the end of year T+1</u> | No | All | | | | Related | | Unrelated | One-Firm |
|---|-----------------------|--------------------------|------------------|---------------------|------------------|---------------------|-------------|-------------|-------------|
| | Merger or Acquisition | Mergers and Acquisitions | Full Acquisition | Partial Acquisition | Full Divestiture | Partial Divestiture | Acquisition | Acquisition | Acquisition |
| Same Plant | 1.177 | 1.191 | 1.116 | 1.179 | 1.131 | 1.179 | 1.088 | 1.117 | 1.242 |
| Another Plant Owned By Same Firm | 1.211 | 1.101 | 1.165 | 1.203 | 1.196 | 1.202 | 0.995 | 1.236 | 1.109 |
| Another Plant Owned by Acquiring Firm | N/A | 1.193 | 1.158 | 1.209 | 1.174 | 1.200 | 1.119 | 1.210 | 1.210 |
| Another Firm | 1.463 | 1.316 | 1.286 | 1.450 | 1.310 | 1.449 | 1.186 | 1.178 | 1.365 |
| Unknown Industry or Plant | 1.185 | 1.045 | 1.012 | 1.174 | 1.051 | 1.171 | 1.079 | 1.069 | 1.027 |

Table 9
 OLS Estimates of Earnings Equations
 Dependent Variable: Log Earnings the Year After A Merger or Acquisition

| Coefficient on: | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------------|------------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
| Log (t-1) Earnings | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) |
| Experience | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) |
| (Experience) ² | 6.01E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) |
| Experience * Female | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) |
| (Experience) ² * Female | 3.49E-04*** (0.000) | 3.5E-04*** (0.000) | 3.5E-04*** (0.000) | 3.49E-04*** (0.000) | 3.49E-04*** (0.000) | 3.49E-04*** (0.000) |
| Female | -0.195*** (0.002) | -0.195*** (0.002) | -0.195*** (0.002) | -0.195*** (0.002) | -0.195*** (0.002) | -0.195*** (0.002) |
| MA _t | -0.015*** (0.001) | -0.018*** (0.002) | -0.017*** (0.001) | -0.014*** (0.002) | -0.014*** (0.002) | -0.017*** (0.001) |
| MA _t *PartialAcq | | 0.007*** (0.002) | | | | 0.008*** (0.003) |
| MA _t *PartialDivest | | | 0.006*** (0.002) | | | 0.001 (0.003) |
| MA _t *UnrelatedAcq | | | | 0.014*** (0.004) | | 0.014*** (0.004) |
| MA _t *SingleFirm | | | | | -0.018*** (0.003) | -0.019*** (0.003) |
| Constant | 5.732*** (0.112) | 5.732*** (0.112) | 5.734*** (0.112) | 5.736*** (0.112) | 5.733*** (0.112) | 5.736*** (0.112) |
| R ² | 0.471 | 0.471 | 0.471 | 0.471 | 0.472 | 0.473 |

Notes: N=719,847. Controls include dummies for worker education, worker age, worker national origin, plant age, worker location, interactions of experience and experience squared with worker national origin, plant size, plant mean earnings, and industry. All independent variables are observed at t-1, except that the merger or acquisition is observed at t. Our dependent variable is observed at t+1. †p<.10, *p<.05, ** p<.01, *** p<.001, two-tailed significance levels using heteroskedasticity robust standard errors.

Table 10
OLS Estimates of Earnings Equations
Dependent Variable: Log Earnings the Year After A Merger or Acquisition
(Includes Interactions of M&A Dummies with Gender and National Origin-Not Shown on Table)

| Coefficient on: | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------------|------------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
| Log (t-1) Earnings | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) | 0.556*** (0.003) |
| Experience | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) | -0.003*** (0.000) |
| (Experience) ² | 6.01E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) | 6.0E-05*** (0.000) |
| Experience * Female | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) | -0.007*** (0.001) |
| (Experience) ² * Female | 3.49E-04*** (0.000) | 3.5E-04*** (0.000) | 3.5E-04*** (0.000) | 3.49E-04*** (0.000) | 3.49E-04*** (0.000) | 3.49E-04*** (0.000) |
| Female | -0.195*** (0.003) | -0.195*** (0.003) | -0.195*** (0.003) | -0.195*** (0.003) | -0.195*** (0.003) | -0.195*** (0.003) |
| MA _t | -0.015*** (0.001) | -0.013*** (0.001) | -0.016*** (0.002) | -0.015*** (0.002) | -0.012*** (0.001) | -0.015*** (0.002) |
| MA _t *PartialAcq | | 0.007*** (0.002) | | | | 0.008*** (0.003) |
| MA _t * PartialDivest | | | 0.006*** (0.002) | | | 0.001 (0.003) |
| MA _t *UnrelatedAcq | | | | 0.014*** (0.004) | | 0.014*** (0.004) |
| MA _t * SingleFirm | | | | | -0.018*** (0.003) | -0.019*** (0.003) |
| Constant | 5.732*** (0.112) | 5.728*** (0.112) | 5.731*** (0.112) | 5.730*** (0.112) | 5.729*** (0.112) | 5.732*** (0.112) |
| R ² | 0.471 | 0.471 | 0.471 | 0.471 | 0.472 | 0.473 |

Notes: N=719,847. Controls include dummies for worker education, worker age, national origin of worker, plant age, worker location, interactions of experience and experience squared with worker national origin, plant size, plant mean earnings, and industry. Controls also include interactions of the merger and acquisition dummies with worker national origin and gender. All independent variables are observed at t-1, except that the merger or acquisition is observed at t. Our dependent variable is observed at t+1. †p<.10, *p<.05, ** p<.01, *** p<.001, two-tailed significance levels using heteroskedasticity robust standard errors.

Table 11
Multinomial Logit Estimates of the Determinants of the
Probability of Employment Status One Year After A Merger or Acquisition

| Coefficient on: | (1) Switched to Another Firm | (2) Unemployed | (3) Switched to Another Firm | (4) Unemployed | (5) Switched to Another Firm | (6) Unemployed | (7) Switched to Another Firm | (8) Unemployed | (9) Switched to Another Firm | (10) Unemployed |
|---------------------------------------|------------------------------------|------------------------|---------------------------------------|----------------------|---------------------------------------|----------------------|---------------------------------------|----------------------|---------------------------------------|----------------------|
| Log (t-1) Earnings | -0.492*** (0.007) | -1.217*** (0.003) | -0.492*** (0.007) | -1.216*** (0.003) | -0.492*** (0.007) | -1.216*** (0.003) | -0.493*** (0.007) | -1.217*** (0.003) | -0.492*** (0.007) | -1.217*** (0.003) |
| Experience | -0.030*** (0.002) | -0.030*** (0.003) | -0.029*** (0.002) | -0.030*** (0.002) | -0.028*** (0.002) | -0.025*** (0.003) | -0.029*** (0.002) | -0.030*** (0.002) | -0.029*** (0.002) | -0.030*** (0.002) |
| (Experience) ² | 7.34E-04*** (0.000) | 7.34E-04*** (0.000) | .001*** (0.000) | .001*** (0.000) | .001*** (0.000) | .001*** (0.000) | .001*** (0.000) | .001*** (0.000) | .001*** (0.000) | .001*** (0.000) |
| Experience * Female | 2.06E-04*** (0.003) | -0.014*** (0.003) | 2.0E-4*** (0.003) | -0.014*** (0.003) | 1.86-04*** (0.003) | -0.014*** (0.003) | 1.97-04*** (0.003) | -0.014*** (0.003) | .001*** (0.000) | .001*** (0.000) |
| (Experience) ² * Female | 5.71E-05† (0.000) | 3.62E-05† (0.000) | 3.31E-05† (0.000) | 4.22E-05† (0.000) | 8.4E-05† (0.000) | 6.5E-05† (0.000) | 6.3E-05† (0.000) | 5.54E-05† (0.000) | 6.0E-05† (0.000) | 6.7E-05† (0.000) |
| Female | -0.354*** (0.015) | -0.117*** (0.014) | -0.353*** (0.015) | -0.114*** (0.014) | -0.353*** (0.015) | -0.116*** (0.014) | -0.353*** (0.015) | -0.116*** (0.014) | -0.351*** (0.015) | -0.113*** (0.014) |
| MA _t | 0.518*** (0.009) | 0.391*** (0.010) | 0.560*** (0.010) | 0.487*** (0.011) | 0.567*** (0.009) | 0.428*** (0.011) | 0.342*** (0.013) | 0.278*** (0.015) | 0.390*** (0.014) | 0.371*** (0.015) |
| MA _t *PartialAcq | | | -0.115*** (0.011) | -0.277*** (0.013) | | | | | 0.022 (0.017) | -0.420*** (0.019) |
| MA _t * PartialDivest | | | | | -0.0194*** (0.012) | -0.150*** (0.014) | | | -0.231*** (0.018) | 0.179*** (0.021) |
| MA _t * UnrelatedAcq | | | | | | | 0.097*** (0.021) | -0.019 (0.023) | 0.077*** (0.021) | -0.048* (0.023) |
| MA _t * SingleFirm | | | | | | | 0.140*** (0.019) | 0.190*** (0.021) | 0.169*** (0.019) | 0.236*** (0.021) |
| Pseudo R ² | | .173 | | .172 | | .172 | | .172 | | .172 |

Notes: N=804,535. Controls include dummies for worker education, worker age, worker region of national origin at birth, plant age, worker location, interactions of experience and experience squared with worker region of national origin at birth, plant size, plant mean earnings, and industry. Controls also include interactions of merger or acquisition with worker region of national origin at birth and with gender. All independent variables are observed at t-1, except that ownership change is observed at t. Our dependent variable is observed at t+1 †p<.10, * p<.05, ** p<.01, *** p<.001, two-tailed significance levels using heteroskedasticity robust standard errors.