Aspects of Labor Market Turnover and the Impact of Fringe Benefits in Small and Large Firms

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Sheldon Haber
11716 Magruder Lane
Rockville, Md. 20852

Sheldon Haber, Ph.D., Principal Investigator

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# ASPECTS OF LABOR MARKET TURNOVER AND THE IMPACT OF FRINGE BENEFITS IN SMALL AND LABOR FIRMS

## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>Chapter 1: Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Chapter 2: Mobility between Small and Large Firms</td>
<td>4</td>
</tr>
<tr>
<td>A. Counts of Job Leavers and Job Stayers by Firm Size</td>
<td>4</td>
</tr>
<tr>
<td>B. Schiller’s Findings about Mobility between Small and Large Firms</td>
<td>9</td>
</tr>
<tr>
<td>C. Job Mobility of Workers Aged 25 Years and Over</td>
<td>12</td>
</tr>
<tr>
<td>Chapter 3: Do Small and Large Firms Comprise a Dual Labor Market?</td>
<td>17</td>
</tr>
<tr>
<td>A. An Explanation for a Dual Labor Market Based on Firm Size</td>
<td>18</td>
</tr>
<tr>
<td>B. A Statistical Procedure for Analyzing Data Consistent with the Existence of a Dual Labor Market Based on Fringe Benefits and Firm Size</td>
<td>21</td>
</tr>
<tr>
<td>C. Empirical Results: The Offering of Sick Leave, a Health Insurance Plan, or a Private Pension Plan by Size of Firm</td>
<td>25</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

In this paper we examine two aspects of small and large businesses. First, we look at rates of turnover between small and large concerns. Second, we examine whether small and large firms form a single labor market or a dual labor market. We define a small firm as one having 99 or fewer workers, a large firm as having 100 or more workers.

We find that the turnover rate is much higher among small businesses than large ones. We believe that one of the reasons for this is that large firms provide more fringe benefits to their workers than do small ones. One reason for this is that large firms engage in more firm-specific training so as to reduce monitoring costs. Thus, there is an incentive for retaining workers. This in turn results in large firms offering greater fringe benefits. The larger fringe benefits lead to a bifurcation of the labor market, i.e., primary labor markets (for large firms which offer fringe benefits) and secondary labor markets (for small firms which do not offer fringe benefits, or offer them to a lesser extent).

Our estimates of turnover rates by size of business are derived from the Survey of Income and Program Participation (SIPP). They cover a period of one year -- from May through August, 1984 to May through August, 1985. They include all
employed non-agricultural private wage and salaried workers aged 25 years and older (excluding private household workers).

- Of the mature wage and salary workers, 33.8 percent were employed in small firms, the remaining 66.2 percent of workers were employed in large firms.

- For small firms, the weighted turnover rate (including voluntary and involuntary quits) was 15.2 percent. The weighted turnover rate for large firms was only 9.0 percent.

- 66.4 percent of leavers from small firms found jobs in another small firm.

- 57.4 percent of leavers from large firms found jobs in another large firm.

Thus, most mature workers tended to find jobs in the small firm sector or in the large firm sector in which they were originally employed. This was specially true of workers in small firms.

If the labor market is comprised of two distinct sectors, one the primary sector (large firms), the other a secondary sector (small firms), then within-sector mobility should be relatively high. Indeed, this is what we found.

Is the small firm sector a net "exporter" of jobs or a net "importer" of jobs?

- Over the one year period studied, there were over 955 thousand mature workers who left a small firm for a job with a large firm.

- Over the same one year period, there were over 1,336
thousand mature workers who left a job with a large firm for a job in a small firm.

Thus, in the one year period large firms were net exporters of some 381 thousand mature workers. This contrasts with the finding of Bradley Schiller (but does not necessarily contradict it) that small firms were net exporters of young male workers.

Using SIPP, the empirical data were found to be consistent with the proposition that limited mobility exists between large and small firms, i.e., what we have called below as the primary sector and secondary sector. There is also strong evidence that employees of large firms have access to more valuable fringe benefits. This is found from the Current Population Survey (CPS).

Our estimates of fringe benefits are based on the May 1988 CPS. This sample was restricted to the same groups mentioned above; however, the CPS sample was much larger.

Analyses of the CPS data indicate that size of business is the most important variable influencing whether a firm offers health insurance, or a pension plan, or sick leave.

The discrepancy in benefit provision is greatest for pension plans. For the 25 and older group in 1988, all else the same except for size of firm,

- 80.9 percent of those working at a large firm were offered a pension plan. The corresponding figure for those in small firms was only 36.5 percent.

The disparity is also large for sick leave. All else the
same except for size of firm,

- 80.6 percent of employees were offered sick leave benefits. Among their counterparts in small firms, only 53.8 percent received such benefits.

With respect to health insurance, almost all large firms in 1988 offered it to its employees, everything else the same. In particular,

- 97.0 of those working at a large firm were offered health insurance. Among small firms, only 80.4 percent were offered this benefit.

As noted, the most important variable explaining the availability of health insurance, pension plan, and sick leave benefits is firm size. A somewhat surprising finding of our analysis is that while women appear to be employed to the same extent as men in firms that offer health insurance and pension benefits, they are over-represented (in small firms) that offer sick leave benefits. It, thus, may be possible for some small businesses to reduce labor costs by offering workers sick leave in lieu of other fringe benefits. Again, with respect to fringe benefits, it appears that a dual labor market does exist.
ASPECTS OF LABOR MARKET TURNOVER
AND THE IMPACT OF FRINGE BENEFITS IN
SMALL AND LARGE FIRMS

CHAPTER 1
INTRODUCTION

The special advantage of small firms in meeting the needs of the economy is that they utilize technologies that are not capital intensive, and the capital that is used can be readily shifted among alternative product lines. This mode of production results in relatively low costs of monitoring workers which in turn has implications for the mix of workers that small firms seek to hire and the kind of workers that seek employment in such firms.\(^1\) One of these implications is that small firms tend to employ lower productivity workers, e.g., workers lacking a high school degree, than large ones.\(^2\) As a consequence, the compensation package offered by small firms is less than that offered by large firms. In particular, employees of small firms are paid less and also are less likely to be covered by employer provided health insurance, a private pension plan,\(^3\) or sick leave.

The availability of fringe benefits probably plays only a minor role in determining how long younger workers stay with their employer; but it is likely that they may play a more
important role among older employees. To the extent that this is the case, turnover will be higher in small firms, since as noted they provide fewer fringe benefits than large firms.

Compensation affects worker turnover and in turn turnover affects the cost of doing business and how businesses operate. For example, all else the same, the wage that can be paid and/or the amount of employer provided training that can be given to equally qualified workers will be less in firms where labor turnover is high than in firms where worker turnover is low. As turnover is higher in small firms, this may account, in part, for the lower wages and for the fewer training programs offered by small firms vis-a-vis their larger counterparts. 4

Given the policy implications of information about labor turnover, it is surprising how little is known about how these aspects of worker behavior differ as a function of business size. 5 The major objective of this study is to fill in some of the gaps in knowledge relating to this subject. Among the questions addressed in this regard are the following:

1) How different are turnover rates from small and large firms?

2) Do workers who leave small and large firms find employment in firms of similar size?

3) Do more workers shift from small to large firms than shift from large to small firms, i.e., is there a net outflow of workers from small to large firms?

The first question is of importance because high turnover
rates raise recruitment, training, and separation costs, all else the same.

The second question focuses on the issue of whether the economy is comprised of one interconnected labor market, or two separate labor markets comprised of small firms and of large firms, between which there is relatively little worker mobility.

The third question addresses the issue of whether there is a net outflow of workers from small to large firms. If so, this might suggest that small firms subsidize part of the human capital utilized by large.

The first three questions are examined in Chapters 2. In Chapter 3 we examine the issue of whether labor markets are best considered dual labor markets. We do this in terms of the distribution of fringe benefits, i.e., sick leave benefits, health insurance benefits, and pension benefits, between small and large businesses. We conclude that much of the difference in the distribution of fringe benefits is due to the fact that a job in a small firm is different from a job in a large firm, i.e., the two comprise two different labor markets. Whether a person finds employment in a small firm versus a large one determines the kinds of fringe benefits that he or she can expect to receive.

Highlights of the research are found in the Executive Summary.
CHAPTER 2
MOBILITY BETWEEN SMALL AND LARGE FIRMS

Data pertaining to the mobility of workers by firm size are not readily available. The reason for this is that there are only a few data sets that contain longitudinal labor market information, and of these it is rare that information about firm size is collected at different points of time. A longitudinal data set that meets the latter requirement is the Survey of Income and Program Participation (SIPP) conducted by the U.S. Bureau of the Census.

A. Counts of Job Leavers and Job Stayers by Firm Size

Waves 4 and 7 of the 1984 panel of SIPP contain firm size information and data from which separation rates can be derived. In these waves, however, the separation rate data are restricted to workers aged 25 and over. Thus, this study necessarily focuses on prime age workers, who, except for women newly entering the labor force, can be presumed to have a significant amount of work experience and/or education. For this group of mature workers aged 25 and over, we present calculations of inter-firm turnover rates.

For the issues examined in this chapter, only the data from waves 4 and 7 are utilized. Since each SIPP wave is of four
months duration, the data span a period of 12 months in which turnover can be observed. And as we are primarily concerned with the business sector, the sample is restricted to wage and salary workers employed in the private sector, excluding agriculture; additionally, workers engaged in household work are excluded.

In addition to knowing the size of firm at which a person was employed in Waves 4 and 7, we also know for each employee whether they worked in Waves 4 and 7 for the same employer or a different employer. However, individuals who were unemployed in Wave 4 or Wave 7, and individuals who were dropped from the sample frame because of the change in sample size, have been excluded in the calculations shown below. From these data one can derive the mobility status of workers at two points of time: the time period from May through August, 1984 and the time period from May through August, 1985. Each worker was asked if he or she worked for the same employer a year ago or a different employer. Thus, not only was the size of firm known at two points of time, each a year apart, we were able to determine whether the worker was a "stayer" or a "leaver". A worker was assumed to be a "stayer" if he or she had not changed employers during the year, and a "leaver" if he or she had changed employers.

Given this information, we can calculate:

(a) the number of workers moving from a small (large) firm to another small (large) firm,

(b) the number of workers moving from a small (large) to a
large (small) firm,

(c) the net number of workers moving from small to large firms (or in the opposite direction), and

(d) the number of workers who had the same employer at both dates.

Group (a) represents job leavers who leave their firm and move to another one of the same size, i.e., from a small one to another small one, denoted in this paper as a firm with fewer than 99 workers, or from a large firm to another large one, denoted herein as a firm with 100 or more workers. Group (b) represents job leavers who change firm size, either moving from a small to a large one or from a large one to a small one, where again small and large refer to firms of less than 100 employees or 100 employees or more. These data are gross figures. The difference, group (c), represents a net difference. The sign of this net difference indicates whether small employers are net exporters, i.e., they export more than they import, or net importers of labor, i.e., they import more than they export. Group (d) represents job stayers.

The counts of workers in each of these categories can be shown in a transition matrix (see Table 2.1). From this transition matrix, it is seen, e.g., that the number of job leavers who went from a small firm to a large firm between waves 4 and 7 is given by the entry in cell (3); analogously, the number of workers who went from a large firm to a small one is given by cell (6). Thus, the net transfer of workers from
<table>
<thead>
<tr>
<th>Firm Size, Wave 4</th>
<th>Firm Size(^b), Wave 7</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Small Firms</td>
</tr>
<tr>
<td>Small Firms</td>
<td></td>
</tr>
<tr>
<td>Stayers</td>
<td>(1)</td>
</tr>
<tr>
<td>Leavers</td>
<td>(2)</td>
</tr>
<tr>
<td>Large Firms</td>
<td></td>
</tr>
<tr>
<td>Stayers</td>
<td>(6)</td>
</tr>
<tr>
<td>Leavers</td>
<td>(7)</td>
</tr>
</tbody>
</table>

\(^a\) In thousands, over a period of 12 months.  
\(^b\) Small (large) firms defined as less than 100 (100 or more) workers.  
\(^c\) Includes only workers employed at beginning and end dates.
small firms to large firms = (3)-(6), or alternatively, from
large firms to small firms = (6)-(3).

From the last accounting identity, it is noticed that the net number of workers moving from small to large firms is the same, but opposite in sign, to the net number of workers moving from large to small firms. In particular, a positive value for (3)-(6) would indicate that large firms gain more workers from small firms than they lose to small firms. A negative value would indicate that large firms, on balance, lose workers to small firms. Again, the count of workers includes those who are 25 years or older.

Likewise, the number of job leavers from small and large firms who found employment in a firm of similar size, i.e., who are in category (a) above, is given by the counts in cells (2) plus (7), respectively.

As mentioned, the number of job leavers from small and large firms who found employment in a firm of different size, i.e., who are in category (b) above, is given by (3) and (6), respectively. It should also be noticed that the number of workers who leave firms of a given size depends on two factors, i.e., the size of the sector of origin and the turnover rate for that sector.

From a larger perspective, labor economists have given much attention to the question of whether the labor market is comprised of an integrated set of sub-markets or dual markets, often denoted as the primary and secondary labor markets. The
former is distinguished from the latter in that wages are higher, training opportunities are more prevalent, promotion is more rapid, and job security, i.e., turnover, is less.

In the context of this study, the issue can be rephrased as follows: Do small and large firms constitute separate labor markets, i.e., a primary labor market consisting of large firms and a secondary labor market consisting of small firms, or alternatively do small and large firms comprise a single labor market? To the extent that there is a dual labor market comprised of small and large firms, the "labor market" may be less efficient than otherwise, thereby lowering the nation's productivity.

If the labor market is comprised of a primary sector and a secondary sector, a necessary condition is that within-sector mobility should be relatively high; between-sectors, however, there would be relatively little mobility. In our context, if small firms and large firms comprise a dual labor market, one would expect that the percentage of small-firm workers employed in waves 4 and 7 who leave and find work in another small firm should be higher than the corresponding percentage who find employment in a large firm. Likewise, one would expect that the percentage of large-firm workers employed in both waves who leave and find employment in another large firm should be higher than the corresponding percentage who find employment in a small firm.
B. Schiller’s Findings about Mobility between Small and Large Firms

In an earlier study, Schiller (1982) examined Social Security Administration (SSA) data for male workers under age 22 years in 1960. Based on these data, he identified the first four continuous quarters with wage credits for each individual. Schiller denoted the period so defined as the period of initial attachment to an employer, i.e., the period during which a worker began his or her first steady job. These data are then compared to similar data as of 1969, i.e., nine years later.

Since the information he used permits counts similar to those in cells (2), (3), (6), and (7), i.e., for job leavers, his findings are of interest for what they suggest, as well as the caveats that need to be made explicit because of limitations inherent in the data set that he utilized. The discussion of his results also provides a vehicle for introducing the findings that we report later on in this chapter.

Schiller reports two major finding in his study. First, small firms "export" more young workers to large firms than they "import". Second, the annual earnings gains of workers who migrate from small to large firms are substantially greater than those of workers in small firms who migrate to other small firms, and also greater than that of workers who move in the opposite direction, i.e., from large to small firms. Given these findings, he concluded that small firms are a source of trained workers for large firms, as evidenced by the large earnings gains.
of workers who moved from the former to the latter relative to other workers who changed jobs. These transfers of labor benefit the economy, the workers who left jobs in a small firm for a job in a large one, and the large firms that hired them.

Schiller suggests that the net gain by large firms of young workers trained by small firms results in unrecouped training outlays among small firms. From an efficiency standpoint, it can thus be argued that policies to improve the profitability of small businesses would also lead to greater incentives for small employers to hire and train first-time entrants into the work force.

As mentioned, Schiller's empirical data relating to mobility are analogous in some ways to those presented below. To further facilitate understanding of the information conveyed by Table 2.1, we show in Table 2.2 his counts for the cells previously mentioned.

From Table 2.2, it is seen that there was a net flow from small to large firms of 301,000 new male workers (586,000 - 285,000) over nine years. Most of this outflow can be attributed to small firms employing almost 1.8 times as many young male workers as large firms. Of some interest, the percentage of male workers in small firms who migrated to large ones, 41 percent, is found to be not much greater than the percentage of male workers who migrated from large firms to small firms, 36 percent. Thus, the net outflow of males from small firms appears to be due not so much to differences in inter-

10
Table 2.2 -- Schiller Estimates of Inter-Firm Mobility, Workers Aged 21 Years and Under\(^a\). Weighted Figures.

<table>
<thead>
<tr>
<th>Firm Size, Initial Employer, 1960</th>
<th>Firm Size(^b), 1969 Employer</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small Firms</td>
<td>Large Firms</td>
<td>Total(^c)</td>
<td></td>
</tr>
<tr>
<td>Small Firms</td>
<td>851</td>
<td>586</td>
<td>1437</td>
<td></td>
</tr>
<tr>
<td>Large Firms</td>
<td>285</td>
<td>512</td>
<td>797</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) In thousands, over a period of nine years. Weighted figures.

\(^b\) Small (large) firms defined as less than 100 (100 or more) workers.

\(^c\) Includes only workers employed at beginning and end dates.

Source: Based on data from Schiller, "Human Capital Transfers from Small to Large Businesses," U.S. Small Business Administration, Office of Advocacy, 1982.
sector separation rates as to differences in the size of the sectors as measured by the number of young male workers in each sector.

Another point worth noting is that of the 1,437 million young male workers who were initially employed in small firms, 59 percent remained employed in small firms over a period of nine years. This latter figure can be compared to the 41 percent who transferred from small to large firms. Likewise, of the 797 thousand young male workers who were employed in large firms, 64 percent remained in large firms during the period of nine years. Only 36 percent of males transferred from large to small firms. Thus, the Schiller data indicate that most male workers wound up in that sector in which they found their very first job. That is to say, intra-firm size mobility was high compared to inter-firm size mobility. Among young male workers, at least, it appears that there is evidence that the notion of a primary and secondary labor market appears to exist.

A serious limitation of the SSA data needs to be noted, however, which calls into question Schiller’s empirical findings, and also his policy conclusions. This limitation stems from the fact that from the SSA data one cannot tell whether a person worked part-time or full-time. Because of this difficulty, a plausible explanation of Schiller’s two major findings can be formulated which suggests that they could be artifacts of a process that has little to do with transfers of human capital from small to large firms.
Consider the case where the first job of all young workers is a part-time job and all such jobs are in small firms. Further, assume that as a cohort of young workers ages, each member of the cohort finds full-time employment, either with another small firm or a large firm. Under these circumstances, there will be a net outflow of workers from small to large firms (since all young workers are initially employed in small firms). Moreover, their annual earnings will also increase dramatically, not because they have become more productive as a result of receiving training, and hence can command higher earnings, but rather because they will be working more hours as full-time employees. Thus, while this is an extreme case, it is not unrealistic, since a relatively high proportion of young persons work part-time and a relatively high proportion of part-time jobs held by young people are in small firms.

C. Job Mobility of Workers Aged 25 Years and Over

As indicated, our analysis in this chapter focuses on inter-firm mobility of private sector wage and salary workers employed in nonagricultural industries, except private household workers, who when interviewed were aged 25 years and over. Thus, the need to distinguish between part-time and full-time workers is much less reduced, since most men in this age group are full-time workers and, for the most part, this is also true of female workers. Thus, the lumping together of workers irrespective of the hours they worked causes little distortion in the results. It
should be noticed that these data are based on actual counts of workers in the sample. The total number came to 10,810 workers. As seen from the figures given below, the results are almost the same using population-weighted counts.

To see how inter-firm mobility of the 25 and older group contrasts with that of younger workers, we show in Table 2.3, for the former group, counts of job stayers and job leavers during the interval between waves 4 and 7. This table corresponds to Table 2.2 in format and its interpretation is exactly the same.

We first examine the figures for job changers. As can be seen from Table 2.3, 36 percent of the people who changed jobs moved from a small firm to a large firm. The corresponding figure for job changer who switched from a small firm to another small firm was 64 percent. In similar manner, only 43 percent of job changers moved from a large firm to a small one, whereas the proportion who switched from a large firm to yet another large firm was 57 percent.

Two conclusions appear to emerge from these data: The first one is that intra-firm size mobility is again seen to be high versus inter-firm size mobility. Thus, it is found among the 25 and over group, as among younger workers, that there exists two sectors with respect to mobility which are non-overlapping -- one composed of small firms and the other composed of large firms. For the most part, workers who change jobs tend to remain employed in the sector of initial employment, particularly if that sector is the small-firm sector.
Table 2.3 -- Job Stayers and Job Leavers, Workers Aged 25 Years and Over$^a$. Unweighted Figures.

<table>
<thead>
<tr>
<th>Firm Size, Wave 4</th>
<th>Firm Size$^b$, Wave 7</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small Firms</td>
<td>Large Firms</td>
</tr>
<tr>
<td>Small Firms</td>
<td>3117</td>
<td>356</td>
</tr>
<tr>
<td>Stayers</td>
<td>3117</td>
<td>356</td>
</tr>
<tr>
<td>Leavers</td>
<td>356</td>
<td>197</td>
</tr>
<tr>
<td>Large Firms</td>
<td>6508</td>
<td>363</td>
</tr>
<tr>
<td>Stayers</td>
<td>269</td>
<td>6508</td>
</tr>
<tr>
<td>Leavers</td>
<td>363</td>
<td>363</td>
</tr>
</tbody>
</table>

$^a$ In thousands, over a period of 12 months. Unweighted figures.
$^b$ Small (large) firms defined as less than 100 (100 or more) workers.
$^c$ Includes only workers employed at beginning and end dates.

Source: 1984 Survey of Income and Program Participation; Public Use Sample.
The second conclusion is that there appears to be less movement from small-to-large firms (more movement from large-to-small firms) among mature workers than is suggested by the figures in Table 2.2 for young male workers (over a nine year period). That is to say, a relatively low proportion of the 25 and over group "moved up" from small employers to large ones, 36 percent, than was the case among young male workers (41 percent). Alternatively, a higher proportion of mature workers "moved down" the size-scale distribution, 43 percent, than appears to be the case among young male workers (36 percent). Thus, it would appear that mature workers who change jobs tend to find employment in smaller scale firms, i.e., lower wage firms, as they age. In this respect, the mobility data tend to support the cross-sectional findings that indicate that older men are concentrated in small firms where wage levels tend to be less.

The finding that the (unweighted) turnover rate for mature workers is higher for small firms, 17.7 percent (= 553/3117) than large ones, 9.7 percent (= 632/6,508), is not surprising, given that turnover rates are negatively related to wage rates. Although not surprising, our findings suggest that with respect to personnel administrative costs, these costs as a fraction of total payroll are substantially higher among small firms than large ones.

These results are analogous to the population-weighted counts given in Table 2.4. Of the 52,340,601 workers in the population-weighted count at both dates, there were 17,671,306
Table 2.4 -- Job Stayers and Job Leavers, Workers Aged 25 Years and Over\textsuperscript{a}. Weighted Figures.

<table>
<thead>
<tr>
<th>Firm Size, Wave 4</th>
<th>Firm Size\textsuperscript{b}, Wave 7</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small Firms</td>
<td>Large Firms</td>
<td>Total\textsuperscript{c}</td>
<td></td>
</tr>
<tr>
<td>Small Firms</td>
<td>14,986,701</td>
<td>955,112</td>
<td>14,986,701</td>
<td></td>
</tr>
<tr>
<td>Stayers</td>
<td>1,729,493</td>
<td></td>
<td>2,684,605</td>
<td></td>
</tr>
<tr>
<td>Leavers</td>
<td>1,336,363</td>
<td></td>
<td>3,137,414</td>
<td></td>
</tr>
<tr>
<td>Large Firms</td>
<td>31,531,881</td>
<td>1,801,051</td>
<td>31,531,881</td>
<td></td>
</tr>
<tr>
<td>Stayers</td>
<td>1,801,051</td>
<td></td>
<td>3,137,414</td>
<td></td>
</tr>
<tr>
<td>Leavers</td>
<td>31,531,881</td>
<td></td>
<td>31,531,881</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{a} In thousands, over a period of 12 months. Weighted figures.

\textsuperscript{b} Small (large) firms defined as less than 100 (100 or more) workers.

\textsuperscript{c} Includes only workers employed at beginning and end dates.

Source: 1984 Survey of Income and Program Participation; Public Use Sample.
workers employed in small firms and 34,669,295 workers employed in large ones as of wave 4. Thus, for every worker in the former group, i.e., in a small firm, there were two additional workers in the latter group, i.e., in a large firm. But for every person who switched jobs among small firms, 1,729,493, only 955,112, moved on to find work in a large firm. Put another way, of the total of 2,684,605 workers who left a small firm during the period May-August, 1984, 1,729,493 worked in another small firm one year later. But of the 3,137,414 workers who left a large firm during the initial period, some 1,801,051 worked in another large firm one year later; the remainder, 1,336,363, now worked in a small firm as of May-August, 1985.

These figures duplicate the results based on the sample observations. They show that the bulk of the work force that switched jobs found another job one year later in the same sector as before. But unlike the case of young male workers where there was a net outflow from small to large firms (Schiller’s finding), among older workers there was a net inflow from large to small firms, (i.e., a gross inflow of 1,336,363 workers from large to small firm versus a gross outflow of 955,112 workers from small to large firms). Thus, the number of workers moving from large to small firms was four-tenths greater than the number moving from small to large firms. Although the same pattern is observed in comparing the two sets of data in terms of intra-sectoral flows, one finds that the sign of the net difference is positive for younger workers, but it is negative for the older group of
The turnover rates for the two sectors based on the weighted data are again revealing. Among large firms, it was 9.0 percent. The turnover rate among small firms was 15.2 percent, i.e., almost two-thirds greater. It should be remembered that the unemployment rate was 7.5 percent in 1984 -- just as it was in September, 1992. But whether the turnover rate in small firms was still two-thirds higher than that of large firms, requires further exploration. The findings of this study yield no ready explanation with respect to this issue. They may provide a rough approximation of what this differential might be given the present situation. In the absence of such data, they do provide a starting point.
CHAPTER 3

DO SMALL AND LARGE FIRMS COMPRIS A DUAL LABOR MARKET?

A long-standing controversy among labor economists revolves around the issue of whether the economy is comprised of dual labor markets. Proponents of the view that there are dual labor markets see the economy as being divided into noncompeting sectors. In one sector, the primary sector, jobs are well-paid, workers can obtain training, there are opportunities for promotion, and employment is stable. In the other sector, the secondary sector, jobs are less well-paid, training is not as prevalent, there are fewer chances for promotion, and the turnover rate is higher.

Key to this view is the supposition that there is only limited mobility between the two sectors. It is this lack of inter-sector mobility that leads to the perpetuation of dual labor markets.

The two examples that are most often cited in support of dual labor market theory are based on gender and racial differences. With respect to the former, for example, empirical data indicate that, all else the same, women earn less than men; and in the past, at least, their turnover rate has been higher than that of men. It is also said that occupational segregation prevents women from finding employment in jobs that are typically
held by men. Similarly, it has been argued that because minorities are "locked" into the secondary labor market they are unable to obtain the training needed to find employment in the primary labor market. Likewise, their perceived poor work habits may be the result of where they are employed rather than the reason why they can only find jobs in the secondary labor market.

Although dual labor markets are generally discussed in terms of gender and race, when the labor market is sectored in terms of large and small firms, other relationships are found which suggest they are, indeed, dualistic in nature. As we have seen above, the dualistic nature of labor markets is reflected by turnover rates. And as shall be seen below, they are most clearly shown by data on fringe benefits.

A. An Explanation For A Dual Labor Market Based On Firm Size

An explanation for the existence of a dual labor market sectored on the basis of firm size can be found in the work of Oi and Doeringer and Piore. Oi focuses on differences in firm size arising out of an unequal distribution of entrepreneurial ability. The special ability of some entrepreneurs that enables their firms to reach large size is that they are able to coordinate the production of large volumes of standardized output. This ability, however, does not extend to monitoring the performance of workers. As a result, more able entrepreneurs who employ a larger work force incur greater monitoring costs, all else the same, than less able ones who employ a smaller work
Large firms can reduce monitoring costs in several ways. One important way is how they organize production. In particular, capital is used extensively and is specialized to reduce the need for high-cost labor, and to simplify the tasks to which workers are assigned, thereby lessening supervision of labor. Another important way is to employ high-quality workers for whom monitoring costs are relative low. Since they tend to be more disciplined, they are better able to adjust to new situations and to need less direction. Still another way is to provide their work force with firm-specific training. Such training reduces the likelihood of production stoppages that idle large numbers of workers. It also molds workers into more homogenous labor units, allowing substitutability between workers, again diminishing the costs of supervision.

At the other end of the scale, small firms do best by utilizing production processes that are not capital intensive. This together with the ease in which performance can be monitored—which is a concomitant of small size—reduces the need for firm-specific training. Lower monitoring costs and reduced requirements to engage in firm-specific training in turn imply that small firms can improve their competitive position in the market place by employing less-qualified workers. By relying on general purpose equipment, small firms can more easily adjust their volume of output as well as its mix to changes in demand. In making these adjustments, workers are assigned to a
multiplicity of tasks. As a result, they acquire general training in place of firm-specific training.

Doeringer and Piore have suggested that provision of firm-specific training in order to reduce monitoring costs gives rise to internal labor markets in large firms. A central feature of internal labor markets is that hiring from outside of a firm is typically done only for entry-level jobs, and that the filling of more advanced positions is generally done internally, i.e., from inside the firm. In contrast, in conventional external labor markets, in which small firms are more likely to operate, advanced and entry-level positions tend to be filled from outside the firm.

Filling entry-level positions from outside the firm and more advanced positions from inside the firm has two advantages for a large firm. First, the expected loss of hiring an unqualified worker is reduced by hiring new workers only for low-level jobs. Workers hired into these positions can be easily evaluated since the tasks they perform are usually not complex, and workers who are less capable can be weeded out without the firm incurring large costs in terms of wages paid and foregone output. Second, by filling advanced jobs from within the firm, an incentive is created for workers to maintain a high level of performance. This kind of hiring and promotion system leads to an implicit understanding between workers and the firm that if the former perform the tasks assigned them in a satisfactory manner, they can expect to be retained for a lengthy period of time, perhaps
extending over their entire work life.

It is the expectation of stable employment that leads workers to provide firm-specific training to their replacements, and induces firms to honor this expectation. Since the costs of specific training are negatively related to worker quality, there is an additional incentive, besides that of reducing monitoring costs, for large firms to employ high-quality workers. As noted, the provision of firm-specific training further reduces monitoring costs below what they would be otherwise.

The organization of production within large firms and the internal labor markets that this gives rise to helps explain why the labor market from which such firms hire constitutes a primary labor market.

B. A Statistical Procedure For Analyzing Data Consistent With The Existence Of A Dual Labor Market Based On Fringe Benefits And Firm Size

Some empirical data consistent with the proposition of a dual labor market based on firm size, namely, that turnover rates are lower in large firms than small ones, and that there is limited mobility between the two sectors, was presented in Chapter 2. There is also strong evidence that the former have access to more valuable fringe benefits. This is found in the Public Use File of the May 1988 Current Population Survey (CPS). This survey asks workers about fringe benefits, including health insurance, pension benefits, and sick leave. In particular, it
asks whether these benefits are offered by their employer or a union. We focus on the "offer" of benefits because not all workers are eligible for such benefits or accept them given that they are offered, e.g., some people prefer not to be covered by health insurance even though they are offered it.

But before we begin our discussion, we describe a statistical procedure for analyzing data that are dichotomous, i.e., where the dependent variable takes on a "yes" or "no" response. That is to say, does the individual work in a firm that offers (or does not offer) sick leave, or health insurance, or a pension plan to its employees. This procedure is known as logistic regression.

Logistic regression is employed to determine if employees were offered each of the benefits described above or not. The empirical model estimated was

$$\log \frac{p}{1-p} = a + \sum B_i X_i$$

where $p$ is the probability of a person having the specified benefit; $p/(1-p)$ is the odds of having the specified benefit; the coefficients $B_i$ show the log of the odds for a unit change in $X_i$; and the $X_i$ represent independent variables associated with each respondent. For the logistic regression model, the log of the odds varies linearly with the $X_i$. It is also seen that as log $p/(1-p)$ increases, so does $p$.

To transform a coefficient to show the odds for a given $X_i$, rather than the log of the odds, the antilog of the right-hand side of the estimated logistic regression equation is calculated.
setting the variables other than the given $X_i$ to their mean. The given $X_i$ is set equal to 1 or 0 if it is a dummy variable and to specified values if it is a continuous variable. If, for example, the odds for a given variable, say, region (where a value of 1 indicates South and a value of 0 equals non-South) is calculated to be 0.500, i.e., 0.500:1, this would mean that a person residing in the South would in 1 out of 2 cases have a fringe benefit offered to him or her. The probability of this event occurring is given by the quotient of the odds to the odd+1. In the example given, the probability of a person living in the South being offered sick leave benefits, all else the same, equaled 0.333.

Demographic and economic variables are used to define an employee's characteristics. The first group of variables includes the sex, age, race, ethnicity, marital status, education, region of residence, and whether he or she resides in a metropolitan area. The second group includes the individual's hourly wage, whether he or she worked part-time (at least 20 hours but less than 35 hours per week) or full-time (35 hours or more per week), whether he or she was a member of a union, the length of time the individual worked for the firm, and the size of the firm that he or she worked for (again defined as a small firm if the firm employed fewer than 100 employees and as a large one if it employed 100 employees or more). Included among the independent variables, but not shown in the tables below, are 9 variables to take account of an individual's occupation and 8
variables to take account of his or her industry. The occupational and industrial variables are omitted in order to focus on the specific variables eluded to above.⁶

A positive $B_i$, i.e., log of the odds, indicates that the probability of being offered a benefit increases as the value of $X_i$ increases; conversely a negatively $B_i$ indicates that as $X_i$ increases in value the likelihood of being offered a benefit diminishes. For the problem at hand, the expected signs of most of the economic variables are such that they are positive. For example, one expects the sign of the dependent variable, e.g., the firm offers a pension to its workers, should be positively related to whether the worker is a union member.

For the demographic variables, the expected signs of the coefficients cannot be ascertained a priori. For example, highly educated persons may prefer jobs which offer health insurance; nonetheless, the sign of this variable might be negative, indicating that less educated people may need health insurance because they tend to be sicklier. Or, the older you are, the more likely you are to take a job which offers sick leave benefits; but employers are less likely to employ older people in jobs where such benefits are offered. In this instance, the sign will be positive or negative, depending on whether the former or the latter is true. In either case, the size of the probability value shown in the last column will be .10 or smaller, i.e., the sign of the coefficient is incorrect in .10 or fewer cases. The importance one attributes to a variable is determined by its chi-
square value -- the larger this value, the greater is its importance.

C. Empirical Results: The Offering of Sick Leave, a Health Insurance Plan, or a Private Pension Plan by Size of Firm

The three logistic regressions showing the importance of size of firm on whether fringe benefits are offered is provided by the tables (see Table 3.1 to Table 3.3) shown in this section. By far, the most important form of fringe benefit is health insurance (see Table 3.4); 84.9 percent of workers are employed by firms that offer this benefit. On the other hand, 61.3 percent of workers are employed by firms that offer a private pension plan. Only a slightly larger percentage of employees, 63.4 percent, have access to sick leave or sickness insurance.

By way of illustrating the tables, let us examine Table 3.1 which focuses on the factors accounting for firms offering sick leave benefits. First, the least important factors are seen to be Black and Spanish as indicated by their very small chi-square values, and also their high probability, far greater than .10, of seeing these values simply due to chance. Second, among the significant variables, only two have a negative sign -- the variables South and Age. Apparently, Southern employers are less likely to offer sick leave than other employers. Moreover, older employees tend to be in jobs in which sick leave is not offered. Third, the variable Female has a positive sign and is significant, indicating that women have a preference for jobs in
Table 3.1 -- Logistic Regression Coefficients: Individuals in the CPS who were Employed by Firms that Offered Sick Leave

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-3.304</td>
<td>169.30</td>
<td>.00</td>
</tr>
<tr>
<td>Firm Size</td>
<td>.945</td>
<td>346.91</td>
<td>.00</td>
</tr>
<tr>
<td>Age</td>
<td>-0.014</td>
<td>35.15</td>
<td>.00</td>
</tr>
<tr>
<td>Female</td>
<td>.233</td>
<td>15.96</td>
<td>.00</td>
</tr>
<tr>
<td>Married</td>
<td>.085</td>
<td>2.65</td>
<td>.10</td>
</tr>
<tr>
<td>Education</td>
<td>.080</td>
<td>46.75</td>
<td>.00</td>
</tr>
<tr>
<td>Black</td>
<td>-0.046</td>
<td>.25</td>
<td>.62</td>
</tr>
<tr>
<td>Hispanic</td>
<td>.149</td>
<td>.53</td>
<td>.47</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>.056</td>
<td>203.87</td>
<td>.00</td>
</tr>
<tr>
<td>Hours, 21-34</td>
<td>.972</td>
<td>48.03</td>
<td>.00</td>
</tr>
<tr>
<td>Hours, 35+</td>
<td>2.173</td>
<td>344.51</td>
<td>.00</td>
</tr>
<tr>
<td>South</td>
<td>-0.091</td>
<td>3.15</td>
<td>.08</td>
</tr>
<tr>
<td>SMSA</td>
<td>.284</td>
<td>27.95</td>
<td>.00</td>
</tr>
<tr>
<td>Union Member</td>
<td>.232</td>
<td>8.08</td>
<td>.00</td>
</tr>
<tr>
<td>Hourly Wage</td>
<td>.069</td>
<td>118.30</td>
<td>.00</td>
</tr>
</tbody>
</table>

| -2 Log Likelihood | 14535.6 |
| Chi-Square        | 3660.2  |
| Sample Size       | 11068   |

a. Firm Size = 1 for Large, Female = 1 for Female, Married = 1 for Married, Black = 1 for Black, Hispanic = 1 for Hispanic, South = 1 for South, SMSA = Standard Metropolitan Statistical Area, and Union Member = 1 for Union Member. Discrete variable values = 0, otherwise. Age, Education, Job Tenure, Hours, 21-34, Hours, 35+, and Hourly Wage are continuous variables.

which sick leave is available. This preference for such jobs may be due to the fact that women are expected to stay home when children are sick. In contrast, the variable Female is insignificant in the other two logistic regression equations. With respect to both the offer of a pension and the offer of health insurance, women and men are offered these benefits at the same rate.

Two variables with relatively large chi-squares in Table 3.1 are Job Tenure and the Hourly Wage Rate; in fact in each of the three logistic regression equations these variables have large chi-squares.

Thus, Job Tenure is important in the provision of fringe benefits. In so far as they are relatively costly, only those workers who exhibit stability in employment are rewarded with the possibility of coverage under a pension plan or health insurance -- and as indicated here, the possibility of sick leave benefits.

In general, poorly paid workers are most in need of sick leave because of ill health. Yet employers do not generally offer sick leave to poorly paid workers. On the contrary, they generally offer sick leave to more productive workers, i.e., high paid workers, rather than to those who are less productive. More will be said about this later.

Union members, acting in concert may be able to extract benefits for a larger proportion of workers than workers who are nonunionized. As sick leave represents nontaxable income, union members, who tend to be higher paid than nonunion workers, will
at the margin benefit more than others from a dollar of compensation in the form of this fringe benefit than if that dollar is paid as a wage or salary. This appears to be case with respect to sick leave, at least in terms of the proportion of workers offered such benefits. The chi-square value of 8.08 is positive and significant. However, it does not appear to be overly large. This can be contrasted with the chi-square value of 147.81 for this variable in the "offers pension plan" logistic regression. Apparently, the impact of union membership is exercised most strongly with respect to whether a pension is offered than when sick leave (or health insurance) is offered.

The two variables with the highest values of chi-square in Table 3.1 are firm size and full-time workers vis-a-vis part-time workers. Their values, 346.91 and 344.51, are quite large relative to those of the other variables. The high value for the firm size variable is significant for it indicates a strong "demand side" orientation. Likewise, the full-time worker variable shows the influence of a strong "supply side" factor.

Holding a large number of variables constant, the size of firm one is hired by plays an important role in whether an individual is offered sick leave. On the other hand, the supply side variable Education has a chi-square value of only 46.75. In this sense, a supply side variable is one which is determined by individual choice. Like education, the number of hours that one chooses to work is a supply side variable -- one can choose to work full-time or part-time. On the other hand, the size of firm
that one works for is given to the employee; he or she has no control over it. The worker finds a large employer if he is fortunate to do so; otherwise, he is "forced" to seek employment with a small firm. It is in this regard that the firm size variable reflects the demand side.

In Table 3.1, and specially in Table 3.2 and Table 3.3, Firm Size is seen to be the most important variable determining whether a fringe benefit is offered to an employee. Indeed, in the logistic regression for pension coverage, the firm-size value for chi-square is 1520.08. The next highest value of chi-square is 197.73 -- which is for the job tenure variable.

Among the next three variables with the highest chi-square values in each of the three fringe benefit equations (besides Firm Size) are Job Tenure, the Hourly Wage, and Education. Similarly, Black and Spanish do not seem to play an important role. The variable Black is negative and significant (indicating that Blacks are under-represented) in only one of the three logistic equations, but even in this case, its chi-square value is not overly impressive. Nor is Spanish significant in each of the three logistic regressions. In general, the economic variables seem to play a larger role than the demographic variables.

In many jobs, whether a pension plan or health insurance is offered depends on the time an employee has been on that job. The length of time spent working for an employer is found to be positively and significantly related to the proportion of
Table 3.2 -- Logistic Regression Coefficients: Individuals in the CPS who were Employed by Firms that Offered A Pension Plan

<table>
<thead>
<tr>
<th>Variables&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2.029</td>
<td>63.39</td>
<td>.00</td>
</tr>
<tr>
<td>Firm Size</td>
<td>1.997</td>
<td>1520.08</td>
<td>.00</td>
</tr>
<tr>
<td>Age</td>
<td>-0.011</td>
<td>19.72</td>
<td>.00</td>
</tr>
<tr>
<td>Female</td>
<td>.067</td>
<td>1.26</td>
<td>.26</td>
</tr>
<tr>
<td>Married</td>
<td>.025</td>
<td>.21</td>
<td>.65</td>
</tr>
<tr>
<td>Education</td>
<td>.099</td>
<td>66.34</td>
<td>.00</td>
</tr>
<tr>
<td>Black</td>
<td>.001</td>
<td>.00</td>
<td>.99</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-0.167</td>
<td>0.62</td>
<td>.43</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>.056</td>
<td>195.73</td>
<td>.00</td>
</tr>
<tr>
<td>Hours, 21-34</td>
<td>.078</td>
<td>.36</td>
<td>.55</td>
</tr>
<tr>
<td>Hours, 35+</td>
<td>.183</td>
<td>3.08</td>
<td>.08</td>
</tr>
<tr>
<td>South</td>
<td>-0.135</td>
<td>6.49</td>
<td>.01</td>
</tr>
<tr>
<td>SMSA</td>
<td>-0.002</td>
<td>.00</td>
<td>.97</td>
</tr>
<tr>
<td>Union Member</td>
<td>1.241</td>
<td>147.81</td>
<td>.00</td>
</tr>
<tr>
<td>Hourly Wage</td>
<td>.056</td>
<td>80.29</td>
<td>.00</td>
</tr>
<tr>
<td>-2 Log Likelihood</td>
<td></td>
<td>14771.2</td>
<td></td>
</tr>
<tr>
<td>Chi-Square</td>
<td></td>
<td>4344.0</td>
<td></td>
</tr>
<tr>
<td>Sample Size</td>
<td></td>
<td>11068</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Firm Size = 1 for Large, Female = 1 for Female, Married = 1 for Married, Black = 1 for Black, Hispanic = 1 for Hispanic, South = 1 for South, SMSA = Standard Metropolitan Statistical Area, and Union Member = 1 for Union Member. Discrete variable values = 0, otherwise. Age, Education, Job Tenure, Hours, 21-34, Hours, 35+, and Hourly Wage are continuous variables.

Table 3.3 -- Logistic Regression Coefficients: Individuals in the CPS who were Employed by Firms that Offered Health Insurance Benefits

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.265</td>
<td>.68</td>
<td>.41</td>
</tr>
<tr>
<td>Firm Size</td>
<td>2.078</td>
<td>742.09</td>
<td>.00</td>
</tr>
<tr>
<td>Age</td>
<td>-0.017</td>
<td>35.32</td>
<td>.00</td>
</tr>
<tr>
<td>Female</td>
<td>-0.126</td>
<td>2.44</td>
<td>.12</td>
</tr>
<tr>
<td>Married</td>
<td>-0.057</td>
<td>.67</td>
<td>.41</td>
</tr>
<tr>
<td>Education</td>
<td>.087</td>
<td>35.41</td>
<td>.00</td>
</tr>
<tr>
<td>Black</td>
<td>-0.246</td>
<td>.94</td>
<td>.33</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-0.167</td>
<td>14.51</td>
<td>.00</td>
</tr>
<tr>
<td>Job Tenure</td>
<td>.057</td>
<td>96.29</td>
<td>.00</td>
</tr>
<tr>
<td>Hours, 21-34</td>
<td>.339</td>
<td>6.78</td>
<td>.01</td>
</tr>
<tr>
<td>Hours, 35+</td>
<td>1.062</td>
<td>98.92</td>
<td>.00</td>
</tr>
<tr>
<td>South</td>
<td>-0.073</td>
<td>1.16</td>
<td>.28</td>
</tr>
<tr>
<td>SMSA</td>
<td>.216</td>
<td>9.82</td>
<td>.00</td>
</tr>
<tr>
<td>Union Member</td>
<td>.296</td>
<td>4.00</td>
<td>.05</td>
</tr>
<tr>
<td>Hourly Wage</td>
<td>.087</td>
<td>77.38</td>
<td>.00</td>
</tr>
<tr>
<td>-2 Log Likelihood</td>
<td></td>
<td></td>
<td>9455.8</td>
</tr>
<tr>
<td>Chi-Square</td>
<td></td>
<td></td>
<td>2936.7</td>
</tr>
<tr>
<td>Sample Size</td>
<td></td>
<td></td>
<td>11511</td>
</tr>
</tbody>
</table>

a. Firm Size = 1 for Large, Female = 1 for Female, Married = 1 for Married, Black = 1 for Black, Hispanic = 1 for Hispanic, South = 1 for South, SMSA = Standard Metropolitan Statistical Area, and Union Member = 1 for Union Member. Discrete variable values = 0, otherwise. Age, Education, Job Tenure, Hours, 21-34, Hours, 35+, and Hourly Wage are continuous variables.

employees that are offered both kinds of fringe benefits. In the former case where a pension is offered, the Job Tenure variable has a chi-square value of 195.73; in the latter case where health insurance is offered, the Job Tenure variable has a chi-square value of 96.29.

Of some interest is whether the proportion of employees offered health insurance varies negatively or positively with the hourly wage rate. Or put another way, is the proportion highest among those groups who need health insurance the most, i.e., the poorly paid hourly wage workers, or is it highest among those with perceived high productivity, i.e., the well-paid hourly wage workers. The answer to this question is implicit in the results of the last regression model (Table 3.3). In particular, the positive and significant coefficient for the Hourly Wage Rate variable suggests that the offer of health insurance complements a worker's wage, rather than being a substitute form of compensation, and is unrelated to expected benefit outlays associated with insuring lower-income minority workers, e.g., Black and Spanish.

The logistic regression results indicate that not only does a worker's hourly wage rate vary positively and significantly with an employer's offer regarding health insurance, it varies positively and significantly with an employer's offer regarding a pension plan or sick leave benefits. That the latter is so is additional evidence of a positive relationship between the productivity of the worker and his or her total compensation.
Thus, it appears that higher paid workers are better able to afford fringe benefits and firms tend to subsidize such plans to a greater extent as a means of recruiting and retaining them.

D. Analyzing the Effect of Firm Size on whether Health Insurance, a Pension Plan, or Sick Leave is Offered by an Employer

The foregoing discussion indicates that size of business is the most important variable influencing whether a worker is offered health insurance, or a pension, or sick leave. Since we desire to know the influence of one of the variables, namely, size of firm, on the likelihood of various kinds of fringe benefits being offered to employees, it is necessary to hold other factors constant in the logistic regressions. Thus, to show the effect of being employed in a small firm rather than a large firm on the probability of being offered a health insurance plan, or a pension plan, or sick leave benefits, we set the appropriate coefficient equal to 0 (to indicate a small firm) or 1 (to indicate a large firm) in each equation, and then we set all the other coefficients equal to their mean. When this is done, we obtain the probabilities shown in Table 3.4.

With respect to health insurance, almost all employees in large firms (97 percent in 1988) were offered it, everything else the same. Among employees in small firms, holding everything else constant, 4 out of 5 were offered it. Conversely, among the large firms, health insurance was offered almost universally.
<table>
<thead>
<tr>
<th>Benefit</th>
<th>Actual Percentage of Workers</th>
<th>Hypothetical Percentages of Firms, Based on Logistic Regression&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Firms</td>
<td>Small Firms</td>
</tr>
<tr>
<td>Offered Health Insurance</td>
<td>84.9</td>
<td>80.4</td>
</tr>
<tr>
<td>Offered Pension Plan</td>
<td>61.3</td>
<td>36.5</td>
</tr>
<tr>
<td>Offered Sick Leave</td>
<td>63.4</td>
<td>53.8</td>
</tr>
</tbody>
</table>

<sup>a</sup> Holding all variables constant at their mean except for firm size.

About 1 out of 5 employees in small firms was not covered because their employers did not offer health insurance. Over all, 89.4 percent of all employees were offered health insurance.

The disparity in benefit provision is much greater for pension plans and sick leave benefits. For the 25 and older group in 1988, all else the same except for size of firm, 80.9 percent of those working at a large firm were offered a pension plan; the corresponding figure for those in small firms was only 36.5 percent. Here the difference is 44.4 percentage points. Put another way, the average percentage of employees being offered pension benefits over all firms was 61.3 percent. But for workers in large firms, the percentage was 80.9 percent, for workers in small firms it was 36.5 percent -- a difference in absolute size of 44.4 percentage points.

Likewise, for sick leave benefits. The average percentage of employees who were offered sick leave benefits was 63.4 percent. Again, workers in large firms were more likely to be offered sick leave benefits than workers in small firms: 80.6 percent of employees in large firms were offered such benefits; among their counterparts in small ones, only 53.8 percent were offered such benefits. The difference in absolute size is 21.2 percentage points.

In general, we would therefore not expect to find much of a correlation between labor turnover and the availability of fringe benefits for larger firms. If a negative correlation is found, we would expect it to occur among small firms.
In each case, the most important variable explaining the availability of health insurance, pension, and sick leave benefits is firm size. For example, our analysis indicates that the older a worker is, the less likely he or she is to find employment in a firm offering fringe benefits. Also, as noted, the vast majority of large firms offer fringe benefits. Thus, the negative relationship between age and fringe benefit availability primarily reflects outcomes in the small business sector. A plausible explanation is that because the costs of fringe benefits increase with age, small firms employ a relatively large proportion of older workers but do not offer them (and others) fringe benefits.

A somewhat surprising finding of our analysis is that while women appear to be employed to the same extent as men in firms that offer health insurance and pension benefits, they are over-represented in firms, again primarily small firms, that offer sick leave benefits. The implication of this finding is of some interest. If women, particularly women with young children, prefer to work in small firms that offer sick leave, it may be possible for some small businesses with a large proportion of female workers to reduce labor costs by offering workers sick leave (at somewhat lower wage rates). Labor costs might also be lowered by more careful monitoring of sick leave absences.

Finally, the data of this analysis appear to be inconsistent with the notion that fringe benefits are a substitute for wages i.e., that wage rates are lower than they would otherwise be in
firms that offer fringe benefits. This contradicts a large body of material that has been published in the recent literature. A review of this literature and its empirical basis is beyond the scope of this study. But whatever the outcome of the issue of whether fringe benefits are a substitute for wage levels or are complimentary to wage levels, the finding that large and small firms constitute different universes with respect to fringe benefits remains to be explained. With respect to fringe benefits, it appears that a dual labor market does exist. The reason for this has been offered earlier.
FOOTNOTES

Chapter 1

1. A discussion of the production function and firm size is provided in Oi (1983a).

2. For an analysis of the matching of workers and firms, see Barth, Cordes, and Haber (1987).


4. The policy implications of this portion of our study also bear on the effects of mandated health insurance. The mandating of health insurance, which would lead to an increase in the fringe benefit package available to workers, particularly those in small firms, will raise the cost of doing business, but it may also have an indirect beneficial effect, i.e., it may reduce turnover.

5. The aspect of mobility that is examined in this study is interfirm transfers of labor between firms of the same and different size.

Chapter 2

1. In Table 2.1, the numbers in parenthesis refer to the
corresponding cell values in the transition matrix.

2. See Schiller (1982).

3. As Schiller notes, four continuous quarters of wage credits can be earned over a continuous period as small as six months and two days. More importantly, wage credits can also be earned working only a few days every three months; in this case, the criterion he used to identify an individual's first steady job could result in classifying casual workers as having a steady job.


5. Ibid., p. 65.

6. The Schiller turnover figures cover a period of roughly nine years after initial attachment to an employer. While he classified firms into three size groups, 1-99, 100-999, and 1,000 and over, in Table 2.2 we aggregated the figures in his last two groups, since the largest firm size identified in the SIPP data is 100 or more workers, and it of interest to compare his and our figures.

7. Schiller indicates that almost 99 percent of "all initial [male] workers ...[left] their first regular employer" over the nine year period (p. 35) between 1960 and 1969. Hence, in Table 2.2 the total of all young male job leavers from small and large firms also approximates the number of young male workers initially employed in the two firm size categories. This correspondence between job leavers and total employment provides the basis for the figures just noted in the text. In calculating
these figures, it is assumed that 100 percent of all initial young male workers left their first regular employer. Thus, the figure of 41 percent equals \( \frac{586}{1,437} \times 100 \).

8. Berkeley Planning Associates (1988) reports a separation rate for workers aged 18 to 85 years and over of 21.7 percent for small firms and 15.4 percent for large ones over between wave 3 and wave 6 (pp. 3-2 to 3-6), i.e., a period of one year. Our data, which also covers a one year period (wave 4 to wave 7) indicate that turnover was much lower for small firms (17.7) as well as for large firms (9.7). The ratio of 21.7 to 15.4 in the Berkeley Planning Associates study suggests that turnover was 1.41 times higher in small firms than in large firms; our data indicate that it was 1.84 times higher in small firms than in large firms.

Chapter 3

1. See Walter Oi (1983a,b).
2. See Peter Doeringer and Michael Piore (1971).
4. The sample is the same as before, i.e., nonagricultural private sector wage and salary workers aged 25 years and older, except private household workers. It should be noted that the sample size of the CPS is much larger than that of the SIPP.
5. See the text and the regression models in this chapter for definitions. In particular, the independent variable equals 1 if
the worker is offered a fringe benefit (either sick leave, or health insurance, or a pension plan) by his employer, and 0 otherwise.

6. In Tables 3.1 to 3.3, the omitted occupational variables are Executive, administrative, and managerial; Professional specialty; Technicians and related support; Administrative support, including clerical; Protective and other service; Precision production, craft, and repair; Machine operators, assemblers, and inspectors; Transportation and material moving; and Handlers, equipment cleaners, etc. The omitted industrial variables are Agriculture; Mining; Construction; Durable good manufacturing; Transportation, communications, and other public utilities; Wholesale and retail trade; Finance, insurance, and real estate; and Miscellaneous services.
REFERENCES


Oi, Walter, "Heterogeneous Firms and the Organization of Production," Economic Inquiry, April 1983a, pp. 147-171.
