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THE IMPACT OF FIRM
ACQUISITIONS ON LABOR

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The Impact of Firm Acquisitions on Labor

ABSTRACT

In this paper, we investigate the changes in wages and employment following a firm's involvement in an acquisition, compared with firms not involved in acquisitions. Contrary to the tenor of popular press coverage of acquisitions, which focuses on hostile takeovers of large firms, we find small (and sometimes positive) changes in wages and employment following an acquisition.

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The impact of firm acquisitions on the value of both the acquiring and acquired firm has been the subject of a large and growing body of research (see, e.g., in this volume, Asquith, Bruner, and Mullins; Franks, Harris, and Mayer; Hall; and Ruback). However, there are no similar systematic investigations of the impact of such acquisitions on labor. Lack of concern about how labor fares in such situations cannot be the reason for the absence of statistical analysis of this question: indeed, the popular press (and, presumably, its readers) are fascinated by such impacts.

The public's perception is conditioned by a relatively small number of highly publicized and extremely hostile takeovers. What comes to mind immediately is Carl Icahn, Frank Lorenzo, and the airline industry. There was also widespread coverage of the extensive job loss -- estimated at 25,000 jobs -- associated with takeover attempts made on two major food store chains -- Safeway Stores and Lucky Stores.

Organized labor has explicitly stated its concern that such takeovers are bad for workers:

> Workers and their unions have a vital interest in the corporate takeover issue. Corporate mergers, takeovers, and leveraged buy-outs often have serious effects on jobs, wages, and working conditions. (AFL-CIO, 1987, p. E1)

The general public is similarly concerned. A recent survey by Louis Harris and Associates revealed that 58 percent of the population believes that hostile takeovers do more harm than good. Moreover, when asked which one group they thought ought to be protected most from being hurt in a hostile takeover, 63 percent said "employees" (Louis Harris and Associates, 1987).

Despite these fears, it is not obvious that acquisitions necessarily harm wages and employment. One reason for being skeptical about any widespread injury to workers from acquisitions is the highly unrepresentative set of takeovers which have received the most publicity.

The uncertain nature of any relationship between acquisitions and the interest of labor is clearer when the motives for such acquisitions are considered. First, acquisitions may occur because of differences in opinion, with the buyer thinking the acquisition more valuable than the seller. Second, acquisitions may occur because a group outside the firm believes it can manage it more efficiently than current management (Jensen, 1984). Third, acquisitions may occur because the sale may permit the abrogation of rules governing employment and earnings at smaller morale/reputation costs (Shleifer and Summers, in this volume).

The first possible reason for an acquisition does not imply impending disaster for labor: to the contrary, if the acquiring optimist is correct, increased prosperity for workers might be just around the corner. The second reason also need not be a harbinger of bad times: better management might lead to more and better jobs. This is particularly true if the new managers have better access to capital markets for expanding the operation. The third reason can be expected to be associated with worse conditions for workers. While these worse conditions are usually blamed on the acquiring owners/managers, they typically reflect some significant change in market conditions, like deregulation in the airline industry. Indeed, if the acquisition shocks the workers into accepting changes in work rules, employment and wages could actually be improved by the acquisition.

When the dust settles, does labor win or lose from the typical acquisition? In particular, what happens to wages and employment? In this paper, we address these questions. To do so, we use data on the employment and wages of firms in Michigan compiled from Unemployment Insurance (ES202) records by the Michigan Employment Security Commission. The MESC data file has several advantages -- consistent longitudinal data for six and one-half years (1978:III-1984:IV), inclusion of small firms likely to be absent from other data files, and identification of acquisitions as part of the bookkeeping needed to run the UI system. Its disadvantages are the result of its being a single state's data -- Michigan is not representative of the entire U.S., we do not see what is happening to the non-Michigan part of multi-state companies, and we have relatively few of the mega-acquisitions which currently dominate public attention. We also

cannot distinguish between friendly and hostile takeovers. Hence, our findings apply to acquisitions in general, and not necessarily to hostile takeovers.

In Section I we describe the data in greater detail. Our twin goals here are to clarify the issues which arise in distinguishing between mergers and other sorts of acquisitions, and to give an overview of the characteristics of firms which were and were not involved in acquisitions. In Section II, we describe our methods of analysis. In Sections III and IV, we use the data to measure the impact of mergers on wages and employment. In the case of mergers, post-merger wages and employment are compared to wages and employment of the two partners taken together. The longitudinal data allow us several years of pre-acquisition information to serve as a base for the analysis, and several years of subsequent data to go beyond very-short-term impacts. In general, we find small (and sometimes positive) changes in wages and employment following an acquisition. In Section V we summarize our findings and discuss options for future work.

I. MESC Data

The file of MESC records available at the Institute for Social Research at the University of Michigan includes data on over 200,000 firms over the period 1978:III through 1984:IV.[1] Employment data are monthly, and total payroll (not UI—taxable payroll) data are quarterly. As part of the normal bookkeeping of the UI system, MESC identifies situations in which the assets of one firm (a "predecessor") are acquired by another (a "successor"). The file used in this paper does not include predecessors as separate firms, but includes predecessor employment and payroll prior to the acquisition in separate "predecessor" fields on the successor firm's longitudinal record.[2]

In thinking about the impact of acquisitions on employment and wages, it is important to distinguish among several different types of acquisitions:

(1) Firm A changes ownership without being integrated with any other firm.

(2) Firm A purchases the assets of Firm B without absorbing its workforce.

(3) Firm A purchases Firm B and (at least initially) absorbs (most of) Firm B's workers or Firm A and Firm B combine to form Firm C. and (at least initially) Firm C includes (most of) the workers of Firms A and B.

The key to distinguishing among these types of acquisitions is the pattern of predecessor P and successor S employment over time. Let T be the period of the acquisition, the last period in which P is positive. In situation (1), we would observe this pattern:

Month	1	2	...	T−1	T	T+1	T+2	T+3	...
Predecessor Employment	P_1	P_2	...	P_{T-1}	P_T	0	0	0	...
Successor Employment	0	0	...	0	0	S_{T+1}	S_{T+2}	S_{T+3}	...

We might expect $S_{T+1} \simeq P_T$ if the firm's employment was stable. In any case, the pattern of zero employment for the successor through T makes this case easy to distinguish from the others.

In situation (2), we should observe

Month	1	2	...	T−1	T	T+1	T+2	T+3	...
Predecessor Employment	P_1	P_2	...	P_{T-1}	P_T	0	0	0	...
Successor Employment	S_1	S_2	...	S_{T-1}	S_T	S_{T+1}	S_{T+2}	S_{T+3}	...

Because the successor is acquiring the assets but not the workers of the predecessor, we expect $S_{T+1} \simeq S_T$.

Finally, mergers (situation 3)--at least mergers of two firms doing business in Michigan--should generate this pattern.[3]

Month	1	2	...	T−1	T	T+1	T+2	T+3	...
Predecessor Employment	P_1	P_2	...	P_{T-1}	P_T	0	0	0	...
Successor Employment	S_1	S_2	...	S_{T-1}	S_T	S_{T+1}	S_{T+2}	S_{T+3}	...

Unless employment is growing or fluctuating significantly, S_{T+1} should approximately equal $P_T + S_T$.

Compared to an ideal classification, there are three problems classifying acquisitions in these data. First, we have no information on mergers between in- and out-of-state firms. When an in-state firm is acquired by an out-of-state firm, there will be no record of the successor prior to the acquisition, so it will look like a type 1 acquisition. Conversely, when an out-of-state firm is acquired by an in-state firm, there is no record of the merger at all.

The second problem lies in distinguishing between acquisitions where the workers of the predecessor are acquired from those in which they are not. The only evidence to distinguish between cases (2) and (3) is whether $S_{T+1} \simeq S_T$, or $S_{T+1} \simeq P_T + S_T$. If P_T and S_T are unstable, and/or P_T is small, it will be hard to identify true mergers. To see this, consider this record:

Month	1	2	...	T−1	T	T+1	T+2	T+3	...
Predecessor Employment	4	3	...	5	4	0	0	0	...
Successor Employment	100	101	...	105	107	110	110	110	...

One interpretation is that the two firms merged in month T, creating a firm with 111 employees, all but one of whom was employed in the next month. The other interpretation is that the

successor expanded by 3 workers at the same time it acquired the assets (but not the employees) of the predecessor.

In the tables below, we identify as type 3 acquisitions or "mergers" those records which have positive successor employment prior to T and

(a) $$\frac{S_{T+1} - (S_T + P_T)}{P_T} > -0.50 \text{ or equivalently } \frac{S_{T+1} - S_T}{P_T} > 0.50$$

(b) $P_T > 10$

Condition (a) says the successor must grow by at least 50 percent of the predecessor's employment. Condition (b) requires that the predecessor be large enough that (a) be practically meaningful.[4] Conditions like these are needed if artificial inflation of the merger count is to be avoided.[5] The particular cutoffs are, to be sure, arbitrary.

A third problem is that the predecessor—successor relationship applies to reorganizations as well as acquisitions. It is difficult to distinguish such reorganizations from type 1 acquisitions (simple sales), since the pattern of predecessor and successor employment would be exactly the same. However, a "type of business" (e.g., proprietorship, partnership, corporation) field is available, and we can distinguish cases where the type of business changes. We call cases which otherwise look like simple sales but show a change in the type of business code "reorganizations." The distinction between "simple sales" and "reorganizations" is not as clean as we would like, since some restructuring does not involve a change of business type while some sales are accompanied by such a change.

To summarize, type 1 acquisitions are those for which there is no successor employment prior to T, and for which the "type of business" remains the same. Type 2 acquisitions are those for which there is positive successor employment prior to T, but which do not satisfy the two conditions (a) and (b) in the previous paragraph. Type 3 acquisitions are those for which there is positive successor employment prior to T, and which do satisfy those conditions. We will sometimes refer to types 1, 2, and 3 as "simple sales", "assets only" and "mergers", respectively. We treat "reorganizations" as a separate category, though they are not our primary

focus. We ignore those acquisitions which occurred in 1978 or 1984:4, because there is too little predecessor or successor data for these acquisitions.

Given that acquisitions--and especially mergers--are fairly rare events but the MESC file is enormous, we constructed an "extract file" consisting of all firms with non-zero predecessor fields and a 20 percent sample of other firms. Most of our analysis, however, is based on a smaller file, consisting of observations which had relatively complete data. More specifically, an observation was included in the "clean data file" only if there was some employment and payroll data in each year.

An overview of the extract file and the clean data file is presented in Table 1. Two features of the table are striking. First, even remembering that the "no predecessor" cases represent a 20 percent subsample, the frequency of "reorganizations" compared to no predecessor firms over the six years 1979-84 is striking. (We also found the frequency of type 2 (assets only) acquisitions surprisingly high.) The second striking feature of the table is that the clean-data file is so much smaller than the complete extract. There are two reasons for this. First, birth and death rates of firms are quite high, and they show up as "missing" data in the years before a birth or after a death. Connor, Heeringa, and Jackson (1985) note that both births and deaths are very common in these data. We will have a little to say about deaths later in the paper. Second, there is some missing data, though its impact is somewhat reduced by eliminating only observations for which the data are missing for an entire year.

Table 2 divides the extract and clean-data files by broad industry. The distribution of observations in the two files is quite similar, with the clean-data file having proportionally fewer construction and more manufacturing firms than the extract file from which it was derived. The three types of acquisitions are also spread broadly across industries.

Table 3 shows the average level of employment by type of acquisition in the two files. Our employment variable includes the employment of both partners in cases where an acquisition occurs. The mean value for 1978 excludes those cases in the extract file where employment in

1978 is zero (missing); the mean value for 1984 similarly excludes observations with zero (missing) 1984 employment.

The comparison between the mean levels of employment in the extract file and the clean–data file show that average firm size is larger in the latter. This is exactly what one would expect, because births and deaths are more important for small firms than for large ones. Comparing number of firms and mean employment by type of acquisition brings out an important and less obvious fact. While the average size of firms in type 1 acquisitions is small (17 workers using 1984 figures from the extract file), there are many such firms. Type 2 firms are larger, but there are proportionately fewer of them. Type 3 acquisitions (mergers) involve still larger firms, but again there are far fewer of them. Overall, using 1984 figures from the extract file, there are roughly 85,000 workers employed in firms which were involved in type 1 acquisitions, 265,000 workers for type 2, and 115,000 workers involved in type 3 acquisitions (mergers). After taking account of the fact that the "no predecessor" firms in Table 3 are a 20 percent sample, we calculate that roughly 3, 9, and 4 percent of workers in Michigan worked for firms involved in the three types of acquisitions in this period.

Finally, Table 4 presents information about the size of the predecessor and successor firms, measured three months before the acquisition, and the combined entity immediately afterward. Three conclusions stand out. First, the predecessor in type 1 and type 2 acquisitions are small (averaging 20 and 11 workers, respectively), while the acquired firm in type 3 acquisitions ("mergers") is on average medium sized (78 workers). Second, as one might expect, the successor (acquiring firm) is typically larger than the predecessor. Third, on average type 2 successors do not grow $(S_{T+1} - S_T = -2)$ despite acquiring the assets of predecessors with an average of 11 workers, while type 3 successors grow by nearly all of the acquired firm $(S_{T+1} - S_T = 79$ compared to $P_T = 78)$. In part, this last contrast follows from the definition of type 2 and type 3 acquisitions, but it is sharper than one might guessed on purely definitional grounds.

II. Method of Analysis

In order to determine the relationship between changes in ownership and wages and employment, we will compare firms involved in acquisitions in year T with the much larger set of firms which were not involved in any acquisitions (i.e., had zero predecessor employment) throughout the sample period.[6] Our "wage" equation is

$$(1) \qquad \ln W_{T+j} = \sum_{t=1978}^{B} a_{jt} \ln E_t + \sum_{t=1978}^{B} \beta_{jt} \ln W_t + \sum_{k=1}^{4} \gamma_{jk} D_k + \epsilon_j$$

where W is the payroll per worker (per month), E is employment (averaged over all months where positive employment is reported), B is a "base year" either one or two years prior to T, and D_k is a dummy variable which equals one when the firm is involved in a type k acquisition (k=1,2,3) or reorganization (k=4) in year T, and zero otherwise. Not shown explicitly in equation (1) are 1-digit industry dummy variables, which are added to each equation. For each acquisition year T, separate equations are estimated for each year T+j, for j=0 through T+j=1984 (e.g., for T=1981 we have four equations, one for each of the years 1981-84).

Our employment equation is slightly more complicated:

$$(2) \qquad E_{T+j} = \sum_{t=1978}^{B} a'_{jt} E_t + \sum_{t=1978}^{B} \beta'_{jt} \ln W_t + \sum_{k=1}^{4} \gamma'_{jk} D_k \bar{E} + \epsilon'_j$$

where $\bar{E}$ is the firm's average employment in the years prior to the merger. Interacting D_k with $\bar{E}$ means that the impact of the various types of acquisitions is proportional to the pre-merger level of employment, rather than being a fixed number of workers for all firm sizes.[7] We weight the observations to produce a homoskedastic error term.[8] We use E rather than ln E as our dependent variable because it allows us to consider (in Section IV) the impact of adding to the clean data sample those firms which appear to have "died" after year T, by treating them as having $E_{T+j}=0$.

The ideas underlying these equations are borrowed from the literature which evaluates the impact of employment-training programs on individuals' earnings and employment (e.g., Bloch 1979). Holding constant the history of the firm prior to T, we ask whether firms involved in changes of ownership had significantly different wages (or employment) j years thereafter. [9]

Using T−1 as the base year is the "natural" choice in our framework. The choice of year T−2 is motivated by the possibility that firms involved in mergers in year T were subject to unusual transitory shocks in the previous year, from which they would anyway recover. Using T−2 as the base year ignores those shocks in predicting outcomes in T+j, and so essentially treats the T−1 shock as transitory (Ashenfelter, 1978).

In the results reported in the next section, we study (separately) firms involved in acquisitions in 1981 and in 1982. These middle-of-sample years were chosen to ensure several years of data after T (to evaluate consequences of acquisitions) and several years prior to T (so that we can control accurately for prior conditions). In each case, our "control group" consists of firms not involved in an acquisition at any point between 1978 and 1984: we exclude altogether those firms which were involved in acquisitions in one of the other years.

III. Wage Equations

The key results from estimating equation (1) for T=1981 are presented in Table 5. The top half of the table uses 1980 as the base year, while the bottom half uses 1979. Each column of the table corresponds to a different year's employment being predicted. Only the coefficients of the four dummy variables are reported, though each set of four coefficients comes from a (separate) equation with lagged wages and employment and the industry dummy varibles included.

The choice of base year makes little difference to the results, and so our discussion will focus on the equations with 1980 as the base year. In the three years after the acquisition (i.e., 1982–84), wages at firms involved in type 1 acquisitions ("simple sales") average about four percent lower than one would otherwise predict from their pre–1981 wages and employment. Similarly, wages are about 5 percent higher in firms involved in type 2 ("assets only) acquisitions. Firms involved in mergers have wages about 5 percent lower than we estimate they otherwise would be. However, in contrast to the previous coefficients, the standard errors of these estimates are sizeable. It is worth emphasizing that these latter results refer to average wages of the post–merger firm, controlling for the (weighted average of) pre–merger wages at both the predecessor and successor.[10]

Analogous results for 1982 acquisitions are presented in Table 6. While the "control group" in Tables 5 and 6 are the same, the firms involved in acquisitions are completely different, so that Table 6 is a nearly independent replication. The most important difference is that the coefficient of D_3 is now tiny (averaging −1.5 percent for 1983–84).

We also re-estimated equation (1), restricting the sample to firms employing at least 50 workers. Overall, the coefficients were similar to those in Tables 5 and 6, but somewhat smaller. They averaged −1, 0, and −2 percent for types 1, 2, and 3 acquisitions, respectively. Overall, we conclude that the impact of acquisitions on wages in our sample is small.

IV. Employment Equations

The results of estimating equation (2) for T=1981 are summarized in Table 7. Once again, the choice of base year--1980 (top half of table) or 1979 (bottom half)-- has little effect on the results, and we focus on the coefficients from the 1980 base year equations.

Firms experiencing a "simple sale" in 1981 had employment in 1982-84 which was about 3 percent higher than one would otherwise have predicted. Those involved in "assets only" acquisitions had employment which was about 5 percent lower. The employment of firms which merged is indistinguishably different from what we estimate it would have been in the absence of the merger.

Analogous results for 1982 acquisitions are in Table 8. Unfortunately, there are appreciable differences between the coefficients in Table 8 and those in Table 7. The impact of a simple sale is now 15 percent (rather than 3 percent), and the impacts of the other two types of acquisitions are also a bit larger (-6 percent and 3 percent, respectively) when one averages over the two post-acquisition years (1983 and 1984). Moreover, the merger effects (the coefficients of D_3) are sensitive to choice of base year, reaching 8 percent when 1980 rather than 1981 is the base.

This instability across years--and the fact that the results were also sensitive to whether we specified the equation as logarithmic, linear, or (as in Table 7 and 8) weighted linear--makes us less confident about these results than the wage results in Tables 5 and 6. Averaging across base years and across the two tables, the three employment impacts are roughly 9 percent (simple sales), -5 percent (assets only), and 2 percent (mergers).

As noted in Section 1, our results use a sample of firms which reported wages and employment in each year. Thus, firms are deleted if they were "born" or "died" during the sample period, or if for some reason a whole year's data are missing. In order to explore the consequences of deleting "deaths" from the sample, we considered a slightly different sample-inclusion criterion. We reran our analysis of employment of firms involved in 1981 acquisitions (Table 7), including firms which reported firms which reported zero employment in 1982 or 1983

through 1984 (i.e., which disappeared for at least two years after 1981 and did not reappear). Even though this loosening increased the sample considerably (from about 17,000 to about 20,000), the coefficients of our acquisition dummies did not change appreciably. The largest change was for D_3, whose coefficient moved from zero (averaging 1982−84, top half of Table 7) to 3 percent with the expanded sample.

V. Conclusions

Based on our analysis of the MESC data, we find that: (1) Firms which are part of "simple sales" have post-sale wages which are about 5 percent lower than they would otherwise be, but employment roughly 9 percent higher. (2) Firms which are part of "assets only" acquisitions[11] have wages which are about 5 percent higher than they would otherwise have been, but employment about 5 percent lower. (3) Mergers are associated with wage declines of about 4 percent, and employment growth of about 2 percent.

In thinking about these results, two qualifications are important. First, as we noted in Section 4, the estimated employment impacts are sensitive to which year's acquisitions we study, and other specification details. Second, our wage measure is average payroll per worker, and will deviate from a more ideal wage measure if the composition of the workforce is changing. In particular, if (as is usually the case) newly hired workers earn less than those already employed, our wage changes will tend to be negatively related to employment changes. The fact that the effect of each type of acquisition on wages is opposite in sign from its effect on employment is consistent with this interpretation. The estimated effects of mergers on wages are also subject to a different composition effect: if the (relatively high paid) head of the acquired firm leaves following the merger, average wages will fall. Given the small size of our typical firms, a non-trivial share of our estimated wage decline from mergers may be due to such compositional effects.

At this early stage of our research, is difficult to be certain whether these patterns are consequences or merely correlates of the acquisitions. But, at least in our sample, the common public perception of acquisitions providing the occasion to slash wages and/or employment finds little support.

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Table 1

Overview of MESC Records

| | Number of Observations in | |
Type of Firm	Complete Extract	Clean-Data File
No predecessor	34689	14005
Type 1 acquisition: "simple sale"	7905	4055
Type 2 acquisition: "assets only"	3138	2391
Type 3 acquisition: "merger"	479	438
"Reorganization"	17578	9363
1978 or 1984:4 acquisition[a]	4155	0
Total	67944	30252

[a] This category includes a small number of acquisitions deleted because missing data made it difficult to code the type of acquisition.

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Table 2

MESC Records by Industry

Industry Group	Complete Extract Total	Number of Observations in Clean-Data File				
		No Predecessor	Type 1 simple sale	Type 2 assets only	Type 3 merger	Reorgani-zation
Agriculture	1108	469	236	53	24	2	154
Mining	172	76	34	11	14	1	16
Construction	6990	2211	1272	130	108	12	689
Durable Manufacturing	3782	1982	1117	187	156	61	461
Nondurable Manufacturing	1322	735	391	80	74	30	160
Transportation & Public Utilities	2034	812	405	101	62	26	218
Wholesale Trade	5229	2501	1447	222	324	61	447
Retail Trade	20798	9473	3162	1839	681	130	3661
Finance, Insurance & Real Estate	3916	1824	971	188	281	31	353

Number of Observations in

Industry Group	Complete Extract	Clean-Data File					
		Total	No Predecessor	Type 1 simple sale	Type 2 assets only	Type 3 merger	Reorgani- zation
Services	22593	10169	4970	1244	667	84	3204
Total	67944	30252	14005	4055	2391	438	9363

Table 3

Average Employment by Type of Acquisition[a]

Type of Firm	Extract File		Clean-Data File	
	1978	1984	1978	1984
No predecessor	22 (284) [21535]	20 (233) [23186]	29 (350) [14005]	27 (296) 14005]
Type 1 acquisition: "simple sale"	17 (114) [6166]	17 (97) [5376]	21 (140) [4055]	20 (110) [4055]
Type 2 acquisition: "assets only"	114 (1672) [2815]	99 (1082) [2665]	130 (1813) [2391]	109 (1142) [2391]
Type 3 acquisition: "merger"	255 (740) [462]	262 (708) [451]	264 (758) [438]	268 (717) [438]
"Reorganizations"	9 (65) [12814]	10 (61) [13194]	10 (74) [9363]	11 (72) [9363]

[a] Standard deviations in parentheses and sample sizes in brackets below means.

Table 4

Average Size of Predecessors and Successors

Type of Firm	Average Employment		
	P_{T-3}	S_{T-3}	S_{T+1}
Type 1 acquisition: "simple sale"	20 (126)	—	21 (120)
Type 2 acquisition: "assets only"	11 (57)	107 (970)	105 (931)
Type 3 acquisition: "merger"	78 (169)	199 (707)	278 (781)
"Reorganizations"	10 (65)	—	11 (71)

[a] Standard deviations in parentheses below means.

Table 5

Average Wage Equations: 1981 Acquisitions

Control Variables	Base Year	Acquisition Variable[a]	Proportional Effect on Avg. Wage in				
			1980	1981	1982	1983	1984
$\ln W_{78}...\ln W_{80}$, $\ln E_{78}...\ln E_{80}$	1980	D_1 (SS)		−.029 (.009)	−.031 (.012)	−.039 (.014)	−.055 (.015)
		D_2 (AO)		.012 (.012)	.061 (.016)	.048 (.017)	.032 (.019)
		D_3 (M)	—	−.015 (.029)	−.041 (.037)	−.035 (.041)	−.083 (.046)
		D_4 (R)		.051 (.007)	.170 (.009)	.164 (.009)	.162 (.011)
$\ln W_{78},\ln W_{79}$, $\ln E_{78},\ln E_{79}$	1979	D_1 (SS)	−.020 (.009)	−.045 (.011)	−.046 (.014)	−.054 (.015)	−.069 (.016)
		D_2 (AO)	−.000 (.012)	.014 (.014)	.065 (.017)	.053 (.019)	.037 (.020)
		D_3 (M)	−.028 (.027)	−.030 (.034)	−.051 (.041)	−.044 (.044)	−.089 (.049)
		D_4 (R)	.005 (.006)	.054 (.008)	.174 (.010)	.167 (.010)	.165 (.011)

[a] SS = "simple sale"; AO = "assets only"; M = "merger"; R = "reorganization".

Table 6

Average Wage Equations: 1982 Acquisitions

Control Variables	Base Year	Acquisition Variable	Proportional Effect on Avg. Wage in			
			1981	1982	1983	1984
ln W_{78}...ln W_{81}, ln E_{78}...ln E_{81}	1981	D_1 (SS)		−.035 (.010)	−.053 (.012)	−.049 (.014)
		D_2 (AO)		.001 (.012)	.042 (.016)	.049 (.018)
		D_3 (M)		.005 (.028)	−.005 (.035)	−.025 (.041)
		D_4 (R)		.034 (.007)	.114 (.009)	.112 (.011)
ln W_{78}...ln W_{80}, ln E_{78}...ln E_{80}	1980	D_1 (SS)	−.011 (.009)	−.043 (.012)	−.061 (.013)	−.056 (.015)
		D_2 (AO)	.005 (.011)	.009 (.015)	.049 (.017)	.058 (.019)
		D_3 (M)	−.034 (.026)	−.011 (.033)	−.016 (.038)	−.031 (.043)
		D_4 (R)	−.012 (.007)	.026 (.009)	.108 (.010)	.106 (.011)

Table 7

Employment Equations: 1981 Acquisitions

Control Variables	Base Year	Acquisition Variable	Proportional Effect on Employment in				
			1980	1981	1982	1983	1984
$\ln E_{78}...\ln E_{80}$, $\ln W_{78}...\ln W_{80}$	1980	D_1 (SS)		.028 (.008)	.026 (.011)	.041 (.014)	.039 (.019)
		D_2 (AO)		.017 (.006)	−.024 (.008)	−.048 (.010)	−.073 (.014)
		D_3 (M)		.037 (.007)	.036 (.011)	−.019 (.013)	−.020 (.017)
		D_4 (R)		−.011 (.010)	−.010 (.014)	−.060 (.018)	−.092 (.024)
$\ln E_{78}, \ln E_{79}$, $\ln W_{78}, \ln W_{79}$	1979	D_1 (SS)	....004 (.009)	.012 (.013)	.016 (.015)	.032 (.017)	.021 (.022)
		D_2 (AO)	−.003 (.007)	.022 (.009)	−.017 (.011)	−.041 (.013)	−.065 (.016)
		D_3 (M)	.014 (.008)	.054 (.012)	.051 (.014)	−.007 (.015)	−.005 (.020)
		D_4 (R)	−.063 (.012)	−.065 (.015)	−.075 (.019)	−.124 (.022)	−.143 (.027)

Table 8

Employment Equations: 1982 Acquisitions

Control Variables	Base Year	Acquisition Variable	Proportional Effect on Employment in			
			1981	1982	1983	1984
$\ln E_{78}...\ln E_{81}$, $\ln W_{78}...\ln W_{81}$	1981	D_1 (SS)		.067 (.008)	.142 (.010)	.156 (.013)
		D_2 (AO)		.056 (.005)	−.061 (.007)	−.067 (.008)
		D_3 (M)		.007 (.007)	.046 (.009)	.015 (.011)
		D_4 (R)		−.078 (.009)	−.128 (.012)	−.174 (.016)
$\ln E_{78}...\ln E_{80}$, $\ln W_{78}...\ln W_{80}$	1980	D_1 (SS)	.010 (.006)	.077 (.011)	.157 (.013)	.163 (.017)
		D_2 (AO)	.009 (.004)	.082 (.007)	−.045 (.008)	−.057 (.010)
		D_3 (M)	.029 (.005)	.051 (.009)	.094 (.011)	.071 (.013)
		D_4 (R)	.024 (.008)	−.073 (.013)	−.119 (.016)	−.141 (.020)

Notes

[1] For a description of the construction, characteristics, and availability of this file, see Connor, Converse, Heeringa, and Jackson (1984).

[2] Predecessor data are aggregated in the relatively rare case of multiple predecessors. Thus, if firm A acquires firm B and later firm C, the predecessor field on A's record includes the sum of B and C's employment and payroll up to the time when B is acquired, and then only C's employment and payroll until C is acquired. After C is acquired, succeeding months (quarters') employment (payroll) data are blank.

[3] In the case where the two firms form a new firm, which firm is called the successor is, for our purposes, arbitrary.

[4] In scanning the raw data, we noticed that in some cases P fell and S rose just before P became zero. If P in month T was less than half of its value three months earlier, we used P and S in month T−3 instead of month T in the above tests. This led to a slight increase in the number of type 3 cases, and a corresponding reduction in the number of type 2 cases.

[5] Even with the relatively conservative definition of type 3 acquisitions and therefore relatively broad definition of type 2 acquisitions, 20 percent of the type 2 firms in the "clean-data" file had S_{T+1} exactly equal to S_T, and another 20 percent had $S_{T+1} < S_T$. So the phenomenon of acquiring the assets but not the workers of the predecessor appears to be real.

[6] To simplify notation, we suppress a subscript for individual firms. But our unit of observation is, of course, firms.

[7] We estimated the unweighted equation, and then regressed the absolute error on a constant term and pre-merger employment. We found that both coefficients were consistently positive, suggesting that the error variance increased, but less than proportionately, with the size of the firm.

[8] We also interacted the industry dummies with $\bar{E}$.

[9] One could, of course, hold constant employment and wages through year $T+j-1$ in the equation with year $T+j$ as dependent variable, but that significantly complicates the interpretation

of the results. With that specification, the impact of, say, D_k on $\ln W_{T+1}$ would depend on the coefficient of D_k in that year's equation <u>plus</u> the indirect effects of D_k on $\ln W_T$ times the effect of $\ln W_T$ on $\ln W_{T+1}$ and of D_k on $\ln E_T$ times the effect of $\ln E_T$ on $\ln W_{T+1}$.

[10] One might expect that wages of the post-merger firm would move toward the wages of the pre-merger successor, since the successor has acquired the predecessor. We added a term reflecting the difference in ln-wages between predecessor and successor to the equation (1) specification. but it was never significant. Basically, we can't tell whether our conjecture is true, given the limited number of mergers in the data.

[11] Recall that this category includes mergers involving tiny predecessors, as well as cases where the predecessor's workforce is not acquired.