

Status in the Workplace: Evidence from M&A

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Abstract

Using exogenous changes in workers' relative wages during mergers and acquisitions (M&As), this paper analyzes how changes in workers' relative wages, or status, in the workplace affect their turnover decisions. Evidence suggests that workers not only care about their status, but also have different preferences for status depending on the reference group. Moreover, those workers who experience an increase in their status within occupation due to an M&A, have lower turnover rates and lower wage growth rates than others. This suggests that workers prefer higher status even when it does not necessarily lead to higher wages.

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1. Introduction

One of the most basic social phenomena is that people compare their circumstances and attributes with those of others.¹ For example, they may compare their wage, authority, or beauty with that of co-workers, neighbors, and friends. The perceived relative standings, called *status*, can lead to frustration or satisfaction, which in turn can affect job performance and turnover.

Although status is one of the most central concepts in sociology, it has been slow to make inroads into mainstream economics.² To bridge this gap we set out to answer three empirical questions. Using changes in workers' status, as measured by relative pay, during mergers and acquisitions (henceforth M&A), we attempt to answer: (i) whether people care about their status at all; (ii) which reference group(s) matters for status in the workplace; and (iii) whether workers care more about status for its social value such as prestige and respect, or for its pecuniary value such as higher wage growth.

Research on status has provided new insights in personnel policy, organization design, and market strategy (Martin 1981, Fershtman, Weiss, and Hvide 2001, Besley and Ghatak 2008), aggregate consumption (Veblen 1949; Duesenberry 1949; Bourdieu 1984), wage compression (Frank 1985), internal labor market (Gylfason and Lindbeck 1984, Solow 1990), involuntary unemployment (Akerlof and Yellen 1990), saving and growth (Fershtman et al. 1996), tax policy (Boskin and Sheshinski 1978, Abel 2005), income distribution (Becker et al. 2005), market competition (Podolny 2005), and social welfare (Durkheim 1951, Townsend 1979).

However, hard evidence on the role of status, especially in the workplace, is inconclusive if not scarce.³ A rigorous quantitative analysis of status must address three challenges. First, status is endogenously determined by individuals' unobserved characteristics, such as ability or ambition. To address this endogeneity problem, one must find an exogenous shock to status, that is, an event that affects the wages of a worker's colleagues, but not the wage of the worker him/herself. Second, we have surprisingly little understanding of workers' reference groups, i.e. those with whom workers compare themselves. As a result, it is unclear whether to measure relative wages with respect to other workers in the same occupation, with all the workers in the same firm, with workers in other firms, etc. As we will demonstrate later, a misspecification of reference group can bias the estimation results, and their resulting theoretical interpretations. Third, it is difficult to conclude whether observed concerns about status, if exist, are due to social preference as assumed in the theoretical literature or to other factors. For example,

¹ See Jasso (1990) for a comprehensive survey of comparison theories in sociology.

² There may be many reasons for the paucity of research on status in economics. One is the lack of convincing empirical evidence. Another is associated with technical difficulties. For example, equilibrium may not exist in many models. Another is the implicit "individualism" assumption in neoclassical economics. (Kjosavik 2003).

³ There are many cases studies especially in social psychology though. (see, e.g., Hogg and Terry 2001)

workers may care about their status because it is a signal of ability that affects their future market wages, not because they care about others' wages or status *per se*.

The main contribution of this paper is to formally address all of these three challenges. The starting point of our analysis is the identification of exogenous changes in workers' status within firms. Such changes can arise during M&As. In these cases, workers are introduced to a large pool of new co-workers, and their status within occupation or within firm may change significantly. Since an individual worker cannot affect the M&A decision, the changes in status during M&As can be considered exogenous to any individual worker's characteristics, conditional on average characteristics of workers and firms.

Moreover, M&As change workers' status only within the firm's boundary. In other words, M&As are unlikely to change a worker's status among friends, neighbors, or workers in other firms. Therefore, we can focus on reference groups within firms without worrying about possible bias from omitting status in other reference groups. In particular, we focus on two natural reference groups within the firm: (i) workers in the same occupation group (e.g. marketing department) and (ii) all workers in the same firm.

We construct personnel data of merging firms for more than 400 M&As from the Swedish employer-employee matched data, which present unprecedented scope and detail. Our analysis shows that an increase in status with respect to co-workers in the same occupation, (henceforth *status within occupation*), leads to lower probability of turnover, which suggests a preference for high status within occupation. Workers' preference for a one standard deviation increase in status within occupation is equivalent to that for a 6.9% increase in wages. Interestingly, however, an increase in status with respect to all the workers in the same firm, (henceforth *status within firm*), does not affect turnover rates. These results show not only the importance and complexity of status concerns in the workplace, but also the significance of considering status in multiple reference groups. For example, if we had analyzed status within firm only, we may have concluded that workers do not care about status at all.

We also show that an increase in status within occupation during an M&A leads to *lower* wage growth rates after the M&A. This finding is important, as it suggests that high status does not necessarily result in future pecuniary rewards. This finding, however, is consistent with the hypothesis that workers are willing to give up (or be less aggressive in pursuing) pecuniary payoffs in exchange for additional social rewards from increased status⁴. It also suggests the existence of a 'market for status' as theorized by Frank (1985) and Becker et al. (2005).

Previous empirical studies have largely ignored the endogeneity of status (e.g. Pritchard, Dunnette, and Jorgenson 1972, Valenzi and Andrews 1971, Clark and Oswald 1996, Martin 2003, and

⁴ Zizzo and Oswald (2001) provides the related experimental evidence.

Brown et. al. 2007)⁵. While Luttmer (2005) attempts to control for individuals' and reference groups' unobserved characteristics using fixed effects, this method leaves insufficient variation in the data to give accurate estimates. Moreover, many of these studies analyze the effect of status on subjective satisfaction (happiness) ratings (see also Layard 2005). It is well known, however, that in such surveys and experiments people often report relative satisfaction ratings instead of absolute satisfaction ratings, which potentially undermines the purpose of these studies. (see Tversky and Griffin 1991 and Frederick and Loewenstein 1999).⁶ Galizzi and Lang (1998) studies how relative wages influence turnover behavior, but likewise fails to control for unobserved individual characteristics⁷.

It is worth emphasizing that all of these studies choose reference groups arbitrarily (often according to the availability of data), and that none allows for the possibility of multiple reference groups⁸. For example, Clark and Oswald (1996) measures relative wage with respect to a national survey, Luttmer (2005) with respect to neighbors, and Galizzi and Lang (1998) with respect to all workers in a firm⁹. However, it is possible that people may care about their status with respect to co-workers in the same occupation, rather than to everyone in a firm, or that they may care about status with respect to friends, rather than to all neighbors, or to a whole country. Our results show that the misspecification of reference group can bias the results and that preference for status in one reference group cannot be generalized to preference for status in other reference groups.

Most previous empirical studies have also focused on *whether* people care about their status, but not necessarily on *why*. For example, many studies simply *assume* that people care about status for the social benefits they derive from it, such as prestige, respect, or perceived fairness. Other studies assume that the observed preference for status is due to status' instrumental value for future pecuniary benefits such as larger wages or faster promotions¹⁰ (e.g. Galizzi and Lang 1998). Aside from experimental evidence (e.g. Zizzo and Oswald 2001, Brown et. al. 2007), this paper is one of the few field studies that formally test the underlying preference for status¹¹.

⁵ A potential exception includes Neumark and Postlewaite (1998) which shows how married women's labor market participation is affected by the wage of a sister-in-law.

⁶ Also see Bertrand and Mullainathan (2001) on the problems of using self-reported measures of happiness.

⁷ Experimental studies can control these issues directly. However, the limitation of lab experiments is the standard one of external validity. Given that social preference arises from complex social interactions among heterogeneous agents, it is difficult to recreate such social interactions in a lab. See Fehr and Schmidt (2005) for a survey of experimental evidence.

⁸ There is an old tradition in the theoretical literature in sociology distinguishing multiple reference groups. (see Merton 1949 and 1957, Berger, Zelditch, Anderson, and Cohen 1972, and Jasso 1980). In economics, Frank (1985), for instance, discusses various reference groups. However research on multiple reference groups is plagued by a paucity of data and hence lacks empirical analysis.

⁹ Similarly, in theoretical models, Akerlof and Yellen (1990) takes workers in the same firm as a reference group, while Summers (1986) takes comparable workers in other firms as a reference group.

¹⁰ For a more detailed discussion of the distinction between social value and instrumental value, see Sobel (2005).

¹¹ Luttmer (2005) also provides suggestive evidence for the social value of status.

The paper is organized as follows. In section 2, we describe our empirical methodology. Section 3 describes the data and the construction of variables. In section 4, we examine how changes in status with respect to different reference groups affect workers' turnover rates, and infer their preference for status. In section 5, we survey different theories of status, and investigate whether the observed preference for status is due to (i) the instrumental value of status for pecuniary rewards or (ii) the social value of status in terms of prestige and respect. We conclude in section 6.

2. Empirical Strategy

To investigate whether and how workers value their status, we study changes in workers' status during M&As and workers' subsequent turnover behaviors.

2.1. M&A as an Exogenous Shock

Three key features of M&As make them attractive quasi-experiments. First, in typical panel data, a worker's status changes over time mostly because his or her absolute income changes. Therefore, if one controls for absolute income and other unobserved individual characteristics, there is insufficient variations in the status of an individual to identify the effect of status¹². However, during an M&A, a large pool of new co-workers is introduced to the merged firm. A worker's status within the firm may change significantly even if nothing about the worker him- or herself, such as absolute income, has changed. This makes it possible to identify the effect of status on workers' behavior.

Second, changes in status during M&As are for the most part exogenous to individual workers' (unobserved) characteristics, because an individual worker is unlikely to influence merger and acquisition decisions. This contrasts with the typical situation, in which a worker's status within a firm and/or an occupation is endogenously determined by the worker's ability and ambition, the worker's choice of a firm, and the firm's promotion and wage policies. These factors have made it difficult to find a natural experiment that can affect a worker's status without influencing the worker's other characteristics.

The third feature of M&As are their influence on a worker's status solely within the firm boundary. For example, a worker's status within a specific department or within the whole firm will change, but the worker's status among neighbors or friends is unlikely to change due to an M&A. Therefore, we can focus on reference groups within the firm, ignoring other reference groups outside the firm.

A potential shortcoming of this approach is that M&As change various aspects of a company, in addition to the workers' status. If changes in status are correlated with other changes in, for example,

¹² For example, see Luttmer (2005) Table 2 specification (4).

productivity or organizational structure of the firm, the measured effect of status may reflect the effect of other structural changes. For example, the status of a manager in a small firm may decrease after an acquisition by a larger firm, and the manager may quit or get fired because of redundancy, not because of the decreased status. To address this type of concern, we (i) use expected changes in status, not actual changes; (ii) distinguish voluntary and involuntary turnovers; (iii) control for pre-merger job, status, and interactions with an acquired dummy and firm size ratio; (iv) construct various *distance* measures that capture the differences between merging firms in terms of structures of wage, occupation, industry, geography, gender, and rank. If most structural changes during and after an M&A depend on the pre-existing difference between the two companies, these distance variables can control for potential structural changes during M&As. (see section 4.3 for more details.)

2.2. Revealed Preference for Status

In this paper, we infer workers' preference for status from their observed *turnover* behavior. If workers prefer higher (lower) status, an exogenous increase in status should lead to higher (lower) utility and lower (higher) probability of quitting. This approach has two salient merits. First, as discussed above, we avoid using potentially problematic "happiness ratings" from self-reported surveys. Second, no assumptions are needed about how status should change the *marginal* utility of income/consumption. Many models of status derive their predictions by assuming that status increases the marginal utility of income (e.g. Becker et al. 2005). However, sociological theories of status do not necessarily support this assumption.

Unfortunately, as with other studies on turnover, it is difficult to distinguish directly between quits and layoffs. However, unlike most such studies, we can track workers' wages after they have left a firm. Therefore, if workers' wages drop after they leave a firm (or increase less than the wages of those who remain), we can define such instances of turnover as 'layoffs', and exclude them from the analysis. Alternatively, following previous studies (e.g. Jacobson, et. al.1993 and Galizzi and Lang 1998), we can define instances of turnover as 'layoffs' and drop them if the combined size of the merged firms decreases significantly.

3. Data and Measurement

3.1. The Swedish Employer-Employee Matched Data

We construct personnel records of merging firms from the Swedish employer-employee matched data. The Swedish data are essentially the collection of personnel records of white-collar workers in *all the*

firms in the private sector of Sweden from 1970 to 1990 (except banking and insurance)¹³. The data served as the input to Sweden’s centralized wage negotiations and were gathered from personnel records by The Swedish Federation of Employers and monitored by the labor unions. Thus, the data have minimal measurement errors. (see Kwon et. al. (2008) for more details on the wage negotiation system in Sweden.)

For each worker, the data contain *annual* information on wage, age, gender, education, geographic region, firm ID, plant ID, industry ID, occupation ID, and rank. Because all the IDs are comparable across firms, occupations, and time, we can track each individual worker across firms and occupations throughout his/her career. The data lack information about firm tenure. However, due to the long and expansive span of the data, we can compute firm tenure for those workers who entered the data (or the labor market) after 1970.

The occupation code (called BNT code) is a four-digit code, where the first three digits (occupation ID) describe types of tasks. The fourth digit (rank ID) describes the degree of skill needed to fulfill the tasks as well as the number of subordinates. The white-collar workers’ occupations cover 51 three-digit occupation groups such as construction, design, and management. (for more details, see appendix A). Within each occupation, the fourth digit rank code runs from 1 (lowest) to 7 (highest).

In this study, we focus on firms involved in acquisitions. Our data do not include information about firm ownership other than firm ID. Therefore, we identify M&As based on changes in workers’ firm IDs. More specifically, if more than 50% of workers in one firm change firm ID¹⁴, say from A to B, and if the old firm ID, A, disappears from the data, then we say “B has acquired A”. We refer to B as ‘acquirer’ and to A as ‘acquired’. We restrict our attention to firms with more than ten white-collar workers¹⁵. There are only a few clearly identified merger cases where more than 50% of workers from both firm A and B move to a new firm C, and where firm A and B disappear. Therefore, we focus on clearly identified acquisition cases only.

This sample contains 443 M&A cases involving 186,679 workers¹⁶. Figure 1 shows these numbers by year.

[Figure 1 here]

¹³ The data also excludes the executive team (e.g. CEO or CFO).

¹⁴ Even when we require more than 90% of workers to change firm ID, there is very little change in our results.

¹⁵ Focusing on firms with more than 100 white-collar workers does not change the qualitative results of the paper.

¹⁶ Some firms are involved in more than one M&A during our sample period. Excluding M&As where the same firm is involved in more than one M&A within 6 years does not change our qualitative results.

Given that previous studies of M&As are based on personnel records from one or two firms or on simple surveys of workers, our data provide unprecedented scope and detail.

Table 1 shows the summary statistics of selected variables. Acquiring firms are, on average, much larger than acquired firms¹⁷. When we measure firm size by the number of (white-collar) workers, the average ratio of acquired to acquiring firm size is 0.61, but there are large variations. At the individual level, acquiring firms and acquired firms are comparable in workers' average age, rank, male-female ratio, and wage. Though the average rank and wage are slightly higher in acquiring firms, this effect can largely be explained by the differences in firm size.

[Table 1 here]

At the worker level, workers in acquired firms have, on average, higher turnover rates after M&As than those in acquiring firms. Average turnover rates in the first year after an M&A (turnover1) are 12.1% for acquiring firms and 15.5% for acquired firms. In comparison, the average turnover rate in Swedish firms is about 10% per year. Within three years, the turnover rate (turnover3) is 32.6% for acquiring firms and 39.2% for acquired firms.

3.2. Reference Groups

We measure status with respect to two reference groups: (i) co-workers in the same occupation in the same firm and (ii) all the workers in the same firm. Workers are likely to compete with other workers in the same occupation for promotions, and therefore to compare themselves with one another. Consequently, the occupation group is a likely candidate for a significant reference group.

All workers in the same firm, regardless of occupation, constitute another likely reference group, as they all share a common employer and personnel policy. In fact, many previous studies have focused on relative wages within a single firm only. (see, e.g., Telly, French, and Scott 1971, Dittrich and Carrel 1979, Galizzi and Lang 1998.)

These two reference groups are also interesting because workers in the same occupation are typically substitutable as they possess the same types of skills, while workers in different occupations are likely to be complementary. Therefore, we can potentially study how such differences in the social/production context can interact with status.

¹⁷ In our sample, the number of workers from acquired firms is much smaller than the firm size ratio would suggest. This is because we have excluded workers if the number of co-workers in the same occupation in the same firm is less than 10, which applies to many workers in acquired firms due to their smaller size. Recall, however, that focusing solely on larger firms does not change our qualitative results.

Note that instead of making an ad-hoc assumption that one reference group matters more than another, we control for status in both reference groups and then let the data speak for themselves. Of course, it remains impossible to control for status in all possible reference groups: for example, in this study, we ignore other potential reference groups, such as, the same gender group, the same-hiring-year cohort, workers with the same rank, etc. We pursue the study of these reference groups in separate papers.

3.3. Status

We measure status by relative wage. One possible measure of relative wage is the deviation from the mean, i.e., $w_i - \bar{w}$ where \bar{w} is the average wage in a reference group. Other possible measures include the relative ranking of wage, or the value of the cumulative density function (CDF) of wage, where 0 is the lowest and 1 is the highest. Alternatively, following the tradition in sociological theory (see e.g. Sørensen 1979 and Jasso 2001), we can define status as follows:

$$\text{Status} = \ln\left(\frac{N+1}{N+1-n}\right) = \ln\left(\frac{1}{1-\frac{n}{N+1}}\right) \approx \ln\left(\frac{1}{1-r}\right) \quad (1)$$

where N denotes the number of workers in the group, n denotes the raw rank (with 1 assigned to the lowest wage and N assigned to the largest wage), and r ($0 \leq r \leq 1$) denotes the relative rank of wage (= n/N).

We do not analyze which measure is most relevant. Instead, we show that our main results are robust to the measures of status used.¹⁸ For the most part of our analyses, however, we measure status as in (1) for two reasons: First, because the status measure in (1) is a convex function of relative ranking of wages (r), the ranking matters for status more at the top than at the bottom. For example, the change in status when the second-highest ranked person becomes the highest ranked person is greater than the change in status when the lowest ranked person becomes the second-lowest ranked person. Second, a high relative ranking in a large group is assigned a higher status than the same relative ranking in a smaller group. For example, for the highest-paid person, the status is $\ln((N+1)/(N+1-N)) = \ln(N+1)$ which increases with N (for more detail, see Jasso 2001).

The relative wage measures assume that workers know the wage distribution in the reference group, but *not* necessarily the exact wage of each co-worker. Given that the centralized wage bargaining system in Sweden includes a series of national, industry, and local level negotiations, we assume that workers know the wage distributions in their firms and in the acquiring/acquired firm. Later, we also use

¹⁸ For more details on different measures of status and underlying theories in psychology, see Brown et. al. (2007).

alternative measures of status such as deviation from the mean, where workers only need to know the average wage in a reference group, and our results do not change.

3.4. *Expected Change in Status*

As discussed above, our identification is based on changes in status during M&As. Figure 2 shows that M&As lead to significant changes in workers' status.

[Figure 2 here]

Because acquired firms tend to be much smaller than acquiring firms, workers in acquired firms experience larger average changes in status. Specifically, for an average worker in an acquiring firm, an M&A causes a 2% change in status within firm and a 3% change in status within occupation. However, for an average worker in an acquired firm, an M&A causes 14% and 20% changes in status within firm and within occupation, respectively. Figure 2 shows that these changes are almost twice the usual changes in status in the absence of an M&A.

Despite large changes in status during M&As, using *actual* changes in status has several potential problems. First, as Figure 2 shows, status can change even without an M&A, for example, due to a change in one's own absolute income. Second, we don't observe the change in status of those who quit during an M&A. Therefore, using actual changes for those who remain after an M&A is subject to a potential selection bias. Third, actual change in status can be correlated with other unexpected structural changes during an M&A.

Therefore, we focus on *expected* post-merger status as measured by status with respect to all the workers in two merging companies combined, just before the merger. We also define expected change in status by the difference between expected post-merger status and actual pre-merger status. Table 2 provides examples showing how we compute expected post-merger relative wages and status.

[Table 2 here]

Since we do not use actual post-merger wages in constructing these variables, expected change in status is due entirely to changes in firm boundary, and not to wage change or to any structural changes during an M&A. Also, since we can measure expected changes in status for everyone before the M&A, the potential selection bias problem can be avoided.

Thus, controlling for pre-merger status and absolute income, we will primarily focus on how expected changes in status (or equivalently expected post-merger status) affect workers' turnover rates

after M&As. Alternatively, we will use expected change in status as an instrument for actual change in status.

Table 3 shows basic summary statistics for status variables.

[Table 3 here]

Not surprisingly, the correlation between the status variables and wage is very high. Therefore, it will be difficult to distinguish the effect of absolute wage and pre-merger status (or relative wage), which is a part of our criticism of the previous studies. However, the correlation between change in status and wage is very low, which is consistent with our assumption that changes in status during M&As are exogenous.

4. Status and Turnover

4.1. Expected Change in Status and Turnover

In this section, we infer workers' preference for status from their observed turnover behavior. In particular, we are interested in the effects of expected changes in status within occupation ($E[\Delta status_occup]$) and expected changes in status within firm ($E[\Delta status_firm]$). More specifically, we estimate the following probit regression.

$$T_{ijt} = \Phi(\alpha_1 E[\Delta Status_occup_{ijt}] + \alpha_2 E[\Delta Status_firm_{ijt}] + \alpha_3 Status_firm_{ijt-1} + \alpha_4 Status_occup_{ijt-1} + \alpha_5 Wage_{ijt-1} + \alpha_6 Acquired_{jt} + X'_{ijt-1} \cdot \gamma + Z'_{jt} \cdot \phi + \delta_t) \quad (2)$$

where $T_{ijt} = 1$ if worker i from firm j quits within two years¹⁹ after the M&A at year t , and $= 0$ otherwise. $Acquired_{jt}$ is a dummy variable for workers from acquired firms. X_{ijt-1} is a vector of individual characteristics at year $t-1$ that includes age, age squared, and a set of dummy variables for gender, part time, rank, occupation, and region²⁰. Z_{jt} is a vector of firm characteristics that include the ratio of firm size between worker i 's firm and the other merging firm, post-merger (combined) firm size, the ratio of before- and after-merger firm sizes, the ratio of before- and after-merger occupation sizes, the proportion of workers who move to other plants in different regional codes, and industry dummy variables. δ_t is a

¹⁹ We focus on instances of turnover within two years after the M&A. However, even when we study only the turnover immediately after the M&A, the qualitative results do not change.

²⁰ Education is not controlled for because data are missing for many workers, especially in the 1970s. Controlling for education for M&As in the 1980s, however, does not change the results.

time dummy variable for the year of the M&A. To allow for possible correlation of residuals among workers involved in the same M&A, we also adjust standard errors for clustering within each M&A case.

Since it is generally difficult for firms to fire workers in Sweden, at first we treat all instances of turnover as quits. Later, we attempt to distinguish quits and layoffs and show that the results remain robust.

[Table 4 here]

In Table 4 column [1], we control only for status within the firm and its expected change, and find that the expected change in status within a firm has no significant effect on worker turnover. However, column [2] shows that the expected change in status within an occupation has a significant negative effect on turnover probability. These results do not change when we control for both the expected changes in status within firm and within occupation, as shown in column [3].

This analysis yields at least three noteworthy findings. First, an expected increase in status within an occupation ($E[\Delta status_occup]$) decreases turnover probability. The estimates from column [3] indicate that a one standard deviation increase in status within occupation reduces turnover probability by 12%. This finding suggests that status within occupation strictly increases workers' utility.

Second, an expected increase in status within a firm ($E[\Delta status_firm]$) has no significant effect on workers' turnovers. This finding is consistent with Telly, French, and Scott (1971) and Dittrich and Carrell (1979), and suggests that workers mostly care about their local status among co-workers in the same occupation, but do not necessarily compare their wages with workers in other occupations in the same firm.

Third, note that preference for status in one reference group does not generalize to preference for status in other reference group. In other words, the lack of preference for status in one reference group does not imply a lack of preference for status in other reference groups. Therefore, without knowing which reference group is most relevant to a worker's certain behavior ex ante, it is imperative for an empirical study to control for status in multiple reference groups. Yet, as far as we know, this paper is the first quantitative analysis to do that.

Another interesting finding is that workers who already had higher status within occupation before the merger are less likely to quit. As we discussed before, this finding does not necessarily imply preference for status. For example, workers with higher status within occupation are likely those who have been successful in their occupations, possibly due to a good match quality, and thus are less likely to quit.

4.2. Actual Change in Status and Turnover

In the previous section, we implicitly assumed that workers make their turnover decisions based on their expected changes in status before the actual merger takes place. However, workers may not correctly predict their change in status or they may decide whether to quit after observing actual changes in status and wages. Thus, in Table 5, we estimate the effect of actual changes in wages as well as the effect of actual changes in status both within occupation and within firm. In all other respects, the specification of the regression is the same as in Table 4.

[Table 5 here]

However, those who quit during the M&A process are omitted because we don't observe actual changes in status and wages for them. Thus, in Table 5, columns [1] and [2], we control for the potential selection bias using the Heckman two-step procedure. The first-stage selection regression includes all the same control variables except that expected changes in status are used instead of actual changes in status. Note that the qualitative results do not change from Table 4, column [3].

Furthermore, using these estimates, we can value a one standard deviation increase in status within occupation as being equivalent to an increase in monthly wage of 216.15 Kronor, or 6.9%.

In columns [3] and [4], we again control for both actual changes in wages and actual changes in status. However, instead of using a Heckman 2-step estimation, we use expected change in status as an instrumental variable for actual change in status. Note that unlike the Heckman 2-step procedure, this approach does not require specific distributional assumptions. Columns [3] and [4] show that the instrumental variable approach yields the same qualitative results.

4.3. Structural Changes during M&As

One obvious concern for our approach is that changes in status can be correlated with other structural changes during M&As. For example, a manager in a small company who had high status within occupation may experience a decrease in status after his/her company is acquired by a larger company that has more managers with higher wages. At the same time, the manager from the small acquired company may get fired due to possible redundancy. But in our estimations, we may conclude incorrectly that the manager has left due to the decrease in his/her status within occupation.

To address these concerns, we first distinguish voluntary quits and involuntary layoffs. Then, we control for workers' pre-merger status in a smaller firm or in an acquired firm.

■ *Quits vs. Layoffs*

First, following previous studies (e.g. Jacobson, et. al.1993 and Galizzi and Lang 1998), we define an instance of turnover as involuntary and exclude it if the (combined) size of the merged firms decreases by more than 10%. Table 6 column [1] shows that the qualitative results do not change.

Second, unlike in most previous studies, we can observe a worker's wages in a new firm after he or she has quit the merged firm. Thus, we define an instance of turnover as involuntary and exclude it if the workers' real wage falls after the turnovers. Table 6 column [2] shows that the qualitative results still do not change.

Finally, in column [3], we define turnovers as involuntary if the workers' real wage growth after the turnover is smaller than the average growth rate of remaining workers in the previous firm. The qualitative results remain the same.

Even though the qualitative results remain the same, the statistical significance decreases slightly in columns [2] and [3]. One possible reason is that too many instances of turnover are classified as involuntary and excluded, since more than 44% of the instances of turnover are classified as involuntary under these definitions. Given the general difficulty of firing workers in Sweden, this definition seems to overestimate the amount of involuntary turnover.

[Table 6 here]

As in most studies on turnover, it is impossible to make a clear distinction between layoffs and quits. However, the fact that our results are largely robust under various definitions of quits suggests that our findings are not driven by involuntary layoffs.

■ *Status in Small, Acquired Firms*

To control for structural changes such as layoffs of high status workers (e.g. managers) in smaller or acquired firms, in Table 7 we control for interactions (i) between pre-merger status and acquired dummy, (ii) between pre-merger status and firm size ratio, and (iii) between pre-merger status and job-rank. Recall that the firm size ratio measures the ratio of the other merging firm's size to a worker's firm size. Thus, a bigger firm size ratio indicates a merger with a relatively larger firm.

[Table 7 here]

For all cases of turnover, columns [1]-[4] show that increase in status within occupations still has significant negative effect on turnovers, even after controlling for all these interaction terms.

■ *Other Structural Changes*

M&As can change various aspects of firms, and the acquired dummy and the firm size ratio may not capture all the other structural changes that might be correlated with changes in status. While it is impossible to control for all other unobserved structural changes during an M&A, we can control for various differences between two merging firms. If the structural changes during and after the M&A are largely determined by the way two firms differ before the M&A, then controlling for distance measures between the two firms should capture some of the unobserved structural changes occurring with an M&A.

The distance between two firms is measured by subtracting the uncentered correlation from one, as proposed by Jaffe (1986). For example, to measure the distance in occupation structure, we construct a vector of occupation shares for an acquired firm, $f_i = (s_{1i}, s_{2i}, \dots, s_{54i})$ where s_{ki} is occupation k 's share in firm i (in terms of number of workers)²¹. We construct the same vector for its acquiring firm j , f_j . Then, the distance in occupation structure is measured by $1 - \frac{f_i f_j'}{(f_i f_i')(f_j f_j')^{\frac{1}{2}}}$. This distance measure is zero if the composition of occupation is the same between the two firms, and is one if two firms do not share any occupation.

Table 7 column [5] shows that controlling for distance measures in occupation, education, county, gender, age, and rank does not change the qualitative results. That is, the expected change in status within occupation has negative and significant effect on turnover probability.²²

Finally, we run the same regression controlling for all the interaction terms and distance measures but for voluntary turnover only, as defined in Table 6 column [1]²³. The results remain robust.

4.4. Robustness

■ *Alternative Measures of Status*

So far, we have measured workers' status within a reference group by relative wage as in equation (1), in the manner stipulated by Jasso (2001), building on the work of Goode (1978) and Sorensen (1979). However, relative wage can be measured in various ways. First, we measure status by the relative ranking itself ($= n/N$ according to the notation in equation (1)), where 0 is the lowest and 1 the highest. Table 8 column [1] shows that the qualitative results do not change.

²¹ We used 54 different occupations, 44 different industries, 24 different counties, 9 different education codes, 6 different age groups (11-20, 21-30, etc.), 7 rank codes, 2 gender codes, and 2 part time codes.

²² As we show in another paper, however, many of these distance measures significantly affect worker turnover rates. In particular, difference in education, county, and rank compositions increases turnover rates, suggesting that, for example, workers with different education levels are substitutable.

²³ Using other definitions of voluntary turnover does not change the results.

We can also measure status by the deviation of wages from the mean, $(w_i - \bar{w})$. Table 8 column [2] shows that expected change in status within occupation still has significant negative effects on turnover.

[Table 8 here]

When we compute expected change in status as in Table 2, an implicit assumption is that workers expect all those working prior to the M&A to stay after the M&A, or that workers will leave firms randomly, independent of change in status. However, rational workers will understand workers' turnover patterns as illustrated in Table 4. These workers can predict their expected change in status based on rational expectations of who will leave and who will stay.

Thus, we re-compute the *rational* expected change in status assuming that workers can correctly predict who will leave and who will stay after the M&A. For each worker who actually leaves the firm, we compute his or her expected change in status based on the worker's expected post-merger status if he or she had stayed, assuming all the others would not change their turnover decisions²⁴.

Table 8 column [3] shows that there are no changes in the qualitative results when we use rational expectations.

■ *Controlling for Tenure*

It is well-known that firm tenure has a significant effect on turnover decisions (see, e.g., Farber 1999). Unfortunately, the Swedish data do not contain tenure information. However, given the long span of the data, we can determine workers' tenure if they enter a firm after 1970. In particular, we can observe tenure in this manner for over 85% of workers between 1986 and 1988. Thus, we repeat our analysis of firm turnovers using the sub-sample of M&As occurring between 1986 and 1988, adding tenure and tenure-squared as control variables.

Furthermore, since the centralized wage bargaining system in Sweden started to break down after 1983, use of this sub-sample is also a test of whether the centralized wage bargaining system in the 1970s had any effect on our qualitative results.

Table 8 column [4] shows that using the original status measure in equation (1), controlling for tenure using this sub-sample does not change the qualitative results, suggesting that the lack of control for tenure or the centralized wage bargaining system in the 1970s is not responsible for our results.

²⁴ Workers' (rational) expected post-merger status can be different from actual post-merger status for two reasons. First, the expected post-merger status is computed based on the rankings of wages before the merger, not the actual post-merger wages. Second, workers newly hired during mergers are not accounted for.

■ *Hypothetical M&As*

If two firms are *not* merging, then workers have little reason to care about their status compared to workers in other firms. Therefore, as a specification test, we repeat the same analysis as in Table 4 for hypothetical M&As that have not actually happened.

More specifically, to control for unobserved firm characteristics, we focus on each pair of firms involved in an actual M&A, and look at their data five years before the actual M&A. Because workers could not have anticipated an M&A with a specific firm five years later, they would not have cared about status compared with workers in the other firm. In Table 8 column [5], we repeat the same analysis as in Table 4 column [3], but for hypothetical M&As five years before each actual M&A. According to our specifications and interpretation, the expected changes in status should *not* be significant, within either occupation or firm, in these hypothetical M&As. Indeed, Table 8 column [5] shows that the expected (hypothetical) changes in status are not significant either within occupation or within firm.

5. Preference for Status: Social Rewards vs. Pecuniary Rewards

The previous section shows that workers positively value their status, or relative wage, compared with co-workers in the same occupation, controlling for their absolute wage. While the preference for status can arise due to the social value of status, such as prestige or respect, many economists have also argued that people may care about their status, even after controlling for their current absolute income, because status has instrumental value for future income.

In this section, we briefly survey different theories of status, and analyze whether the observed preference for status arises from status' social value or its pecuniary value.

5.1 Theories of Status

■ *Status and Social Rewards*

Concerns about status can arise if status enters directly into a person's utility function, called *social preference*. For example, social preference can take the following form:

$$U_i^S = U(w_i, s_i) \tag{3}$$

where w_i is worker i 's absolute income, and $s_i = s(w_1, w_2, \dots, w_n)$ is worker i 's status within a reference group of n workers. Note that s_i is a function of others' incomes in the reference group²⁵.

Sociology provides various theories on how status can enter into social preference. In *social status* theory, status within a particular group can signify prestige, honor, esteem, or respect. (see, e.g., Goode 1978, Sorensen 1979, Jasso 2001) Here members of the group positively value their own status.

In *equity* theory, lower status can represent an individual's perceived inequity in terms of monetary compensation. Thus, holding everything else constant, a lower status decreases the individual's utility. In particular, when a person attempts to restore equity in other dimensions (e.g. by shirking), the individual's perception of status affects his or her behavior and welfare. (Adams 1963, 1965, see also Akerlof and Yellen 1990)

Similarly, in *relative deprivation* theory (Stouffer et al. 1949) or social exchange theory (Blau 1955, Homans 1961), the utility of an individual decreases when his or her status is lower than the status of comparable others. Frank (1985) and Fershtman and Weiss (1998) also provide evolutionary justification for such preferences²⁶.

■ *Status and Pecuniary Rewards*

In contrast to sociological theories, standard economics models have shown that concerns about status can be explained without relying on the concepts of social rewards or social preference. For example, people may positively value status because it serves as a signal of the worker's unobserved quality, especially when the market only observes the worker's status, not the absolute wage. Then, a higher status can signal higher quality and lead to a larger future income (see, e.g., Podolny 2005).

Also, in a tournament of promotions, a worker may positively value status because future expected payoffs increase with higher status, or relative ranking. (e.g., Lazear and Rosen 1981) Consequently, a worker will positively value status not because of its own social rewards, but because of its instrumental value for his/her future pecuniary rewards. Weber (1922) also suggests that the value of status arises partly because high status provides access to better resources and opportunities.

Such pecuniary preference for status can be summarized with the following utility function:

$$U_i^P = U(w_{it}, w_{it+1}(s_{it})) \quad (4)$$

²⁵ Jasso (2001) discusses how the different sociological theories mentioned above imply different functional forms of $s(\cdot)$. However, identifying the functional form of $s(\cdot)$ and distinguishing different theories within the sociology literature is outside the scope of this paper.

²⁶ See Akerlof and Yellen (1990) for a more detailed summary.

where t is a time index. Note that unlike the social preference in (3), if we hold all the pecuniary benefits (w_{it}, w_{it+1}) constant, utility does not depend on status.

■ *Social vs. Pecuniary Rewards*

To investigate the underlying preference, we examine how exogenous changes in status affect wage growth rates after an M&A. Suppose that status has positive social value, independent of pecuniary benefits. If a worker's status decreases exogenously, the firm should compensate the worker with more pecuniary benefits, (i.e. higher wages), in order to keep him or her from quitting. Alternatively, if his or her status increases, a worker would be willing to accept slower wage growth.

Suppose, however, that status lacks social value, and has solely a instrumental/pecuniary value for a worker's future wages. If a worker's status increases exogenously, then his/her future wages should increase. Obviously, if status has a negative social or instrumental value, wages should move in the opposite direction. Then, combining these considerations with our discussion of turnover, we can distinguish different sets of theories as follows:

[Table 9 here]

Note that it is theoretically possible that workers may value their status in a particular reference group *negatively*. For example, if workers value the status of their reference group compared with other groups (called group status) rather than their individual status within the reference group, workers would prefer working with more productive and highly paid co-workers. Also, if workers can learn or signal high productivity by working with more productive and highly paid co-workers, or if high status implies a dead end with no further promotion opportunities, they would prefer, holding absolute income constant, a relatively lower status within the group²⁷.

An important caveat in the study of wage growth, however, is that we only observe wage growth for those who remain after M&As. This can lead to a potential selection bias. In addition, an individual's wage growth after an M&A may depend on other concurrent structural changes in productivity and organization. To address these issues, we use a Heckman two-step estimation to address potential selection bias, and we control for the pre-existing difference between two merging firms to capture potential structural changes after an M&A.

5.2. Wage Growth and Status

²⁷ Frank (1985) calls such effects as *halo effects*.

As we discussed and summarized in Table 9, studying the wage growth rates after an M&A can potentially distinguish whether the value of status comes from its social value (such as prestige, equity, etc.) or from its instrumental/pecuniary value for future monetary benefits (through signaling, learning, etc.).

More specifically, we estimate the following wage regression:

$$\begin{aligned}
 WageG_{ijt} = & \beta_1 Acquired_{jt} + \beta_2 Status_firm_{ijt-1} + \beta_3 E[\Delta Status_firm_{ijt}] + \beta_4 Status_occup_{ijt-1} \\
 & + \beta_5 E[\Delta Status_occup_{ijt}] + \beta_6 Wage_{ijt-1} + X'_{ijt-1} \cdot \theta + Z'_{jt} \cdot \xi + \delta_t + \varepsilon_{ijt}
 \end{aligned}
 \tag{5}$$

where $WageG_{ijt}$ is the average annual wage growth rate over the period from a year before the M&A to two years after it. $Acquired_{jt} = 1$ if firm j is the acquired company, and $= 0$ otherwise. X_{ijt-1} is a vector of individual characteristics at year $t-1$ that includes age, age squared, and a set of dummy variables for gender, part time, occupation, and region. Z_{jt} is a vector of firm characteristics, including the ratio of firm size between worker i 's firm and the other merging firm, post-merger (combined) firm size, ratio of before- and after-merger firm sizes, the ratio of before- and after-merger occupation sizes, and industry dummy variables. δ_t is a time dummy variable for the year of the M&A. Again, to allow for possible correlation of residuals among workers involved in the same M&A, we adjust standard errors for clustering within each M&A case.

[Table 10 here]

Table 10 column [1] shows that when a worker's status within occupation increases, the worker's wage growth rate decreases. For example, for an average worker, a one standard deviation increase in status within occupation *reduces* annual wage growth rate from 6.37% to 4.6%. Recall that the turnover analyses in the previous section shows that workers prefer high status within occupations. However, Table 10 shows that high status within occupation does *not* bring larger pecuniary rewards. This finding suggests that status within occupation provides positive social rewards independent of pecuniary benefits. Therefore, those workers whose status has *decreased* exogenously during an M&A are being compensated by faster wage growth rates.

Interestingly, we also find that when a worker's status within firm increases, the worker's wage growth rate increases. Despite this finding, the turnover analyses show that workers do not prefer high status within firm. In fact, most of our turnover analyses show that an increase in status within firm has

positive effect on turnovers (or negative effect on utility), though the effect is statistically insignificant. As discussed in Table 9, these findings suggest that high status within firm may provide negative utility because of the reduced status of the firm compared with other firms in the industry, not because of the lower expected wage growth.

In Table 10 column [2], we also estimate the Heckman two-step regression. Since the wage growth rate is observable only for those who didn't quit within two years after an M&A, there are potential concerns about selection bias. Thus, we first estimate a selection equation that includes additional control variables such as the ratio of regional change, the ratio of firm size change, and the ratio of occupation size change. We then correct for the selection bias. Column [2] shows, however, no qualitative changes in the results.

As before, one caveat for our interpretation is that M&As can bring about structural changes in firms that can affect wage growth rates. If such a structural change is correlated with changes in status, our estimates may be biased. Thus, we again control for various distance measures between the two merging firms as a proxy for unobserved structural changes. However, Table 10, column [3] shows little change.

These findings are important for several reasons. First, to our knowledge, this is the first quantitative evidence to show that workers' preference for status varies with their reference groups or social contexts. In comparison with co-workers in the same occupation where skills are substitutable, workers positively value their individual status within the group for its social rewards, such as prestige, respect, or equity. However, in comparison with workers in other occupations in the same firm, workers do not care about their individual status within the firm. If anything, they seem to care more about the status of the firm as a whole with respect to other firms.

Second, this is one of the first papers based on large field data that formally attempts to distinguish between the social and the pecuniary rewards of status. Even though experimental studies have explicitly controlled to eliminate the pecuniary aspects of status, it has been largely unknown whether the observed preference for status in the actual workplace is driven by its social rewards, or by pecuniary benefits.

Third, our findings suggest the possible existence of a market for status, where workers with different tastes for status can trade their status for larger absolute wages. Though we don't directly observe such trades among workers, their willingness to pay for higher status strongly suggests the possibility of such a market. These findings provide empirical support for the existence of a market for status as theorized by Frank (1985) or Becker et al. (2005).

6. Conclusion

Using M&As as quasi-experiments, our paper tests (i) whether people care about their status at all; (ii) whether they care about status for reasons of social rewards or rather for reasons of pecuniary rewards; and (iii) whether reference groups affect workers' preference for status.

The results provide strong evidence that workers care about their status in the workplace. In the case of M&As, workers compare their present status with their expected status in determining whether to exit or stay. However, workers do not care about their status in all reference groups. While workers positively value their status relative to co-workers in the same occupation, they do not value (or possibly negatively value) their status relative to workers in other occupations in the same firm. These results points to the importance of understanding the relevance of reference groups.

We also show that workers' preference for status within occupation is not driven by pecuniary value of status, because an increase in status within occupation during an M&A leads to *lower* (not higher) wage growth rates after the M&A. This finding is more consistent with the hypothesis that workers are willing to give up (or be less aggressive in pursuing) pecuniary payoffs in exchange for additional social rewards from increased status. While theorists have made the distinction between the social value and the pecuniary values of status (e.g. Sobel 2005), there has been little quantitative evidence.²⁸ This result also suggests the existence of a 'market for status' where status can be traded for pecuniary rewards.

This study is unprecedented in scope and detail, covering more than 180,000 individual workers in more than 800 firms. We hope that our analysis of the results will provide a solid empirical foundation for theoretical studies on status. The importance and the complexity of interactions among status in multiple reference groups have not been formally captured in theoretical models, and constitute an important topic for future research.

Our results also have direct implications for human resources practices in cases such as M&As, as they suggest how firms may avoid losing key personnel during the uncertain period of the merger: workers that lose out in one dimension may be compensated in another. If the employer can differentiate between more- and less-important reference groups, workers' quits and diminished motivation can be mitigated.

²⁸ Zizzo and Oswald (2001) provides the related experimental evidence.

Appendix Three-Digit Occupation Codes

<u>BNT</u> <u>Family</u>	<u>BNT</u> <u>Code</u>	Levels	
0			Administrative work
	020	7	General analytical work
	025	6	Secretarial work, typing and translation
	060	6	Administrative efficiency improvement and development
	070	6	Applied data processing, systems analysis and programming
	075	7	Applied data processing operation
	076	4	Key punching
1			Production Management
	100	4	Administration of local plants and branches
	110	5	Management of production, transportation and maintenance work
	120	5	Work supervision within production, repairs, transportation and maintenance work
	140	5	Work supervision within building and construction
	160	4	Administration, production and work supervision within forestry, log floating and timber scaling
2			Research and Development
	200	6	Mathematical work and calculation methodology
	210	7	Laboratory work
3			Construction and Design
	310	7	Mechanical and electrical design engineering
	320	6	Construction and construction programming
	330	6	Architectural work
	350	7	Design, drawing and decoration
	380	4	Photography
	381	2	Sound technology
4			Technical Methodology, Planning, Control, Service and Industrial Preventive Health Care
	400	6	Production engineering
	410	7	Production planning
	415	6	Traffic and transportation planning
	440	7	Quality control
	470	6	Technical service
	480	5	Industrial, preventive health care, fire protection, security, industrial civil defense
5			Communications, Library and Archival Work
	550	5	Information work
	560	5	Editorial work – publishing
	570	4	Editorial work – technical information
	590	6	Library, archives and documentation

6			Personnel Work
	600	7	Personnel service
	620	6	The planning of education, training and teaching
	640	4	Medical care within industries
7			General Services
	775	3	Restaurant work
8			Business and Trade
	800	7	Marketing and sales
	815	4	Sales within stores and department stores
	825	4	Travel agency work
	830	4	Sales at exhibitions, spare part depots etc.
	835	3	Customer service
	840	5	Tender calculation
	850	5	Order processing
	855	4	The internal processing of customer requests
	860	5	Advertising
	870	7	Buying
	880	6	Management of inventory and sales
	890	6	Shipping and freight services
9			Financial Work and Office Services
	900	7	Financial administration
	920	6	Management of housing and real estate
	940	6	Auditing
	970	4	Telephone work
	985	6	Office services
	986	1	Chauffeuring

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Table 1 Summary Statistics

	Combined		Acquirer		Acquired	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
firm size	492.18	(902.62)	433.76	(851.85)	58.41	(120.43)
ratio (=Acqed/Acqer)	0.61	(2.02)				
# of observations	443		443		443	

(a)

	Combined		Acquirer		Acquired	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
age	40.231	(11.464)	40.291	(11.452)	39.553	(11.584)
rank	5.471	(1.247)	5.463	(1.252)	5.562	(1.182)
female	0.238		0.238		0.240	
wage	3161.301	(1255.695)	3172.104	(1260.394)	3039.487	(1194.732)
turnover1	0.124		0.121		0.155	
turnover3	0.331		0.326		0.392	
# of observations	186679		171473		15206	

(b)

Note: Standard deviations are in parentheses. ‘firm size’ is measured by the number of white-collar workers in the company. ‘wage’ is the monthly real wage in 1970 Kronor. ‘turnover1’ is a dummy variable for those who quit within one year after a merger. ‘turnover3’ is a dummy variable for those who quit within three years.

Table 2 Computation of Expected Status: An Example

Firm	Occupation	wage	Pre-Merger		Expected Post-Merger	
			ranking within occupation	ranking within firm	ranking within occupation	ranking within firm
Acquiring	310	1600	3/3 (1.39)	4/5 (1.10)	5/5 (1.79)	8/9 (1.61)
		1500	2/3 (0.69)	3/5 (0.69)	4/5 (1.10)	6/9 (0.92)
		1400	1/3 (0.29)	2/5 (0.41)	2/5 (0.41)	4/9 (0.51)
	800	1700	2/2 (1.10)	5/5 (1.79)	4/4 (1.61)	9/9 (2.30)
		1300	1/2 (0.41)	1/5 (0.18)	2/4 (0.51)	3/9 (0.36)
Acquired	310	1450	2/2 (1.10)	3/4 (0.92)	3/5 (0.69)	5/9 (0.69)
		1200	1/2 (0.41)	2/4 (0.51)	1/5 (0.18)	2/9 (0.22)
	800	1550	2/2 (1.10)	4/4 (1.61)	3/4 (0.92)	7/9 (1.20)
		1100	1/2 (0.41)	1/4 (0.22)	1/4 (0.22)	1/9 (0.11)

Note: This table shows how we compute expected post-merger status based on wages before the merger. Ranking shows the relative ranking ($=n/N$ according to the notations in from equation (3)). Our status measure, equation (3), is in the parenthesis. For example, a worker with wage 1600 in the acquiring firm occupation 310 has status 1.39 within occupation and 1.10 within firm before the merger. However, if two firms merge, holding wage constant, the worker's status after the merger will become 1.79 within occupation and 1.61 within firm.

Table 3 Summary Statistics for Status Measures

	Combined		Acquirer		Acquired	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
status_firm	0.989	(0.961)	0.989	(0.966)	0.986	(0.903)
status_occup	0.969	(0.909)	0.971	(0.914)	0.946	(0.847)
abs(E[Δ status_firm])	0.030	(0.080)	0.020	(0.046)	0.147	(0.198)
abs(E[Δ status_occup])	0.045	(0.112)	0.031	(0.071)	0.203	(0.265)
# of observations	186679		171473		15206	

Mean and Standard Deviation

	Wage	Status_f	E[Δ status_firm]	Status_fo	E[Δ status_occup]
Wage	1				
status_firm	0.9185	1			
E[Δ status_firm]	0.1025	0.0241	1		
status_occup	0.6822	0.7466	0.0074	1	
E[Δ status_occup]	0.1022	0.0697	0.5334	0.0162	1

(b) Correlation Matrix

Note: Standard deviations are in parentheses. ‘status_firm’ measures status within firm right before a merger, following equation (3). ‘abs(E[Δ status_firm])’ measures the absolute value of the expected change in status within firm. Similarly, ‘status_occup’ measures status within an occupation inside a firm right before a merger.

Table 4 Expected Change in Status and Turnover: Probit Analysis
(dependent variable = 1 if quit the firm within two years after M&A, = 0 otherwise)

	[1]	[2]	[3]
E[Change in Status_occup]		-0.090 (0.053)*	-0.118 (0.048)**
E[Change in Status_firm]	0.000 (0.104)		0.085 (0.109)
Status_occup		-0.063 (0.019)***	-0.074 (0.018)***
Status_firm	-0.013 (0.045)		0.047 (0.045)
Wage (1K)	-0.005 (0.040)	0.025 (0.022)	-0.001 (0.040)
Acquired	0.004 (0.060)	0.004 (0.060)	0.006 (0.060)
Age	-0.184 (0.009)***	-0.182 (0.009)***	-0.182 (0.009)***
Age-squared	0.002 (0.000)***	0.002 (0.000)***	0.002 (0.000)***
Female	-0.085 (0.026)***	-0.081 (0.026)***	-0.080 (0.026)***
Part Time	0.297 (0.047)***	0.289 (0.044)***	0.278 (0.045)***
Firm Size Ratio	0.005 (0.002)**	0.005 (0.002)**	0.005 (0.002)**
Firm Size (1K)	-0.148 (0.079)*	-0.150 (0.080)*	-0.148 (0.079)*
Firm Size-squared	0.009 (0.009)	0.009 (0.009)	0.009 (0.009)
Firm Size Change	-0.023 (0.030)	-0.026 (0.030)	-0.022 (0.030)
Occupation Size Change	-2.320 (0.221)***	-2.322 (0.221)***	-2.321 (0.221)***
Location Change	0.349 (0.139)**	0.348 (0.139)**	0.347 (0.139)**
Observations	186679	186679	186679
Pseudo R-squared	0.1395	0.1400	0.1400

Standard errors are adjusted for clustering in M&As.

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Each regression includes rank dummies (6), occupation dummies (67), industry dummies (33), year dummies (18), and region dummies (24). ‘firm size ratio’ measures the ratio of worker i’s firm size and the other merging firm’s size. ‘firm size’ measures the combined firm size right after the merger. ‘firm size change’ measures the ratio of actual post-merger firm size to the sum of pre-merger firm sizes. ‘occupation size change’ measures the ratio of occupation size in the post-merger firm to the sum of pre-merger occupation sizes. ‘location change’ measures the share of the number of workers who move to different regional code after the merger.

Table 5 Actual Change of Status and Turnover: Probit Analysis
(dependent variable = 1 if quit the firm within two years after M&A, = 0 otherwise)

	Heckman 2-step		IV-Probit	
	[1]	[2]	[3]	[4]
Change in Status_occup	-0.062 (0.018)***	-0.052 (0.018)***	-0.157 (0.074)**	-0.163 (0.074)**
Change in Status_firm	-0.073 (0.040)*	0.114 (0.082)	0.103 (0.160)	0.113 (0.160)
Status_occup	-0.059 (0.023)**	-0.057 (0.023)**	-0.057 (0.026)**	-0.059 (0.025)**
Status_firm	0.000 (0.055)	0.043 (0.059)	0.009 (0.064)	0.024 (0.065)
Wage (1K)	0.022 (0.044)	-0.025 (0.051)	0.022 (0.052)	-0.008 (0.053)
Acquired	0.026 (0.072)	0.031 (0.072)	0.045 (0.075)	0.046 (0.075)
Age	-0.180 (0.013)***	-0.180 (0.014)***	-0.163 (0.010)***	-0.160 (0.010)***
Age-squared	0.002 (0.000)***	0.002 (0.000)***	0.002 (0.000)***	0.002 (0.000)***
Female	-0.098 (0.027)***	-0.104 (0.027)***	-0.089 (0.026)***	-0.101 (0.026)***
Part Time	0.284 (0.050)***	0.271 (0.050)***	0.255 (0.052)***	0.249 (0.052)***
Firm Size Ratio	0.006 (0.003)**	0.006 (0.003)**	0.007 (0.003)**	0.007 (0.003)**
Firm Size (1K)	-0.176 (0.090)*	-0.174 (0.090)*	-0.161 (0.094)*	-0.160 (0.094)*
Firm Size-squared	0.010 (0.011)	0.010 (0.011)	0.009 (0.011)	0.009 (0.011)
Firm Size Change	-0.000 (0.037)	-0.017 (0.038)	-0.013 (0.040)	-0.008 (0.040)
Occupation Size Change	-1.575 (0.695)**	-1.577 (0.702)**	-0.841 (0.372)**	-0.849 (0.375)**
Location Change	0.187 (0.165)	0.183 (0.167)	0.072 (0.117)	0.071 (0.117)
Change in Wage		-0.221 (0.074)***		-0.191 (0.034)***
Observations	186679	186679	161640	161640

Standard errors are adjusted for clustering in M&As.

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: In these regressions, the *actual* changes in status between right before and right after M&As are used, instead of expected changes. Each regression includes rank dummies, occupation dummies, industry dummies, year dummies, and region dummies. The selection regression in column [1] and [2] include all the same control variables except that the expected changes in status are used instead of the actual changes. In IV-probit estimation (column [3] and [4]), actual changes in status are instrumented by expected changes in status.

Table 6 Voluntary Quits

(dependent variable = 1 if quit the firm within two years after M&A, = 0 otherwise)

	[1]	[2]	[3]
Excluded if	firm size drop	wage drop	less wage growth
Change in Status_occup	-0.140 (0.050)***	-0.126 (0.065)*	-0.114 (0.065)*
Change in Status_firm	0.020 (0.126)	0.100 (0.138)	0.035 (0.146)
Status_occup	-0.085 (0.017)***	-0.082 (0.019)***	-0.087 (0.018)***
Status_firm	0.027 (0.049)	0.043 (0.050)	0.068 (0.045)
Observations	163953	158063	151157
Pseudo R-squared	0.1196	0.1637	0.1675

Standard errors are adjusted for clustering in M&As.

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: The independent variables are the same as those in column [3] in Table 4. The coefficients of other variables are not reported.

Table 7 Structural Changes During M&A

(dependent variable = 1 if quit the firm within two years after M&A, = 0 otherwise)

	All Turnovers					Voluntary
	[1]	[2]	[3]	[4]	[5]	[6]
E[Change in Status_occup]	-0.117 (0.048)**	-0.120 (0.048)**	-0.118 (0.048)**	-0.116 (0.048)**	-0.122 (0.046)***	-0.129 (0.047)***
E[Change in Status_firm]	0.083 (0.110)	0.086 (0.110)	0.085 (0.109)	0.079 (0.112)	0.084 (0.099)	0.045 (0.111)
Status_occup	-0.075 (0.018)***	-0.073 (0.018)***	-0.074 (0.018)***	-0.075 (0.018)***	-0.080 (0.018)***	-0.095 (0.018)***
Status_firm	0.048 (0.045)	0.047 (0.045)	0.048 (0.045)	0.050 (0.045)	0.065 (0.036)*	0.068 (0.041)*
Acquired	0.006 (0.060)	0.010 (0.060)	0.038 (0.153)	0.082 (0.298)	0.232 (0.277)	-0.079 (0.258)
Firm Size Ratio	0.006 (0.002)**	0.005 (0.002)**	0.005 (0.002)**	0.005 (0.002)**	0.004 (0.002)*	0.004 (0.002)**
Firm Size Ratio * Status_occup	0.000 (0.003)			0.001 (0.003)	0.001 (0.003)	0.003 (0.003)
Firm Size Ratio * Status_firm	-0.001 (0.003)			-0.002 (0.003)	-0.001 (0.003)	-0.002 (0.003)
Acquired * Status_occup		-0.020 (0.026)		-0.023 (0.028)	-0.028 (0.027)	-0.035 (0.031)
Acquired * Status_firm		0.016 (0.026)		0.009 (0.052)	0.003 (0.050)	0.048 (0.049)
Acquired * rank			-0.006 (0.022)	-0.011 (0.042)	-0.024 (0.039)	0.023 (0.036)
Distance Measures	no	no	no	no	yes	yes
Observations	186679	186679	186679	186679	186679	163953
Pseudo R-squared	0.1400	0.1400	0.1400	0.1400	0.1505	0.1333

Standard errors are adjusted for clustering in M&As.

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: The other independent variables are the same as those in column [3] in Table 4. The coefficients of other variables are not reported.

Table 8 Robustness

(dependent variable = 1 if quit the firm within two years after M&A, = 0 otherwise)

	Alternative Measures of Status			Control for Tenure	Hypothetical M&As
	wage ranking	mean deviation	rational		
	[1]	[2]	[3]	[4]	[5]
E[Change in Status_occup]	-0.469 (0.177)***	-0.254 (0.081)***	-0.494 (0.085)***	-0.184 (0.111)*	0.001 (0.084)
E[Change in Status_firm]	0.306 (0.395)	0.024 (0.226)	-0.157 (0.143)	0.198 (0.176)	0.043 (0.120)
Status_occup	-0.197 (0.065)***	-0.034 (0.031)	-0.146 (0.023)***	-0.077 (0.031)**	-0.068 (0.014)***
Status_firm	-0.089 (0.107)	-0.068 (0.152)	0.092 (0.041)**	0.048 (0.075)	0.048 (0.042)
Tenure				-0.035 (0.017)**	
Tenure-squared				0.003 (0.001)***	
Observations	186679	186679	167619	44578	70322
Pseudo R-squared	0.1399	0.1396	0.2377	0.1876	0.1179

Standard errors are adjusted for clustering in M&As.

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: The independent variables are the same as those in column [3] in Table 4. The coefficients of other variables are not reported.

Table 9 Predictions of Alternative Theories

Measure	Effect	Theory	$\frac{\partial(\text{prob. of turnover})}{\partial s_i}$	$\frac{\partial(\text{wage growth})}{\partial s_i}$
$s_i = \text{status}$	$\frac{\partial U_i}{\partial s_i} > 0$	Social Rewards (Prestige, Equity)	-	-
		Pecuniary Rewards (Signaling, Tournament)	-	+
	$\frac{\partial U_i}{\partial s_i} < 0$	Social Rewards (Group Status)	+	+
		Pecuniary Rewards (Dead-end, Learning)	+	-

Table 10 Status and Pay

	OLS	Heckman 2-step	
	[1]	[2]	[3]
Change in Status_occup	-0.020 (0.006)***	-0.020 (0.006)***	-0.020 (0.006)***
Change in Status_firm	0.042 (0.009)***	0.042 (0.009)***	0.044 (0.009)***
Status_occup	-0.020 (0.006)***	-0.009 (0.001)***	-0.009 (0.001)***
Status_firm	0.031 (0.005)***	0.031 (0.005)***	0.033 (0.005)***
Wage (1K)	-0.056 (0.005)***	-0.056 (0.005)***	-0.057 (0.005)***
Acquired	0.008 (0.006)	0.008 (0.005)	0.007 (0.005)
Age	-0.003 (0.001)**	-0.003 (0.001)*	-0.003 (0.001)*
Age-squared	-0.000 (0.000)*	-0.000 (0.000)*	-0.000 (0.000)*
Female	-0.049 (0.004)***	-0.049 (0.004)***	-0.049 (0.004)***
Part Time	0.084 (0.006)***	0.084 (0.006)***	0.083 (0.006)***
Firm Size Ratio	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Firm Size (1K)	-0.000 (0.004)	-0.000 (0.004)	0.002 (0.004)
Firm Size-squared	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Firm Size Change	0.010 (0.002)***	0.010 (0.002)***	0.010 (0.002)***
Occupation Size Change	-0.029 (0.011)**	-0.028 (0.011)**	-0.032 (0.011)***
Distance Measures	no	no	yes
Observations	124898	186679	186679

Standard errors are adjusted for clustering in M&As.

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Each regression includes age, gender, part time dummy, occupation dummy, firm size, industry dummy, year dummy, and region dummy. In OLS, expected changes in status are used. Heckman first-stage (selection) regression includes change in firm size, change in occupation size, and ratio of location change as well as all the same control variables in OLS. Also, the expected changes in status are used in the first-stage instead of actual changes.

Figure 1 **Number of M&A and Number of Workers Involved**

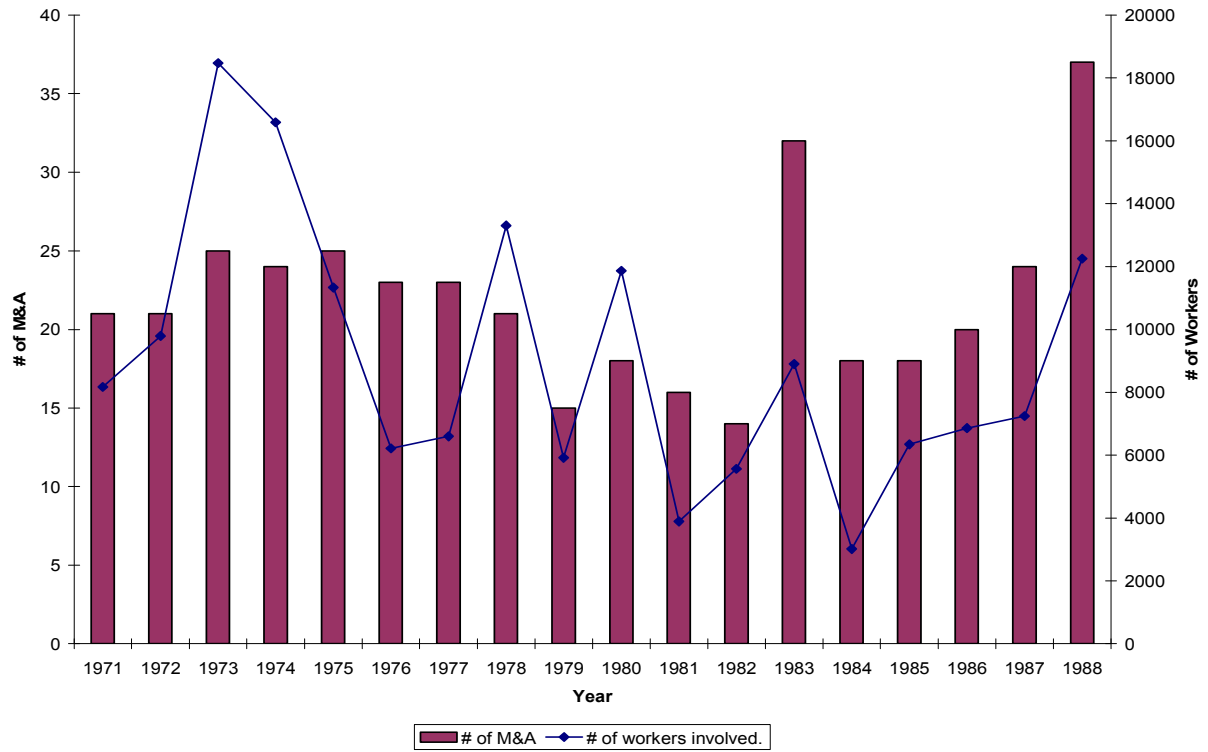
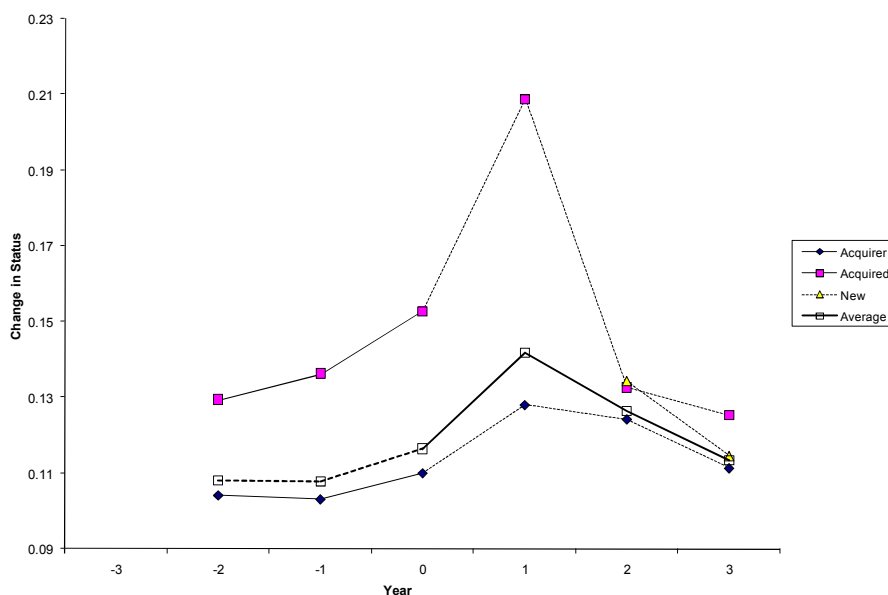
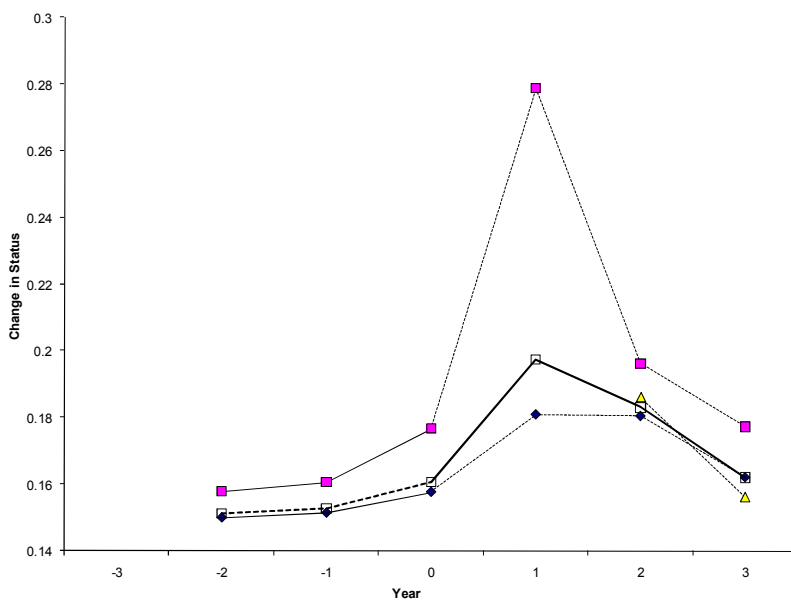


Figure 2 Changes in Status and M&A



(a) Change in Status within Firm



(b) Change in Status within Occupation

Note: “Change in Status” measures the *absolute* value of actual change in status (from the previous year) within firm or occupation. M&A take place between year 0 and year 1. The dotted lines after year 0 show the statistics of the *remaining* workers from acquirer or acquired firms and newly hired workers after M&A. “Average” before year 0 is the average among workers in acquirer and acquired firms. “Average” after year 0 is the average of all the workers in the merged firms.