

NBER WORKING PAPER SERIES

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A LOOK AT GROSS FLOWS IN THE LORS FILES

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Working Paper 13212
<http://www.nber.org/papers/w13212>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2007

Holmes acknowledges financial support from the National Science Foundation through Grant SES-0136842. The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis, the Federal Reserve System, or the National Bureau of Economic Research.

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NBER Working Paper No. 13212
July 2007
JEL No. J5

ABSTRACT

This paper examines the membership dynamics of union local organizations. The analysis links across time the reports labor organizations file as part of the Labor Organization Reporting System (LORS). Analogous to findings in the labor dynamics literature, we find substantial reallocation of membership across locals. While overall there is net decline, there is significant positive gross membership creation for some local organizations.

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1 Introduction

An important lesson learned in labor economics in recent years is that underneath *net* employment flows are interesting dynamics of *gross flows*. A particular industry in a particular region might experience overall net positive growth in employment. But when looking at the micro data for such an industry, like Davis and Haltiwanger (1992) and Dunne, Samuelson, and Roberts (1988) do, we find considerable heterogeneity across plants. While net growth might be positive overall, we still find many plants in the same narrowly defined industry and region declining in employment or shutting down, what they call *gross destruction* of employment. And in other industry and regions where the net growth is negative, we still find many plants growing in employment and much entry of new plants, *gross creation*. Gross creation and destruction tend to be much larger than the net flows. These findings have been influential; they have given rise to a research agenda to incorporate heterogeneity into models of industry employment, as laid out in Davis, Haltiwanger, and Schuh (1996).

This paper applies this way of thinking to examine gross flows in union dynamics, treating union local organizations as the analog of a plant in Davis and Haltiwanger's empirical analysis. Of course, what is going on with the *net flow* is well known. Union membership in the United States has been in decline for many years. But we find underneath the net decline a great deal of heterogeneity in gross flows. While unions are down overall, there are exceptions like the Service Employees International Union, which has added significantly to gross creation of new members. And even if we look at unions like the United Auto Workers or United Steelworkers, while overall there is net decline, there are also nonnegligible positive gross flows from the expansion of existing locals and the addition of new local organizations. We also find that—despite all of this churning—very old organizations continue to account for the vast majority of union members.

This analysis is made possible by the availability of new data. Since 1960, the Department of Labor has been tracking all union organizations (both national organizations and local affiliates) through the LORS program (Labor Organization Reporting System). But it was only in the late 1990s that they began collecting information about the number of members in each union organization. Sufficient time has now passed so that it is now possi-

ble to use this data to examine membership dynamics over a period of almost a decade. In our analysis, we look at what happens over a seven-year interval. We begin with a file that was current at the end of 1999 (we call this the 2000 file), and we end with a file current as of the beginning of 2007 (the 2007 file). Organizations have a permanent file number that permits us to link the records over time.

While we do not have membership data before 2000, we do have other variables going all the way back to 1960. The Department of Labor at various points published a directory of all organizations that included the file number for each organization. We have scanned in these directories for 1960, 1971, 1980, and 1990, and combining this with our more recent data, we have created a longitudinal data set spanning 47 years. We use this data to examine long-run trends in entry and exit of organizations. We also use the information to examine the origins of current organizations: What year was a given organization established? Was it originally affiliated with its current national union, or was it acquired at a later point in time?

The LORS data have been used in a variety of studies in industrial relations over the years.¹ What is unique about our use of the data is the way we exploit the permanent file number to examine dynamics. In the 1960s, Leo Troy made use of the LORS data and analogous data based on union reports to provide estimates of union membership over time and across states. (See Troy (1965) and Troy and Sheffin (1985).) Again, the data did not have membership information, but they did have information about receipts, and Troy used the receipt information as well as estimates of dues to back out membership estimates. In the 1970s, the Current Population Survey (CPS) conducted by the Census began asking workers whether they were union members. (See Hirsch, Macpherson, and Vroman (2001).) The CPS became the gold standard for providing estimates of union membership by state, supplanting the need for Troy's work with the LORS data. Since then, the CPS has been the workhorse for analysis of union membership in the United States. Our paper follows Leo Troy's footsteps in going back to the LORS data. Now that membership information is included, the LORS files are better than what he had to work with. But more importantly,

¹Of particular interest has been the financial information in the LORS files. See, for example, Fiorito, Jarley, and Delaney (1995).

we can examine the dynamics of gross flows in a way that is impossible with the CPS. For in the CPS, we can only get a snapshot each year from which we can derive only net flows. With the LORS, we get moving pictures.

The underlying population we examine here is all labor organizations required to file under the Labor-Management Reporting and Disclosure Act of 1959. These are organizations that represent private sector employees, federal employees, or postal employees. A labor organization that represents both private sector employees in addition to state or local government workers must also file a report that covers all of its workers. The files end up having extensive coverage of the state and local sector on account of this.

There are a variety of different layers of union organizations: national, intermediate, and the local organizations that directly represent the employees. We focus on the local organizations. Some locals represent workers at a specific plant. For example, Local 879 of the United Auto Workers (UAW) represents workers at a single plant (a Ford assembly plant in Minnesota near where we live). Other locals are *amalgamated* and represent employees from many different worksites and different bargaining units. For example, the Service Employees International Union (SEIU) Local 26 represents janitors and other building employees working for a variety of different companies in the Minneapolis–St. Paul area. Finally, there are some union organizations that are not divided into locals; for example, the Southwest Airlines Pilots’ Association is a single organization. We include such organizations in the analysis and call them locals for simplicity.

The gross flows that we measure require some discussion. A local that existed in both the 2000 and 2007 files (a *continuing local*) can increase membership between the periods in two ways. The first is through new organization activity—i.e., the organization of new establishments or the addition of new bargaining units in existing establishments. SEIU Local 26 was very busy over the 2000–2007 time period, organizing new bargaining units and adding about 2,000 new members in this way. The second way is if already organized bargaining units expand employment. The Southwest Airlines Pilots’ Association almost doubled in size over this time period (2,514 members to 4,835 members) because of the airline’s success. In the first case, the union is playing an active role, in the second, a passive one. Unfortunately, we *cannot* distinguish between these two events in our data.

A local that exists in the 2007 file but not the 2000 file is a *new entrant*. A new entrant can be created in two ways. The first way is after a successful organizing event. For example, the UAW successfully organized two North Carolina plants of the truck manufacturer Freightliner in 2003, and the new UAW Local 3520 was created to represent these workers. The second way is through administrative reorganizations—two locals in the same area might merge, for example. Fortunately, we *can* distinguish these events in our data; there are codes in the data for such mergers. Hence, we can subtract out gross flows from this second source.

The upshot of all of this is that by looking just at new gross creation from new entrants, we have what is arguably a *lower bound* on gross creation due to new organizing. By adding in gross flows from continuing local organizations with positive growth, we obtain what is arguably an *upper bound* on gross creation due to new organizing. (Additional issues need to be raised about these measures, but we will go into them later.)

To preview our results, we find in our baseline case that between the 2000 and 2007 files, total members decreased from 12.4 million to 11.7 million, a decline of 700,000 members. Underneath this net decline is substantial heterogeneity across organizations. Forty percent of all organizations that existed in both files experienced positive membership growth over the time interval, accounting for gross membership creation of about 1.1 million members. In addition to growth of existing locals, there was new entry of 1,587 local organizations that added about 1 million members. Adding expanding continuers and new entrants, we obtain a *gross membership creation* of 2.1 million members. Dividing by the initial number of members and converting to an annual rate results in a *gross membership creation rate* of 2.4 percent per year. As discussed above, this can be viewed as an upper bound of the rate of inflows from new organization activity. The annualized gross creation rate from new entry alone is 1.1 percent per year. This is a lower bound on inflows due to new organization.

While there is significant churning, the fact remains that the union sector overall is in net decline. On account of the net decline of the sector, we find that very old locals continue to account for a large share of today's membership. We find that 58 percent of union members are in locals that date back to at least 1960. For the UAW in particular, 68 percent of all members are in such very old locals; 76 percent predate 1971. The ossified state of the unionized American automobile industry is well appreciated. Our contribution is to put a

number on this.

Our work is closely related to earlier work on union dynamics by Freeman (1988) and Farber and Western (2001). The goal of the earlier work was to decompose changes in unionization rates into a component due to the rate of new organization and a component due to the net growth rate of already organized establishments. These papers use the results of National Labor Relations Board (NLRB) supervised elections to measure new inflows. They use the CPS data on stocks of unionized workers to back out the implied net growth rate of already organized establishments. These papers focused on the private sector because the private sector is inherently interesting, and for the practical reason that NLRB elections cover only the private sector and there is no comparable election database for public elections.

Our work complements this earlier work, and we compare some of our estimates below with theirs. The most important difference is that we are able to pick up dynamics through the LORS data that are not picked up with the NLRB election data. First, NLRB elections are an incomplete measure of new organization events even within the private sector.² A significant amount of new organization activity takes place without an NLRB supervised election. For example, the Freightliner plants noted above were organized through a “card check,” and much recent organizing by the SEIU has gone this way as well. Second, the NLRB data pick up no public sector activity, but we pick up much of this here.

2 The LORS Data

The LORS data are a product of the Labor-Management Reporting and Disclosure Act of 1959 (also called the Landrum-Griffin Act). The legislation required labor organizations to report annually to the Department of Labor (DOL) detailed financial information about their organizations. The intent of the legislation was to provide the members of a given organization—and the general public—with a means of monitoring organizations. Each organization was assigned a permanent file number. In the early days, to gain access to a

²Another issue is that a union win in NLRB election does not necessarily lead to an organized establishment if the union is unable to obtain a first contract. See Cooke (1985).

report of a particular organization, one would look up the file number of the organization in the published directories and then go to a particular DOL field office to look at the report. Now all of this information is on the Internet.

Labor organizations file annual reports based on their fiscal year. The office in charge of processing this information updates the file on a continuous basis. This office does not itself archive all of the raw data; when a new report comes in, it types over the previous year's information with the new information. Fortunately, the entire file current as of January 1, 2000, was saved in the National Archives. We call this the 2000 file. We were unable to track down anything earlier. Through Freedom of Information Act requests to this office, we have collected other versions of this file, most recently in February 2007. We call this the 2007 file. The Department of Labor now posts archived versions of the data on the Internet. However, the Web data leave out small filers and leave out a crucial variable we need to track administrative reorganizations.

In the data we can distinguish between national organizations, intermediate bodies like state councils, and local organizations. We keep all the local organizations, we throw out the intermediate bodies, and we keep any national organization that has no locals and for convenience call them locals too. When organizations are terminated, they need to file a termination form. In the file for each year, we keep only the active locals. We should note something about lags in reporting. When we report "total membership in 2000," we mean membership from the most recent report of those locals active as of January 1, 2000. Most organizations have fiscal years that end in December. Because of lags, the vast majority of the reports in the 2000 file are for the fiscal year ending December 1998. Analogously, the majority of the reports in the 2007 file are for the fiscal year ending December 2005.

Table 1 reports information about the active locals in the 2000 and 2007 files. Counts of local organizations declined from 29,016 to 24,510, and membership declined from 13.2 to 12.7 million, a loss of half a million members. By way of comparison, the CPS reported a decline of 16.2 million to 15.7 million over the corresponding period (1998–2005). So the LORS data capture the same trend as the CPS data, but the levels are different. Membership totals in the LORS files potentially differ from the CPS estimates for three main reasons. We discuss each in turn.

The first is the possibility of data entry error; for example, the membership level for a particular organization might mistakenly be reported at 500,000 instead of 500. Response error can occur in the CPS as well (see Card (1996)), but the potential for a single mistake to make a difference is more serious here. We develop a strategy for finding such errors by using reported receipts, which tend to be proportionate to membership. We replace errant data by using the report of the same local in an adjacent year. We make these corrections for just a few observations. Our separate data appendix, Holmes and Walrath (2007), provides details.

The second issue is coverage. Unions composed solely of state and local government employees are not required to file reports. Nevertheless, a substantial portion of state and local government membership ends up getting into the LORS files because these organizations often represent private sector workers in related industries. For example, the New York City Teachers Union is in the LORS data because it represents teachers in some private specialty schools.

The fact that the state and local members are partially included is a limitation of the LORS data. If an existing local representing only 10,000 government workers organizes 1,000 new private sector workers, it will show up as a new local in the LORS file with 11,000 new members (because no report was filed previously). This issue is most likely to be a problem with the unions that specialize in state and local government. The five largest are listed in the top of Table 2 and they include, for example, the teachers' unions. The table reports total U.S. membership obtained from each national union's report as well as total membership of reporting locals. It is clear in the table that the LORS locals provide very poor coverage for these unions.

The second part of the table provides the analogous statistics for the fifteen largest remaining national unions.³ For these remaining unions, there is only one case where the coverage in the locals file is significantly less than the national total. This is for the

³To calculate the U.S. total, we take the reported total for the international union and subtract out members from Canada. Of course, Canadian locals will not file LORS reports. This is important for many of the unions. For example, United Steelworkers had 280,000 Canadian members in 2005. The source of the data for Canada is Human Resources and Social Development Canada (2006).

Communication Workers of America (CWA), where the coverage is 65 percent. The CWA, known for representing telephone workers, has significant state and local representation that is not getting picked up in LORS. The SEIU also has significant government representation, but nevertheless coverage in LORS is high (91 percent). Locals in the SEIU tend to be quite large—the SEIU has twice as many members as the CWA but has only a fifth of the locals. The larger SEIU locals are more likely to represent at least some private sector employees and thereby get in the LORS.

The third data issue is that unions sometimes include retired members in their membership reports, so the reports can overstate active members. Fortunately for our purposes, the level of detail of the report form has just recently been significantly expanded, enabling us to assess the importance of retirees. The last two columns of Table 2 report the percentage of members that are retired for each union in the national report as well as the weighted average of the local reports. Taking the weighted average over all unions, the retirement share is 5 percent in both the national and local reports. Retirees exceed 20 percent for four unions (the CWA and the machinists and postal unions), but are negligible for most unions. For the UAW, no retirees are reported in the national total, but retirees make up 6 percent of membership in the locals. This is the likely explanation for why local membership exceeds the U.S. national membership by 8 percent. For the steelworkers, local membership exceeds the national membership by 19 percent, and a similar thing might be going on here with retired workers. But detailed membership information for their locals is unavailable at this point.

We address the data issues as follows. First, we consider what happens when we take out the five unions that specialize in state and local government representation. We take this as our baseline, but the exclusion of this set of locals does not make a big difference. For this baseline, total membership in the 2007 LORS file is 11.7 million. In the CPS for the comparable year (2005), total membership without the state and local sector is 9.3 million. The LORS figure is somewhat larger both because there is some coverage in LORS locals of state and local government members (through the SEIU in particular) and because retirees make up approximately 5 percent of the membership in the LORS files. Taking these differences into account, we regard the membership information in the LORS data as

consistent with the CPS, validating its usefulness for research purposes.

Second, we also determine what happens with a set of ten selected large unions. This set is the 15 largest in the bottom panel of Table 2, less the CWA, the machinists, the steelworkers, and the two postal unions. The five we are deleting are the ones that have either significant coverage problems or retirement problems or both. We are left with the ten largest unions from the 2007 LORS file for which there are minimal problems. From the 2000 file, we also include any predecessor unions in cases where the 2007 organizations were involved in mergers. For example, UNITE HERE in the 2007 file is a result of the 2004 merger of UNITE and HERE. These ten large “minimal problem” unions have total membership in 2007 of 6.7 million members. The results with these ten large minimal problem unions are qualitatively similar to the results for the baseline case.

Since the SEIU is an outlier because of its significant growth, we also consider what happens when it is taken out, both from the baseline and the set of ten large unions. Finally, we also look at three individual unions that we think are interesting to focus on. The auto workers and steelworkers unions are interesting because they are leading industrial unions in decline. Together these two unions lost almost half a million members over the 2000–2007 period, more than a quarter of what they started with. The SEIU is interesting because of its ascent. It gained 400,000 members over the period, a growth rate of almost 50 percent.

The LORS data used in this project and additional LORS data we have collected are posted at www.econ.umn.edu/~holmes.

2.1 Gross Creation and Destruction

We now look at the gross flows that lie underneath the net flows. We begin with a discussion of mergers. When an organization is discontinued, it must file a termination report. If it is merged into another organization, the name, address, and file number of the organization it is being merged into must be specified in the report. As an example, suppose in 2000 the steelworkers union has two locals, say local A and local B, representing workers at two plants of the same company in the same city. Over the period there are cutbacks at both plants, so the two locals are merged to maintain economies of scale, with local A being merged into local B. In the data we will see that local A is discontinued, and in A’s record there will

be a successor code referring to local B. It is important to distinguish mergers at the local level like this one and mergers at the national level, such as when the rubberworkers union merged into the steelworkers union. In this latter event, the local organizations that were formerly part of the rubberworkers continue to file reports with the same file number, so the local is treated as a continuing organization. The change in national affiliation is picked up in a different variable, and we use this information later in the paper. For this section when we use the term *mergers*, we are referring to mergers taking place at the local level in which there is destruction of the local organization.

The top panel in Table 3 reports the 2000 membership levels of locals that were discontinued and had successor codes, meaning they were merged into another local. Looking at the baseline set of locals, there was 415 thousand in total membership from 2000 in such discontinued locals. We also provide a breakdown for whether the successor code was for a local that existed as of 2000 or whether it was for a new local entering after 2000. The vast bulk of mergers in terms of membership were to existing locals rather than new locals, 372 thousand versus 44 thousand.

In the analysis of this section, we net out the flows due to merger. Shuffling around locals to get economies of scale is not interesting for our purposes. (Though we think the issue of economies of scale might be of interest in some other study.) So we will not treat discontinued organizations from 2000 that have a successor code as membership destruction. And we will not count growth of existing locals from the absorption of discontinued locals as membership creation.

The specifics of how we calculate the gross flows are as follows. Membership destruction has two components: from exit and from continuers. For exit, we take all organizations in existence in 2000 that were discontinued as of 2007 and did not have a successor code. In the baseline set of locals, the exiting locals represented 913 thousand in membership for 2000. For continuers, we take all locals in both years with membership decline. For the baseline, total membership decline among continuers was 1,890 thousand. Analogously, membership creation has two components: from entrants and from continuers. Entrants are organizations existing in 2007 that did not exist in 2000. We add up membership across entrants but then subtract out the membership from 2000 merged into new locals (so for the

baseline, we subtract out 44 thousand). For continuers, we take all with positive growth and add up the membership growth. But we subtract out the 2000 membership merged into existing locals from 2000 (so for the baseline, we subtract out 372 thousand). Putting this all together, we see that for the baseline case, gross destruction is 2.8 million and gross creation is 2.1 million. For destruction, two-thirds is due to continuers and one-third to exit. For creation it is an approximate even split between entry and continuers.

Note that we are subtracting mergers both from gross destruction and from gross creation. So what we do with mergers has no effect on net flows. But we need to mention one issue regarding gross flows. We are treating membership involved in mergers between 2000 and 2007 as though the unit it is merged into still exists as of 2007. But it is possible that a local may be merged between 2000 and 2007 into a new local that is discontinued by 2007. To get a sense of the importance of this issue, Table 3 reports in the panel on mergers the membership of 2000 locals merged into locals that are still in existence as of 2007. For the baseline this is 362 thousand, which can be compared to the 415 thousand in membership of all mergers. So 87 percent ($=100 \times 362/415$) of the merged membership went to locals still open as of 2007. And of membership merged into successor locals subsequently discontinued, in some cases the successor is itself merged into a successor. Since the vast bulk of successors are still in existence as of 2007, our numbers change very little when we use an alternative procedure for calculating gross flows that only deducts mergers with successors still in existence as of 2007.

Table 4 converts the gross flow levels into rates by dividing by initial membership and converts it to annual rates by dividing by seven. The bottom row reports total reallocation, which is the sum of (the absolute value of) gross flows. The annual reallocation rate is approximately 5 percent across all the various groupings of locals. (The SEIU is an exception here, and we come back to this case below.) By way of comparison, Davis and Haltiwanger (1992) reported annual reallocation rates in the manufacturing sector on the order of 20 percent, which is quite a bit larger than what we have here. But our finding that the amount of reallocation is quite high relative to the net flows is very similar to what Davis and Haltiwanger report. When we look at the first five columns where we group multiple unions together, this ratio is on the order of five to one or ten to one, which is similar to

the kinds of magnitudes they obtained. Thus, underneath the net decline of unions there is substantial heterogeneity, with significant membership creation taking place at some locals.

When we look at the last three columns where we report the statistics for individual unions, the ratio between reallocation and the net change is much smaller. For the auto workers and steelworkers unions, the net declines are very high, approximately 4 percent a year. Gross creation for these two unions is about 1 percent a year, which is less than half of what it is for the unionized sector overall. For every 1 member created, 5 members are destroyed. This is a grim statistic for these unions, but some might find it surprising that these struggling unions have a gross creation rate as high as 1 percent.

The SEIU is an obvious outlier. The gross creation rate of this union of almost 10 percent dwarfs the rest of the union sector. A surprising thing about the SEIU is the high destruction rate from exit, 2.52 percent. We believe that this can be partly accounted for by a limitation with LORS data that is relevant for the SEIU but is less relevant for other unions. Recall that, compared to other unions, the SEIU generally has very large amalgamated locals typically representing workers from numerous employers in a metro area. In recent years they have been reorganizing locals in complicated ways, including splitting them into parts and allocating the parts to multiple successor locals. We suspect that in cases where a union has multiple successors, the successor code sometimes will be left blank because of the ambiguity. So gross destruction from exit is likely overstated for the SEIU. This won't be an issue for locals that are not amalgamated, since the members of such locals won't be split up in a merger. Note that for the SEIU, destruction from exit is much larger than from decline of continuing locals, but this pattern is reversed everywhere else. This is some evidence that the overstatement of exit is less of an issue with the other unions besides the SEIU.

Looking at gross destruction from continuing locals, the rate is .73 for the SEIU. The rate is a third as high as the overall rate. So this kind of membership destruction is much less pronounced than the union sector overall. But we think it is interesting that it is as high as it is. Even though the SEIU is responsible for a tremendous amount of membership creation, at the same time there is a significant amount of membership destruction going on at its continuing locals.

We noted in the introduction that the gross creation rate from new entrants is a lower bound on gross creation from new organizing, while the sum of creation from new entrants and expansion of continuers is an upper bound. We qualify that by noting that within an organization over the time period in question, some averaging can take place where new organizing is offset by decreases in membership somewhere else in the organization. With this kind of offsetting activity, the new membership organization activity can potentially exceed the net membership growth of a continuing organization. Analogously, new entrants can have subsequent growth due to internal growth of the organized units. For our lower bound, we are attributing all the growth to new organizing.

3 Entry and Exit Since the 1960s

This section expands our analysis of union dynamics to a longer time period, 1960–2007, the entire period over which the LORS data have so far been collected. The price of this expansion in period length is that the data are much cruder. While for the 2000–2007 period we have very detailed information, in particular membership information, for the longer period we know only whether a particular organization is active in a particular year or not and its location and national affiliation.

In this section, we include all levels of union organizations in the analysis: local, intermediate body, and national unions. Our reasoning is as follows. First, when using the membership information in the 2000–2007 data, it was important for us to separate out locals from intermediate organizations from national organizations, because otherwise membership would be triple counted (a given member will be claimed by the local, the intermediate body, and the national organization). But when looking at count data on organizations, such double counting is not an issue. Second, it is not clear we want to delete national and local organizations; they are organizations in themselves with their own dynamics. For example, national union A exits when it merges into national union B, but the locals of A do not exit. Third, it is more complicated to distinguish organization type with the earlier data because we don't have codes for the earlier data that we have with the 2000–2007 data. Fourth, it wouldn't make much difference whether we leave the national and intermediate

bodies in or out because there are only a small number of them compared to the number of locals.

We scanned in directories for the years 1960, 1971, 1980, and 1990 and added this to the computer files from 2000 and 2007 that we used above. The directories provide the file number and the affiliation of the local as well as affiliation information. We excluded organizations representing government employees (e.g., the postal workers, teachers) because reporting requirements for such unions changed over the sample period. See the data appendix for more details.

The first year for which a specific labor organization is in our data will be considered its *birth year*. So an organization with birth year 1971 was created some time between 1960 and 1971 and still existed in 1971. (If an organization was created between reporting years, and exited between these years, it will not show up in our data.) An organization with birth year 1960 was already in existence as of 1960 (and could very well have been established decades earlier). For each birth cohort, we track how many of these organizations appear in each period. Using this information, we can calculate the survival rates of organizations from period to period.

Table 5 displays survival rates conditioned upon birth cohort and conditioned upon surviving to a particular period. For example, consider the top panel of Table 5 showing what happened to the 1960 birth cohort. The fraction of organizations surviving to 1971 is 74.1 percent; the fraction making it to 1980 is 55.8 percent. Only 20.8 percent of the 1960 birth cohort survive to 2007. The lower panels in Table 5 condition on survival to a particular year. So conditioned upon surviving to 1971, the share of organizations from the 1960 birth cohort making it to 2007 is 27.9.

A typical result in the entry and exit literature is that older units have higher survival rates. For example, Dunne, Roberts, and Samuelson (1989a, 1989b) find that the probability of survival of manufacturing plants increases in age. Table 5 shows an analogous pattern holds for labor organizations. For example, for 1971 birth cohorts, the fraction surviving until 1980 is 68.3 percent. But for those in the 1960 cohort who made it to 1971, the fraction surviving until 1980 is 74.8 percent, a difference of 6.5 percentage points. Survival rates are not everywhere monotonic in ages, but the general tendency is clear. In the industrial

organization literature there is much discussion of the role of selection in accounting for the dependence of survival probabilities on age (see Jovanovic (1982)). Selection could very well be playing a role here.

While we have noted that survival rates depend upon age, our next exercise will abstract from this fact and fit a mechanical model of entry and exit where exit probabilities vary over time, but at a point in time are constant across organizations of different ages. This assumption simplifies things considerably, and we do not think complicating things by allowing exit to decrease with age would substantively affect our conclusions. Proceeding this way is also useful because we can compare our calculations with similar calculations by Freeman (1988) and Farber and Western (2001), who implicitly make this same assumption.

Under the assumption that in a given year, exit probabilities are independent of organization age, we construct in Table 6 annual exit and entry rates for each time period as follows: We begin by calculating the probability of surviving to period t , given an organization has made it to $t-1$. This is the same calculation made for Table 5, except we do not condition on organization age. We then annualize this and subtract the result from 1 to calculate an annual exit rate.⁴ We put this in the first column of Table 6. So 2.69 is the annualized exit rate between 1960 and 1971. The important point to note is that there has been a substantial increase in the exit rate since the 1960s. It increased to 3.38 between 1971 and 1980 and then to 4.01 between 1980 and 1990 and has flattened out after that.

Next we construct an estimate of the number of new organizations entering each year. We start by listing the counts of organization in each period as well as the count of each birth cohort. Note the dramatic decrease in organization from 51,020 in 1960 to 19,155 to today. We obtain estimates of annualized entry rates as follows. We assume that the *level* of new organizations entering in a time period (e.g., 1960–1971) is constant and that the exit rate each year over the time period is the estimated rate in Table 6. We then determine what the annual entry must have been in order that the size of the birth cohort for a particular time period equals the level listed in Table 6. Thus, we take into account that there will be organizations we won't see in our data because they, for example, entered after 1960 but

⁴The annualized survival rate takes the n th root of the decade-to-decade survival rate, where n is the number of years in that time period (usually 10, but 1960–1971 is 11, 1971–1980 is 9, 2000–2007 is 7).

exited before 1971. We report the results of this exercise in the column labeled “Estimated Level of Entry.”

Table 6 highlights the twin problems facing labor unions today as compared to the 1960s. First, the exit rate of organizations is higher, 3.77 percent today versus 2.69 in the 1960s. Second, the level of entry of new organizations is much lower, down from 1,090 per year in the 1960s to only 230 per year today. The increase in exit and decrease in entry have both contributed to the decline in the number of labor organizations. To see that both matter, we first note that even if both the entry level and exit rate had stayed at their 1960s levels, there would have been a decline in labor organizations, down from 51,020 in 1960 to 43,569 in 2007. If instead the annual entry levels were to decrease as in the table, but the exit rate stayed fixed at the 1960s level of 2.69 percent, the number of organizations would have been 34,000 in 2007. Next, lowering the exit rates to what they actually did brings the count of organizations to 19,155 for 2007, its actual level. This discussion makes it clear that both facts have contributed significantly to the decline in the number of labor organizations.

Freeman (1988) conducts a related analysis of the change in union membership. He is specifically interested in what the steady state of union density would be. To calculate this steady state, he is interested in a depreciation rate of existing union members r , the growth rate of private sector employment g , and the rate of new union organizing. The exit rate of organizations in Table 6 is the analog of the depreciation rate r in his analysis. He finds that $r + g$ has increased over time from 3.4 in the 1960s, to 4.7 in the 1970s, to 6.1 percent in the 1980s. Setting private sector growth equal to $g = 2$ percent, the analogous estimates of $r + g$ for us are 4.69 percent for the 1960s, 5.38 percent for the 1970s, and 6.01 percent for the 1980s. These numbers are relatively close to his estimates. It is worth noting that he does not directly observe depreciation; he infers what it must be from a difference equation. One thing that is nice about our data is that we can see depreciation (here, exit) directly.

To construct an analog of his new union organizing rate, we assume each new organization has 380 members (the approximate average organization membership) and then divide this by the number of nonunion private sector workers. (See the separate data appendix for details.) The result is labeled “Estimated New Organization Rate” in Table 6. The rate falls from .96 in the 1960s to .09 in the 2000s, a decline by a factor of 10. We can compare

these with Freeman estimates based on the NLRB election data. According to the paper (Freeman (1988), p. 74),

Whereas in the early 1950s unions organized 1 percent to 2 percent via government-sponsored elections, in the 1960s they organized about .7 percent; in the 1970s, about .5 percent, and in 1983 just .1 percent.

The estimated new organization rates in Table 6 match these rates reported by Freeman very closely.

The main point to be made here is that using very different data, we come to conclusions that are very similar to those made by Freeman. Given that his data and our data each have their own set of limitations, we find it reassuring that we can corroborate his results.

4 Origins of Current Locals

Another way to look at union dynamics is to look at current union organizations and trace where they came from. How old are they? Have they changed affiliations over the course of their history?

Table 7 displays the age distribution of union organizations in the 2007 LORS file. We use the same groupings as in Section 3, but we make the additional restriction that the organization be listed in the 2007 file as covering private sector workers. (We want to exclude in particular postal unions because they are not covered in the 1960 LORS file.)

For the baseline case, we see that 63.3 percent of all union members are in local organizations that are in the original LORS file from 1960. We regard this as a remarkable statistic. This statistic underlines the degree to which the union movement is dependent upon organization activity done over 47 years ago. The rest of the membership is spread out relatively evenly across the other age groupings, 7.0 from 1960 to 1971, 6.1 percent from 1971 to 1980, and so on. We would have guessed that there would have been relatively more in the 1960 to 1971 period.

If we look at the auto workers union, the percentage from 1960 is 68.3 percent. Now we know that the automobile industry was organized in the 1930s, when the famous “sitdown”

strike occurred. But any new auto plant would generally be represented by a new local organization. For example, after General Motors opened the well-known Saturn plant in Tennessee in the 1980s, a new local (UAW 1853) entered to represent these workers. The 68.3 statistic highlights the relative rarity of an event like the Saturn plant. Since for the UAW, locals are tied to plants, the statistic means that 68.3 percent of the UAW's membership works in factories that predate 1960 and were organized before that date. Now the steelworkers union is a little different in that a relatively high fraction of activity dates to the 1960–1971 period, but otherwise steelworkers are like the auto workers in that there is relatively little membership in recent vintage organizations.

Again, the SEIU is the outlier. Fully 25 percent of membership dates to the recent period 2000–2007. Looking at the period 1960–1971 and later, there is a very clear pattern of the more recent vintages having a higher share of membership.

So far we have looked just at the birth date of local organizations. But another thing we can do with the LORS data is trace through changes in national affiliation. When this happens, it is usually on account of a merger of national unions. In future work, it might be interesting to use the LORS data to study mergers of unions. Here we only illustrate this capability of the LORS data by breaking down the 1960 origins by which national union locals were affiliated with in 1960. Table 8 reports this exercise for three unions. We see a very interesting difference between the steelworkers and the auto workers. Mergers have played a huge role in determining what the steelworkers are today but have been negligible for the auto workers. For the steelworkers, 54.4 percent of all 2007 membership is in organizations dating back to 1960, and 17.8 percent of membership dates back to organizations that were affiliated with the steelworkers in 1960. Hence, only about one-third of membership dating back to 1960 can be traced to the steelworkers themselves; the rest has come from mergers with many different unions.

5 Conclusion

In the same spirit of the literature on employment dynamics, this paper has examined the dynamics of membership of union organizations. We have found that underneath the net

decline of union membership, there is significant new membership creation. The SEIU is the biggest story here. But new gross membership creation is even nonnegligible for unions like the steelworkers and the auto workers, which are in the process of significant decline overall.

Our study has exploited the ability to link the records in the LORS files and the information about membership that has been collected only since the late 1990s. The LORS data have various limitations that we discussed here. But they also have great promise for examining union dynamics, and we expect that further work with these data will prove to be fruitful.

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Table 1
LORS Data 2000 and 2007
Counts of Locals and Membership of Locals

	All	Baseline All <i>except</i> : Five Public	All <i>except</i> : Five Public and SEIU	Large Unions		Selected Individual Unions		
				Ten Large Unions	Nine Large Unions (excludes SEIU)	UAW	USWA	SEIU
Number of Locals								
2000	29,016	28,557	28,276	7,081	6,800	945	3,318	281
2007	24,510	23,961	23,738	5,873	5,650	775	2,403	223
Net Change	-4,506	-4,596	-4,538	-1,208	-1,150	-170	-915	-58
Number of Members (thousands)								
2000	13,215	12,425	11,519	6,819	5,914	801	816	906
2007	12,677	11,715	10,412	6,692	5,389	599	567	1,304
Net Change	-538	-709	-1,107	-127	-525	-202	-249	398

Table 2
Membership Information for Selected Unions from 2007 LORS

Union Name	Total U.S. Membership (1,000 of members)			Number of Locals	Retired Member Share	
	From National Organization Report	From Local Organization Reports	Local as Share of National		From National Organization Report	From Local Organization Reports
State and Local Specialists						
National Education Association (NEA) State, County, and Municipal Employees (AFSCME)	2,768	134	5	29	8	2
Teachers (AFT)	1,460	530	36	305	14	1
Fire Fighters	823	290	35	110	0	18
Police Associations	277	7	3	73	8	0
	38	1	3	4		
Other Unions (Top 15)						
Service Employees (SEIU)	1,427	1,304	91	221	2	5
Teamsters (IBT)	1,271	1,217	96	1,508	0	1
Food & Commercial Workers (UFCW)	1,082	974	90	362	0	1
Communications Workers (CWA)	712	462	65	1,083	21	3
Electrical Workers (IBEW)	643	620	96	798	0	1
Machinists (IAM)	612	507	83	1,030	23	21
Laborers (LIUNA)	585	528	90	423	9	14
Auto Workers (UAW)	557	599	108	769	0	6
Steelworkers (USWA)	475	567	119	2,362	0	*
Carpenters (CJA)	470	470	100	680	7	11
Unite Here	410	352	86	671	0	0
Engineers, Operating	353	348	99	112	0	7
Letter Carriers	289	279	97	1,253	26	23
Postal Workers	287	219	76	942	14	1
Plumbers	286	282	99	269	0	14
Total Other Unions (Top 15)	9,459	8,728	92	12,483	5	5

*We do not have the detailed data from the Steelworkers to compute this.

Table 3
Gross Creation and Destruction of Membership in LORS Locals 2000–2007
(Thousands of Union Members)

	Large Unions					Selected Individual Unions		
	All	Baseline All <i>except</i> : Five Public	All <i>except</i> : Five Public and SEIU	Ten Large Unions	Nine Large Unions (excludes SEIU)	UAW	USWA	SEIU
Mergers	-415	-415	-367	-240	-193	-11	-36	-48
To Existing Local	-372	-372	-329	-215	-173	-10	-27	-42
To New Locals	-44	-44	-38	-25	-20	-1	-9	-6
To Surviving Locals	-362	-362	-328	-204	-170	-10	-32	-34
Gross Destruction	-2,937	-2,803	-2,596	-1,371	-1,164	-267	-298	-207
Exit	-930	-913	-753	-464	-303	-53	-107	-160
Continuing	-2,007	-1,890	-1,844	-907	-861	-215	-191	-46
Gross Creation	2,398	2,094	1,489	1,244	639	65	49	605
Entry	1,159	962	627	546	210	24	29	336
Continuing	1,239	1,131	862	698	429	42	20	269
Net Flows	-538	-709	-1,107	-127	-525	-202	-249	398

Table 4
Reallocation Rates at the Annual Level
(Includes Adjustments for Mergers)

				Large Unions		Selected Individual Unions		
	All	Baseline All <i>except</i> : Five Public	All <i>except</i> : Five Public and SEIU	Ten Large Unions	Nine Large Unions (excludes SEIU)	UAW	USWA	SEIU
Gross Destruction	-3.17	-3.22	-3.22	-2.87	-2.81	-4.76	-5.22	-3.26
Exit	-1.01	-1.05	-0.93	-0.97	-0.73	-0.95	-1.87	-2.52
Continuing	-2.17	-2.17	-2.29	-1.90	-2.08	-3.83	-3.34	-0.73
Gross Creation	2.59	2.41	1.85	2.61	1.54	1.16	0.86	9.54
Entry	1.25	1.11	0.78	1.14	0.51	0.43	0.51	5.30
Continuing	1.34	1.30	1.07	1.46	1.04	0.75	0.35	4.24
Net Flows	-0.58	-0.82	-1.37	-0.27	-1.27	-3.60	-4.36	6.28
Total Reallocation (Sum of Destruction and Creation)	5.77	5.63	5.07	5.48	4.36	5.92	6.07	12.80

Table 5
Conditional Survival Rates of Union Organizations

Condition on Surviving to:	Age Cohort	Survival Rates by Year				
		1971	1980	1990	2000	2007
1960	1960	74.1	55.8	38.1	26.4	20.8
1971	1960	.	74.8	51.1	35.5	27.9
	1971	.	68.3	44.1	28.6	20.4
1980	1960	.	.	68.2	47.3	37.2
	1971	.	.	64.5	41.8	29.8
	1980	.	.	60.2	39.2	29.8
1990	1960	.	.	.	69.2	54.5
	1971	.	.	.	64.6	46.0
	1980	.	.	.	64.8	49.2
	1990	.	.	.	60.0	45.5
2000	1960	.	.	.	.	78.6
	1971	.	.	.	.	71.0
	1980	.	.	.	.	75.7
	1990	.	.	.	.	75.5
	2000	.	.	.	.	72.4

Table 6
Entry and Exit by Time Period

Period	Estimated Exit Rate (annual)	Number of Organizations			Estimated Level of Entry (Annual number of New Organizations)	Estimated New Organization Rate (New Members as Percent of Nonunion Private Sector)
		Beginning of Period	End of Period	In Birth Cohort		
1960–1971	2.69	51,020	48,378	10,550	1,095.0	0.96
1971–1980	3.38	48,378	41,775	6,099	774.5	0.52
1980–1990	4.01	41,775	31,020	3,242	387.1	0.19
1990–2000	3.93	31,020	23,128	2,295	273.0	0.11
2000–2007	3.77	23,128	19,155	1,439	230.0	0.09

Table 7
Origins of 2007 Membership
By Entry Year of Organization

	All	Baseline All <i>except</i> : Five Public	All <i>except</i> : Five Public and SEIU	Large Unions		Selected Individual Unions		
				Ten Large Unions	Nine Large Unions (excludes SEIU)	UAW	USWA	SEIU
Membership in 2007 (Thousands)	11,539	10,586	9,295	6,538	5,247	599	567	1,291
Entry Year of Organization (Percent of Membership)								
Before 1960	58.1	63.3	66.8	67.8	75.1	68.3	54.4	38.2
1960–1971	7.8	7.0	7.7	4.9	5.6	7.9	19.6	1.8
1971–1980	6.1	6.1	5.6	5.2	4.0	6.0	11.7	9.8
1980–1990	9.9	7.0	6.5	6.6	5.7	7.8	3.1	10.4
1990–2000	8.8	8.3	7.4	7.2	5.3	6.0	4.7	14.8
2000–2007	9.4	8.5	6.1	8.3	4.2	4.1	6.6	25.1

Table 8
1960 Source Affiliates of 2007 Membership
Selected Unions

	2007 Members (Thousands)	2007 Membership Share
Autoworkers		
Source Affiliates:		
Autoworkers	400.6	66.9
Other Affiliates and Unaffiliated	8.1	1.4
New Since 1960	190.0	31.7
Steelworkers		
Source Affiliates:		
Steelworkers	101.0	17.8
Oil Chemical and Atomic Workers	44.1	7.8
Pulp Sulphite and Paper Mill Workers	40.2	7.1
Mine Workers United District 50	28.7	5.1
Papermakers and Paperworkers	26.9	4.8
Rubber Workers	19.2	3.4
Industrial Workers Allied	12.9	2.3
Glass Workers Flint	6.4	1.1
Aluminum Workers	5.6	1.0
Other Affiliates and Unaffiliated	23.5	4.1
New Since 1960	258.5	45.6
Service Employees		
Source Affiliates:		
Retail Wholesale	283.0	21.7
Building Service Employees	193.4	14.8
Other Affiliates and Unaffiliated	16.3	1.3
New Since 1960	810.9	62.2