

# **Successful Transitions out of Low-Wage Work for Temporary Assistance for Needy Families (TANF) Recipients: The Role of Employers, Coworkers, and Location**

## **Final Report**

April 2004

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*Prepared for:*

**U.S. Department of Health and Human Services  
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*Prepared by:*

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# **Successful Transitions out of Low-Wage Work for Temporary Assistance for Needy Families (TANF) Recipients: The Role of Employers, Coworkers, and Location**

**Final Literature Review**

**April 2004**

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## Executive Summary

This study examines the effect of employer characteristics, types of coworkers, and residential location in promoting the advancement of Temporary Assistance for Needy Families (TANF) recipients in the labor market. It is the first to use new, large integrated employer-employee data—with new measures of worker quality and firm pay premia—to examine labor market outcomes and provide evidence that proactive welfare agencies may use in decision making.

The first part of the study examines changes in the low-wage labor market and finds that *employment opportunities expanded in the low-wage labor market between 1997 and 2001, but that the growth in opportunities has not been associated with greater access to good wages.*

In particular, we find that low-wage employment is concentrated in a few industries, and opportunities in these industries have expanded between 1997 and 2001. In addition, although many low-wage workers work with high-wage workers, the opportunity to do so is declining. We also find that firms in low-wage industries pay workers—with the same set of skills—less than firms other industries. While job quality has increased over time, this trend has been less strong in heavily low-wage firms. In terms of the importance of neighborhood characteristics, we find that low-wage jobs do exist in low-wage neighborhoods, but there remains a mismatch between the location of low-wage workers and jobs. In sum, most low-wage workers are in industries, firms, and neighborhoods that have low job quality indices, and the changes over time have not been positive.

The second part of the study examines the effect of employer characteristics, types of coworkers, and residential location on TANF recipients' transition out of low-wage work and finds that *the industries and firms for which workers work, the characteristics of their coworkers, and the neighborhoods in which they live all affect the likelihood of exit from low-wage status.*

In particular, we find the most important individual characteristic determining the likelihood is worker quality. In addition, the quality of coworkers and the quality of the employer matter. Finally, living in a low-wage neighborhood strongly reduces the likelihood of transitioning out of low-wage status.

In sum, we find that jobs were created for low-wage workers between 1997 and 2001. While opportunities exist, however, the challenge for TANF agencies is to identify the job-creating firms that provide opportunities for low-wage workers, as well as coworkers that are primarily non-low-wage. This will maximize TANF recipients' chances of transitioning out of low-wage status. In addition, given the importance of residential location, TANF agencies might want to examine alternative transportation options.

## 1. Introduction

With the tremendous success achieved by welfare reform in moving large numbers of former recipients into jobs, attention is now turning to their ability to advance in the labor market. While anecdotal evidence suggests that the employer is critical to this advancement, little hard evidence exists—despite the need for such information by Temporary Assistance for Needy Families (TANF) agencies examining ways to improve labor market outcomes for disadvantaged workers. This study expands on intriguing preliminary evidence (see Andersson, et al., forthcoming<sup>1</sup>) by directly investigating the impact of firm characteristics—such as industry, firm quality, and firm location—on worker earnings, earnings growth, and transitions out of low-wage status for TANF recipients. In addition, it highlights the substantial dynamism of the low-wage labor market, indicating opportunities for TANF agencies not just to emphasize the quality of program placement but also to identify successful retention strategies.

This analysis is possible because the Longitudinal Employer-Household Dynamics (LEHD) program at the Census Bureau has developed a new database that can be used to answer a number of these questions. Because the LEHD data integrate employer and employee files, they provide a unique opportunity to analyze how employment outcomes are influenced by both worker and firm characteristics and the interaction of the two. The database integrates several administrative data files, including internal records at the Census Bureau, Unemployment Insurance (UI) wage records, and state ES202 establishment (company-based) records. This analysis includes data for eight states, accounting for 55 percent of the U.S. labor market, and provides quarterly longitudinal information on firms and workers for approximately 10 years—from the early 1990s to 2001. A smaller subset of observations is also integrated with various national survey datasets such as the 2000 Decennial Census, the Survey of Income and Program Participation, and the Current Population Survey.

The analysis will include a combination of basic descriptive statistics as well as more complex multivariate modeling. The analysis will include an examination of the following set of questions:

1. Where are the low-wage jobs?
2. How has the labor market for low-wage workers changed over time in terms of the availability and quality of employment opportunities in the key industries, firms, and neighborhoods where low-wage jobs are concentrated?
3. How are TANF recipients doing in the labor market relative to all low-wage workers, and how are they progressing?
4. What are the factors associated with transitions out of low-wage status for TANF recipients?
5. What factors are most predictive of job retention and wage advancement when simultaneously controlling for a set of worker, firm, and location characteristics?

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<sup>1</sup> Andersson, F., H. Holzer, and J. Lane. Forthcoming. *Moving Up or Moving On: Workers, Firms and Advancement in the Low-Wage Labor Market*. Thousand Oaks, Ca, forthcoming Sage Press.

The new LEHD data enabled us to explore these questions in detail. Questions 1 and 2 characterize the labor market where disadvantaged workers are likely to seek employment and are addressed in sections 1 through 5. This labor market is characterized in terms of the industries, firms, and neighborhoods where low-wage workers are likely to be concentrated. Question 3 examines how TANF recipients and other low-wage workers are doing in the labor market, as well as how they are progressing, and is addressed in section 6. Questions 4 and 5 analyze the factors affecting TANF recipients' and low-wage workers' success in the labor market and are explored in sections 6 and 7.

A primary goal of this project is to inform efforts to improve job retention and wage advancement by providing a better understanding of the factors that influence employment. One aspect of the labor market highlighted by these data is the dynamism of the U.S. economy—an illustrative example of which is provided in table 1 below.<sup>2</sup> This table demonstrates several new facts. First, while in this particular state, the employment picture was quite negative over the time period, this varied markedly across age-groups: 19–21 year olds lost about 0.7 percent of its jobs; 35–44 year olds lost 0.9 percent; and 55–64 year olds lost more than 2 percent. Second, even though jobs were lost on net, there were still jobs being created—and this creation rate varied dramatically across age groups again. For jobs among 19–21 year olds, 18 percent were new, compared with about 5 percent for the older cohort. Finally, hiring continued even during a slowdown in economic activity—more than 43 percent of the youngest cohorts were in new jobs in the next year, as were 12 percent of 35–44 year olds, and 7 percent of 55–64 year olds.

**Table 1.**  
**2001 Employment Dynamics<sup>3</sup> (Non-farm, Private Sector Employment) for Pennsylvania**

	Age Categories		
	19–21	35–44	55–64
<b>Total Employment</b>	277,894	1,274,474	509,417
<b>Net Job Change</b>	-1,988	-12,004	-11,183
<b>Jobs Created</b>	49,184	81,250	27,730
<b>New Hires</b>	119,070	155,869	36,132

These preliminary results suggest the intriguing possibility that the economy still creates jobs for workers, even in relatively dark economic times. The challenge for TANF agencies is to identify the job-creating firms that provide opportunities for low-wage workers and focus on tactics to teach workers to retain jobs once hired.

<sup>2</sup> The LEHD data provide information on all age-groups; the table provides a subset for clarity of exposition.

<sup>3</sup> Details on how these statistics are calculated is provided in Abowd, Lengermann, and Vilhuber. 2002. “The Creation of the Employment Dynamics Estimates.” LEHD Technical Working Paper TP2002-13. <http://lehd.dsd.census.gov>.

## 2. Describing the Data

### 2.A. *The Basic Database*

We take advantage of a new database that enables us to match workers with past and present employers, together with employer and worker characteristics (Abowd, Lane, and Prevest 2000<sup>4</sup>). This database consists of quarterly records of the employment and earnings of almost all individuals from the Unemployment Insurance systems of 29 U.S. states in the 1990s and early 2000s.<sup>5</sup> These type of data have been extensively described elsewhere (Haltiwanger, Lane, and Spletzer 2000<sup>6</sup>), but it is worth noting that there are several advantages over household-based survey data. In particular, the earnings are quite accurately reported, because there are financial penalties for misreporting. The data are current, and the dataset is extremely large. Because the scope of the data is the full universe of employers and workers,<sup>7</sup> movements of workers across earnings categories and across employers can be accurately tracked. Thus, new measures of workforce turnover, job creation, job destruction, and the number of low-wage workers employed<sup>8</sup> can be created for each firm in the dataset, for each year. The UI records have also been matched to internal administrative records containing information on date of birth, place of birth, race, and sex for all workers, thus providing limited demographic information. This study is also one of the first to exploit the geographic information that exists on the dataset. In particular, the physical location of each establishment is geocoded to the latitude and longitude level, as is the place of residence of each worker (from 1999 to 2001).

Because these data are primarily derived from administrative records, there are some important features that are different from data derived from worker-based surveys. One feature is that

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<sup>4</sup> Abowd, J. M., J. Lane, and R. Prevest. 2000. "Design and Conceptual Issues in Realizing Analytical Enhancements through Data Linkages of Employer and Employee Data." *Proceedings of the Federal Committee on Statistical Methodology*. <http://lehd.dsd.census.gov>.

<sup>5</sup> As of March 2004, the partner states whose data were being processed were as follows: CA, CO, FL, IA, ID, IL, KS, KY, MD, MN, MO, MT, NC, NJ, NM, OK, OR, PA, TX, VA, WA, WI, and WV. Additional partner states include the following: AR, DE, GA, MI, ND, and ME. This is an ongoing project and additional states are expected to join this program. Because of the sensitivity of these data, it is worth noting that the data are anonymized before they are used in any Census Bureau projects, that is, all standard identifiers and names are stripped and replaced by a unique "Protected Identification Key." Only Census Bureau employees or individuals who have Special Sworn Status are permitted to work with the data, and there are serious penalties for disclosing the identity of an individual or business. Any research must be for statistical purposes only, and must be reviewed by the Census Bureau and other data custodians. Under Title 13 of the U.S. code, any breach of confidentiality can result in prosecution in which violators are subject to a \$250,000 fine and/or five years in jail.

<sup>6</sup> Haltiwanger, J., J. Lane, and J. Spletzer. 2000. "Wage, Productivity and the Dynamic Interaction of Businesses and Workers." NBER Working Paper 7994. NBER, Boston Massachusetts.

<sup>7</sup> Stevens, D. 2000]. "Employment That Is Not Covered by State Unemployment Insurance Laws." LEHD TP 2002-16. <http://lehd.dsd.census.gov>. Stevens describes coverage issues related to the LEHD database.

<sup>8</sup> The number of low-wage workers for a firm in year  $t$  is defined as the sum of low-wage workers for whom this employer is their dominant employer during the year. The fraction of workers that are low-wage for firm  $j$  in year  $t$  is defined as the number of low-wage workers in  $t$  divided by the sum of all attached workers for whom this employer is their dominant employer during the year.

hours or weeks worked are not typically reported by employers, and so there is no information on hourly or weekly earnings. Consequently, low earnings in a given year (or quarter) can be due to low hourly wages, low hours, or both. Thus, some industries, like retail trade, will show up as low-earnings industries at least partly because so much of the work in that industry is part-time. Clearly, as with any dataset, a worker can have multiple employers during a year, but we would like to focus on the industry and firm characteristics of the worker's "main" employer. We do this by creating, for each individual in the dataset, a "dominant" employer for each year that they appear in the data based on which employer pays them the highest earnings in that year. The worker earnings, however, are their total earnings from all employers.

In addition, because of the nature of the administrative data, when workers are no longer in the database, it is impossible to tell whether they have entered unemployment, exited the labor force, or left the state. Similarly, although the analysis refers to a "firm" throughout, this is typically an administrative entity.<sup>9</sup> In addition, a distinction that is made throughout the text is the difference between jobs and employment. When we discuss the employment outcomes for low-wage workers or TANF recipients, we focus on the dominant employer as described above. When we are characterizing the employment opportunities within particular firms, industries, or neighborhoods, we focus on all jobs within those entities. Defining employment and jobs in this way, the two will differ to the extent that a single worker can hold multiple jobs and a single job can be occupied by a succession of workers (called churning).

## ***2.B. New Measures Of Firm Wage Premium And Human Capital***

A worker's wages are influenced not only by their own characteristics (human capital) but also by their employer's characteristics. That is, even for workers *with the same set of skills*, some employers pay more than average (a premium) and some employers pay lower than average (a discount). A major challenge, of course, is empirically characterizing *the same set of skills*: Simply having information on worker education, age, sex, and occupation does not adequately account for differences in earnings capacity among workers. A second challenge is to quantify just how much some firms pay above, and some firms pay below, "the going rate" for observationally equivalent workers.

The LEHD database permits us, for the first time, to address these challenges by means of two newly developed measures that have been estimated using recently developed econometric techniques (see Abowd, et al. 2003<sup>10</sup>). The first is a summary measure of the earning capacity that an individual carries with him/her as she/he moves from firm to firm. This human capital measure can be thought of as the *market value of the portable component of an individual's skill set*. It includes not only some factors that are often observable to the statistician, such as years of education and sex, but also some factors that are often not, such as innate ability, people skills, problem-solving skills, perseverance, family background, and educational quality. Unlike more

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<sup>9</sup> See appendix 1 for more detail.

<sup>10</sup> Abowd, J. P. Lengeremann and K. McKinney 2003 "The Measurement of Human Capital in the U.S. Economy," mimeo, Cornell University, Ithaca, NY.

limited measures such as years of education, or occupation, this human capital measure reflects the actual market valuation of a worker's skills. If, for example, an individual is a highly "skilled" blacksmith, and the market does not value this skill, the new human capital measure will be correspondingly low. If the individual is physically extremely strong, and this is of decreasing value in the marketplace, the individual will have a relatively low human capital measure. However, if, for example, the individual scores high on problem-solving skills, and this is valued in the market place, then he or she will have a high human capital value.

The second is a summary measure of the wage premium (or discount) that each firm pays to observationally equivalent workers. This wage premium, which we refer to as an index of firm quality, can reflect a variety of different factors such as the degree of unionization at a firm, the organizational structure, the degree of rent-sharing, or the capital intensity (see Andersson, et al. forthcoming<sup>11</sup> for a nontechnical description). This measure of job quality at the firm level can also be aggregated to create a job quality index for neighborhoods and industries.<sup>12</sup>

These new measures are extremely powerful: While traditional surveys of workers that measure the "kitchen sink" of demographic characteristics—such as education, occupation, age, sex, and marital status as well as some firm characteristics such as firm size and industry—are typically able to explain some 30 percent of earnings variation, these measures combined with longitudinal data on workers and firms explain closer to 90 percent of earnings variation.

These new measures enable the effect of worker and firm characteristics on earnings outcomes to be separated for the first time. An example of such a decomposition is provided for the state of Illinois in table 2.<sup>13</sup> Clearly the highest paying industry—security, commodity, and brokers and services—is high paying because it has high-quality workers and because firms within that industry pay a premium above the going wage to those workers. However, another highly paid industry—electricity, gas, and sanitary services—has high wages entirely because firms in the industry pay its workers much higher than average. The workers themselves are of the same quality as the rest of the workforce. Similar results are evidenced when low-wage industries are analyzed in the second set of panels. Eating and drinking establishments, for example, pay lower-than-average wages primarily because they higher workers with lower-than-average skills. However, another very low-wage industry—food stores—actually hire workers of above-average quality but pay them less than the going wage.

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<sup>11</sup> Andersson, F., H. Holzer, and J. Lane. Forthcoming. *Moving Up or Moving On: Workers, Firms and Advancement in the Low-Wage Labor Market*. Thousand Oaks, Ca, Sage Press.

<sup>12</sup> The construction of the index is described in appendix 4.

<sup>13</sup> Note that, because the decomposition of earnings is based on a regression of log earnings on individual and firm characteristics, the decomposition, while adding up exactly in log form, does not add up exactly in percentage form.



**Table 2.**  
**Sources of Industry Earnings Differentials**

SIC	Name	Industry Wage Differential	Differential Attributable to Workforce Human Capital	Differential Attributable to Firm Wage Policy(Premium)
<i>Highest Paying Industries</i>				
62	Security, commodity, brokers and services	82%	34%	37%
67	Holding and other investments	70%	34%	27%
48	Communication	63%	7%	52%
49	Electric, gas and sanitary services	54%	0%	55%
81	Legal services	54%	18%	31%
<i>Lowest Paying Industries</i>				
58	Eating and drinking places	-45%	-12%	-38%
01	Agriculture-crops	-35%	-10%	-31%
72	Personal services	-33%	-12%	-24%
79	Amusement and recreation services	-32%	-8%	-28%
70	Hotel and lodging services	-32%	-17%	-19%
54	Food stores	-30%	1%	-30%

## 2.C Creating The Analytical Dataset

The full universe of LEHD data was used to create a longitudinal file reflecting employment, UI earnings, and employer characteristics from 1997 to 2001. These data are used to construct variables characterizing the labor force composition of industries, firms, and neighborhoods, identify those industries, firms, and neighborhoods where low-wage workers are concentrated, and describe the labor market in those entities (discussed in sections 1 through 5). A subset of observations in the LEHD are then matched to the Decennial Census Long Form, a one-in-six sample of the U.S. population that provides additional information on workers' TANF receipt, and other individual characteristics. This subset of observations containing both LEHD and census information is used to analyze how TANF recipients and other low-wage workers are faring and progressing in the labor market (see sections 6 and 7). While these outcomes are analyzed only among observations matched to the Decennial Census, variables characterizing the labor force composition of the industries, firms, and neighborhoods where they work and live are based on the full universe of observations in the LEHD.

We follow Andersson, et al. (2004) in categorizing workers to be low-wage if the worker's total earnings in both the analysis year and the preceding year were less than \$12,000 (and the worker had non-zero earnings in both years). This approach, which is quite conservative, tends to capture "nontransitory" low earners reasonably well.<sup>14</sup>

<sup>14</sup> We chose a level of earnings that defines poverty-level income for a family of four in which there are no other earners, even allowing for receipt of the Earned Income Tax Credit. Furthermore, most low earners by this definition had total family incomes below 200 percent of the poverty level, and most had only high school diplomas or less. Thus, the \$12,000 cutoff generates a sample of workers whose personal and family characteristics approximate those in which we are most interested.

### **3. Where Are The Low-Wage Jobs—And How Has The Low-Wage Labor Market Changed?**

In this section, we show that work opportunities for low-wage workers have increased over the past few years—both in terms of the number of low-wage workers employed and in the number of low-wage jobs. These increases, however, have tended to be in the industries, firms, and neighborhoods where low-wage jobs are already clustered—and, as a result, low-wage employment has become more concentrated in particular sectors over time.

#### ***3.A. Low-Wage Employment Is Concentrated In A Few Industries, And The Concentration Of Low-Wage Employment Has Increased Over Time***

One of the most interesting findings in earlier work is the degree to which employment is concentrated in just a few industries—6 out of 10 low-wage workers are employed in just 10 of 83 industries.<sup>15</sup> Hence, the health of the labor market for low-wage workers is very much tied to the health of those top industries. The kinds of jobs that are available in these industries are quite different from those in the economy as a whole. For example, the top jobs in 1997 in low-wage industries included cashiers, waiters and waitresses, cooks, sales workers, janitors, and cleaners; in 2000, these included cashiers, sales workers, and waiters and waitresses (see appendix 3 for more detail).

The results reported in the first three columns of table 3a not only confirm this but also show that the low-wage labor market has become more concentrated in the past few years. Low-wage employment in the top 10 industries grew by more than 2 percent over the 1997–2001 period, while dropping by 4.6 percent in the rest of the economy. While the average employment growth rate in low-wage employment has been quite weak—just over 1 percent between 1997 and 2001, and substantially below the 7 percent annual average for all employment<sup>16</sup>—it is not because of slow low-wage employment growth in low-wage industries. Indeed, low-wage employment in these industries grew much faster than low-wage employment in the economy at large for all but two of the industries (food stores and general merchandise stores).

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<sup>15</sup> Using two-digit Standard Industrial Classifications to define industries.

<sup>16</sup> Derived from the change in total wage and salary employment from Covered Employment and Wages in this period (<http://www.bls.gov>).

**Table 3a.**  
**The Low-Wage Labor Market: Changes by Key Industries**

	Share of Low-Wage Employment 2001	Growth in Low-Wage Employment 2000–01	Growth in Low-Wage Employment. 1997–2001	Growth in Low-Wage Jobs 2000–01	Growth in Low-Wage Jobs 1997–2001
<b>Top 10 Industries with Greatest Share of Low-Wage Employment in 2001</b>	61%	2.2%	2.3%	3.9%	8.9%
58 Eating and Drinking	15%	8.2%	4.2%	8.1%	2.5%
73 Business Services	12%	-6.1%	5.9%	-6.8%	6.0%
82 Educational Services	7%	5.4%	4.9%	3.60%	23.62%
80 Health Services	5%	2.4%	2.5%	4.53%	5.68%
54 Food Stores	5%	1.2%	-0.17%	10.31%	24.49%
53 General Merchandise Stores	4%	.07%	1.6%	-4.36%	-3.41%
59 Miscellaneous Retail	4%	1.6%	5.3%	3.18%	8.86%
83 Social Services	3%	3.8%	6.7%	7.54%	12.42%
79 Amusement and Recreational Services	3%	6%	5.4%	8.77%	11.93%
17 Special Trade Contractors	3%	3.9%	4.1%	14.09%	10.67%
All Other Industries	39%	-0.2%	-4.6%	3.6%	0.6%
All Industries	100%	1.2%	1.2%	3.8%	5.6%

An alternative view of the low-wage market is to examine all jobs held by low-wage workers, as reported in the last two columns of table 3a. When job growth exceeds employment growth, this indicates greater multiple job holdings. Conversely, when employment growth is greater, this implies growing turnover. This is most markedly the case in education services, food stores, social services, and amusement and recreational services—and the economy in general.

**3.B. *Although Many Low-Wage Employees Work Together With Higher-Wage Coworkers, The Opportunity To Do So Is Declining***

Placing low-wage workers in firms with a greater share of higher-paid positions may lead to wage advancement opportunities without having to change employers—not only because higher wage jobs exist, but also because working next to higher-wage employees may enable low-wage workers to acquire job- and firm-specific skills. Although more than one-sixth of low-wage workers are employed in firms that have predominantly higher-wage workers (the last row of table 3b), these firms also showed the greatest decrease in low-wage employment—a decline of nearly 5 percent since 1997 as shown in the last row of table 3b. This compares with

employment growth of nearly 8 percent during this same period at these firms overall (not shown).

**Table 3b.**  
**The Low-Wage Labor Market: Changes by Type of Employer**

	Share of Low-Wage Employment 2001	Growth in Low-Wage Employment 2000-01	Growth in Low-Wage Employment. 1997-2001
<b>Type of Firm</b>			
<b>Substantially Low-Wage</b>	27%	3.4%	-1.4%
<b>Somewhat Low-Wage</b>	21%	-0.1%	3.7%
<b>Marginally Low-Wage</b>	20%	2.1%	4.8%
<b>Few Low-Wage</b>	18%	-2.7%	-4.5%

Note: Types of firm are defined as follows: Firms classified with (1) substantially low-wage workers has more than 60 percent of positions low-wage; (2) somewhat low-wage has between 40 and 60 percent positions low-wage; (3) marginally low-wage has between 20 and 40 percent low-wage positions; and (4) few low-wage has fewer than 20 percent low-wage positions. Measured among firms with at least five employees.

### ***3.C. Low-Wage Jobs Do Exist In Low-Wage Neighborhoods, But There Remains A Mismatch Between The Location Of Low-Wage Workers And Jobs***

Planners have been concerned that even if low-wage jobs are created, they might not be in the same place in which low-wage workers live. Table 3c provides some support for this concern. While 59 percent of low-wage workers live in neighborhoods with substantial or somewhat high concentrations of low earners, only 48 percent of the low-wage jobs are located there (the first two rows of the table). Furthermore, opportunities in the most disadvantaged neighborhoods have fallen since 1997, by more than 2 percent. On the positive side, however, between 1997 and 2001 opportunities in neighborhoods that were somewhat or marginally low-wage (the last column) did increase substantially.

**Table 3c.**  
**The Low-Wage Labor Market: Changes by Location of Workers and Employers**

	Share of Low-Wage Residents Living in Each Tract, 2001	Share of Low-Wage Jobs Available in Each Tract, 2001	Growth in Low-Wage Jobs, 2000-01	Growth in Low-Wage Jobs, 1997-2001
<b>Type of Neighborhood</b>				
<b>Substantially Low-Wage</b>	19.5%	16.8%	3.1%	-2.4%
<b>Somewhat Low-Wage</b>	39.0%	31.6%	5.4%	5.3%
<b>Marginally Low-Wage</b>	32.6%	33.6%	2.7%	3.3%
<b>Few Low-Wage</b>	9.0%	16.8%	0.3%	-1.0%

Note: Types of neighborhood are defined as follows: Neighborhoods classified as (1) substantially low-wage has more than 30 percent of residents earning low-wages; (2) somewhat low-wage has between 20 and 30 percent of residents who are low-wage; (3) marginally low-wage has between 15 and 20 percent of residents earning low-wages; and (4) few low-wage has less than 15 percent of residents earning low-wages.

#### 4. What Is The Quality Of Low-Wage Jobs, How Is This Changing, And Why?

We showed in the previous section that jobs were being created in low-wage neighborhoods and low-wage industries. But job creation is just one part of the story. Another important part is the quality of those jobs—particularly because previous work has indicated the quality of the firm that employs low-wage workers is an important factor contributing to labor market success. In this section, we use the newly developed measures of firm quality described above. These findings demonstrate that the likelihood of workers receiving a wage premium—that is, a wage over and above the going wage for their skill level—is lowest if they are employed by firms in heavily low-wage industries, by firms that have high proportions of low-wage workers, or by firms in neighborhoods that are heavily low-wage. In addition, while job quality broadly has increased over time for low-wage workers, it has increased least for firms that operate in those industries and neighborhoods that are heavily low-wage and whose workforce composition is disproportionately low-wage.

To examine these questions in more detail, we use the job quality index.<sup>17</sup> Recall that this index is constructed as an employment-weighted average of the wage premium (or discount) that different firms pay workers *with the same set of skills*. If the index for a given firm is above zero, this means that, on average, the firm pays a “premium” above and beyond the average wage for workers *with the same set of skills*. A negative index means the firm pays workers less than the going wage.<sup>18</sup> One can then calculate the average index for a collection of firms (e.g., firms within a particular neighborhood or industry).

There are a number of different ways that the job quality index for a particular group of firms can change over time. The index can increase if “good” firms in the group (i.e., those that pay more than the going wage) expand their employment, or if “bad” firms reduce their employment. The index can also increase if those bad firms exit altogether (die) or if new firms paying higher-than-average wages enter the group. Using a relatively straightforward decomposition analysis, we calculate below the contribution of each of these factors.

This decomposition can, in principle, be particularly useful for linking economic and workforce development strategies. For example, if low-wage jobs are improving in wage quality through the establishment of new firms, there is a clear role for economic development partnerships. If, however, low-wage jobs are improving in quality because existing firms are hiring more low-wage workers, then identifying those firms and cultivating job placement relationships could be a useful approach. A similar examination of such patterns across neighborhoods can also be useful in suggesting either economic development zones or the development of a better transportation infrastructure to promote access.

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<sup>17</sup> Technical details are provided in appendix 4.

<sup>18</sup> Note that the firm wage premium is the average premium paid to all observationally equivalent workers and is estimated over the entire period.

#### 4.A. *Firms In Low-Wage Industries Pay Less Than The Going Wage For Workers With The Same Set Of Skills*

An examination of table 4a reveals that, on average, the firms in the most important industries employing low-wage workers pay wages that are below average for comparable workers. This is especially true for eating and drinking establishments. The good news is that average job quality increased across the board in the industries—most notably for special trade contractors. What is the source of the change in job quality? In all industries except educational services, a substantial portion of the gain came from an expansion of opportunities in the “good” firms in each industry (the fourth column in table 4a)—job-creating firms, by and large, increased the wage premium. Similarly, the firms that entered were, on average, better than existing firms in terms of the wage premium they were willing to pay. This is particularly true in business services, where new firms contributed more than 120 percent of the increase in average firm quality, and least true in amusement and recreational services, where new firms contributed an anemic 8 percent to the overall increase. There is, however, no clear cross-industry pattern for the firms that exited. Indeed, eating and drinking establishments, business services, social services, and health services lost “better-than-average” firms—with a negative effect on job quality in the last column—while the others lost “below-average” firms.

**Table 4a.**  
**Change in Wage Premium in Top 10 Industries in the Low-Wage Labor Market**

Top Low-Wage Industries in 2001	Job Quality Index		Change in Index: 1997–2001	Percent of Change Accounted for by Firms That Are			
	2001	1997		Expanding	Contracting	New Firms	Exiting
58 Eating and Drinking Places	-0.437	-0.458	0.022	25.3%	18.6%	89.2%	-33.1%
73 Business Services	-0.319	-0.334	0.016	122.7%	-93.3%	120.4%	-49.8%
82 Educational Services	-0.250	-0.254	0.004	-27.8%	51.1%	38.5%	38.2%
80 Health Services	-0.081	-0.090	0.009	86.4%	18.8%	35.5%	-40.8%
54 Food Stores	-0.254	-0.285	0.031	17.7%	14.5%	43.0%	24.7%
53 General Merchandise Stores	-0.269	-0.281	0.012	4.2%	14.3%	54.5%	27.0%
59 Miscellaneous Retail	-0.335	-0.366	0.031	33.6%	-6.8%	48.5%	24.6%
83 Social Services	-0.228	-0.242	0.014	67.6%	-13.6%	52.0%	-6.1%
79 Amusement and Recreational Services	-0.407	-0.431	0.024	68.1%	13.5%	7.8%	10.6%
17 Special Trade Contractors	-0.066	-0.112	0.046	38.7%	-2.4%	44.0%	19.7%

Note: Index is employment weighted. Note that because the index is calculated over all years and all workers, the mean job quality index in any given year will not be zero.

#### 4.B. *Job Quality Has Increased Over Time—But Very Little In Heavily Low-Wage Firms*

When we turn to examining the firm-level picture, the results are quite similar to the industry analysis. First, firms that employ relatively few low-wage workers tend to pay a much higher wage premium for comparably skilled workers compared with firms where low-wage workers are more concentrated.<sup>19</sup> While there have been increases in job quality over time, the increase for firms that employ predominantly low-wage workers (the first row in table 4b) is barely perceptible—while the rise for firms that employ few low-wage workers (the last row in table 4b) is much greater.

**Table 4b.**  
**Change in Wage Premium in Key Firms of the Low-Wage Labor Market**

	Job Quality Index		Change in Index: 1997–2001	Percent of Change Accounted for By Firms That Are			
	2001	1997		Expanding	Contracting	New Firms	Exiting
<b>Type of Firm</b>							
<b>Substantially Low-Wage</b>	-0.53	-0.54	0.009	47.8%	38.7%	174.3%	-160.9%
<b>Somewhat Low-Wage</b>	-0.29	-0.30	0.015	48.5%	32.2%	140.9%	-21.6%
<b>Marginally Low-Wage</b>	-0.16	-0.17	0.012	96.5%	33.4%	128.3%	-158.2%
<b>Few No Low-Wage</b>	0.06	0.0	0.020	69.0%	8.9%	74.3%	-52.2%

Note: Index is employment weighted. Note that because the index is calculated over all years and all workers, the mean job quality index in any given year will not be zero.

An examination of the last four columns reveals the source of lackluster growth in job quality among firms that employ high proportions of low-wage workers. Although new and expanding firms greatly contributed to an expansion of high-quality jobs, this was largely offset by the loss of high-quality jobs resulting from the exit of above-average firms.

#### ***4.C. Job Quality Across Neighborhoods Is Improving—But Low-Wage Neighborhoods Saw The Smallest Improvements***

A very similar picture is evident when we examine how job quality and changes in job quality vary across different types of neighborhoods. Table 4c reveals that the likelihood of getting a job that pays more than the going rate is systematically lower for more heavily low-wage neighborhoods. In addition, while the availability of wage premia has increased over the period, this increase is lowest in those neighborhoods where low earners are most highly concentrated. Indeed, the “best” improvement in the job quality of firms employing low-wage workers is precisely in those areas where there are very few low-wage workers.

<sup>19</sup> Note that the firm wage premium is calculated over all workers in all firms—not just low-wage workers.

**Table 4c.**  
**Change in Wage Premium in Key Neighborhoods of the Low-Wage Labor Market**

	Job Quality Index		Change in Job Quality Index: 1997–2001	Percent of Change Accounted for by Firms That Are:			
	2001	1997		Expanding	Contracting	New	Exiting
<b>Type of Neighborhood</b>							
<b>Substantially Low-Wage</b>	-0.0737	-0.0973	0.0236	22.2%	21.5%	39.7%	16.6%
<b>Somewhat Low-Wage</b>	-0.0541	-0.0850	0.0309	31.1%	7.2%	40.6%	21.2%
<b>Marginally Low-Wage</b>	-0.0142	-0.0471	0.0329	22.4%	1.4%	63.5%	12.7%
<b>Few No Low-Wage</b>	0.0979	0.0428	0.0551	41.6%	-1.9%	50.7%	9.6%
<b>All Neighborhoods</b>	-0.0194	-0.0518	0.0324	30.9%	4.3%	49.7%	15.1%

Note: Index is employment weighted. Note that because the index is calculated over all years and all workers, the mean job quality index in any given year will not be zero.

How are these changes occurring? In substantially low-wage neighborhoods, the entry of new firms paying better wages was the leading factor in raising job quality (accounting for 40 percent of the improvement in job quality). However, shifts in employment among existing firms (expansions, contractions, and exits) were major factors as well. In neighborhoods with almost no low-earning residents, nearly all of the increase was attributable to new or expanding firms paying above-average wage premia.

#### ***4.D. Summing Up: Most Low-Wage Workers Are In Industries, Firms, And Neighborhoods That Do Not Offer Wage Premia***

Table 4d sums up these findings on firm quality by showing what proportion of low-wage workers had access to wage premia and how this has changed between 1997 and 2001. The results reported below show a very similar story to the more detailed analysis in tables 4a through 4c. The vast majority of low-wage workers in 2001 are employed in industries that pay less than the going wage (only 25 percent work in industries where the average job quality index is positive); work in firms that pay less than the going wage (only 18 percent work for firms with a positive index); and live in neighborhoods where the average job offers less than the going wage (only 23 percent live in neighborhoods with a positive index). Although more workers reside close to premium employers than have in the past (an increase of 4 percent), this does not appear to have translated into wage gains—as the average quality of the firms for which they work has declined.



**Table 4d.**  
**Access of Disadvantaged Workers to Positive Wage Premium**

	2001	1997	Change: 1997–2001
<b>Percent Of Low-Wage Workers In Industries With Positive Employment-Weighted Job Quality Index</b>	25.8%	25.4%	+0.4%
<b>Percent Of Low-Wage Workers In Firms With Positive Job Quality Index</b>	18.45%	18.9%	-0.45%
<b>Percent Of Low-Wage Workers Living In Neighborhoods With Positive Job Quality Index</b>	23.27%	19.23%	+4.04%

Note: The first and third rows reflect access for all workers in all firms (which may or may not have a positive job quality). The second row reflects access for workers in positive job quality firms.

## 5. How Are TANF Recipients Doing In The Labor Market Relative To All Low-Wage Workers, And How Are They Progressing?

Our analysis of this part of the research question was based on the outcomes of two different cohorts of workers in 1999: those who were low-wage workers in 1999 and those who received public assistance in 1999. We then examined their labor market outcomes—employment rates, numbers of quarters worked, wage growth, and average earnings—in the 2000 and 2001 period, as well as their likelihood of transitioning out of low-wage status.<sup>20</sup>

As table 5 shows, these are very different groups of workers. Low-wage workers are much younger, more likely to be white, and less likely to be female than are public assistance recipients.

**Table 5.**  
**Describing the Characteristics of Low-Wage Workers and TANF Recipients**

<b>Characteristics of Low-Wage and TANF Workers</b>	<b>Low-Wage Workers in 1999 Who Did Not Receive TANF</b>	<b>TANF Recipients in 1999</b>
<b>Age</b>	30.51	34.43
<b>White</b>	73%	56%
<b>Black</b>	13%	26%
<b>Female</b>	61%	73%
<b>High School Graduate</b>	63%	63%
<b>Foreign Born</b>	12%	16%
<b>Sample Size</b>	885,946	71,885

<sup>20</sup> Note that this discussion does not focus on TANF leavers. While the data identify TANF receipts in 1999, they do not permit us to determine whether the workers leave welfare in subsequent years.

**5.A. TANF Recipients Do Better Than Low-Wage Workers—But Only If They Were Employed In 1999**

Not surprisingly, the differences in outcomes for the two groups of workers are striking. Outcomes among TANF recipients, in 2000 and 2001, differ substantially depending on whether they were employed in 1999. Only 30 percent of those who had no employer in 1999 were employed in 2000–01. Those who did gain employment in 2000–01 worked only about half as many quarters and earned far less compared with TANF recipients who were employed in both 1999 and 2000–01. TANF recipients who were employed in both periods had quarterly earnings even higher than other low-wage workers—about \$1,000 higher in 2001. At least part of these differences are due to being placed with “better” firms. Public assistance recipients employed in 1999 were placed in firms that, on average, had a smaller “discount” of -0.13, compared with low-wage workers who worked for firms with an average discount of about -0.19. The worst firm placements are those for public assistance recipients who had no employer in 1999—their average firm discount was -0.22. We now turn to analyzing outcomes in 2000 and 2001 for those low-wage workers and TANF recipients who held jobs in 1999.

**Table 5a.**  
**Employment and Wages for People Who Received TANF or Were Low-Wage in 1999**

	Low-Wage and TANF Recipients		
	Low-Wage Worker Who Does Not Receive TANF in 1999	TANF Recipient Who is Employed in 1999	TANF Recipient with No Identified Employer in 1999
<b>Employed in 2000–01</b>	92%	90%	30%
<b>Percent Distribution of Workers by Quarters Worked</b>			
<b>1–2 Quarters 2000–01</b>	11%	12%	38%
<b>3–4 Quarters 2000–01</b>	14%	14%	26%
<b>5–6 Quarters 2000–01</b>	19%	18%	21%
<b>7–8 Quarters 2000–01</b>	57%	57%	15%
<b>Average Number of Quarters Worked 2000–01</b>	6.1	6.0	3.7
<b>Percent Distribution of Workers by Quarterly Earnings in 2000–01</b>			
<b>&lt; \$1,000</b>	18%	17%	39%
<b>\$1,000–\$1,999</b>	27%	21%	27%
<b>\$2,000–\$3,999</b>	39%	33%	24%
<b>&gt; \$4,000</b>	15%	29%	10%
<b>Average Quarterly Earnings 2000–01</b>	\$2,517	\$3,553	\$1,903
<b>Job Quality Index</b>	-0.19	-0.13	-0.22

Note: The average quarterly earnings measure is averaged over quarters worked (positive earnings), not the total number of quarters in the period.

**5.B. Changing Employers Is Typically A Good Strategy For Low-Wage Workers, But Not So For TANF Recipients**

Earlier work by Andersson, et al. (2003) demonstrated that an important source of earnings growth for low-wage workers was switching employers, rather than seeking job stability. To investigate the importance of this factor for TANF recipients, we subset the sample to analyze outcomes for workers who did and did not change employers<sup>21</sup> during the period under analysis (1999 and 2001) and report the results in table 5b.

**Table 5b.**  
**Employment and Wages for People Receiving TANF or Low-Wage in 1999**

	Low-Wage and TANF Recipients, Stayers and Movers			
	Low-Wage Worker Same Employer 1999–2001	Low-Wage Worker Switches Employer 1999–2001	TANF Recipient Same Employer 1999–2001	TANF Recipient Switches Employer 1999–2001
<b>Percent Distribution of Workers by Quarters Worked</b>				
1–2 Quarters 2000–01	2%	5%	1%	7%
3–4 Quarters 2000–01	5%	13%	3%	14%
5–6 Quarters 2000–01	16%	24%	12%	24%
7–8 Quarters 2000–01	77%	58%	84%	55%
<b>Number of Quarters Worked 2000–01</b>	7.11	6.33	7.37	6.21
<b>Percent Distribution of Workers by Quarterly Earnings in 2000–01</b>				
< \$1,000	14%	16%	6%	17%
\$1,000–\$1,999	26%	28%	13%	24%
\$2,000–\$3,999	47%	39%	34%	35%
> \$4,000	13%	18%	46%	25%
<b>Average Quarterly Wage 2000–01</b>	\$2,566	\$2,684	\$4,888	\$3,227
<b>Average Firm Quality</b>	-0.28	-0.14	-0.13	-0.13

Here we find that changing employers marginally improves the earnings outcomes for low-wage workers. Workers who switch employers, on average, increase the quality of their employer—raising the index from -0.28 to -0.14. However, the results for TANF recipients are markedly

<sup>21</sup> Because workers can have multiple employers during a year, we define their employer as the dominant employer—the one from whom the worker earned the most earnings in each year. A “stayer” is with the same dominant employer in both 1999 and 2001; a “mover” changes his/her dominant employer between 1999 and 2001.

different. TANF recipients who stay with their employer have much higher earnings than those who don't (primarily because the distribution is substantially skewed to the left). Both low-wage workers and TANF recipients lose about one-quarter of employment when switching jobs, but low-wage workers seem to make up for this with higher pay whereas TANF recipients do not. Clearly, this may be due to differences in their personal characteristics—we control for this possibility in the regression analysis in the subsequent sections.

### ***5.C. Earnings Are Volatile And Sometimes Fall For Both Tanf Recipients And Low-Wage Workers***

The natural next step is to examine the distribution of earnings growth for those low-wage workers and TANF recipients (who were employed in 2000). Because growth rates are obviously conditioned by the original earnings levels, we separate the 1999 earnings for each group by creating broad earnings categories (those making less than \$2,000; those earnings between \$2,000 and \$6,000; those earning between \$6,000 and \$12,000; and those earning more than \$12,000 a quarter in 2000). The most striking result reported in table 5c is how many workers actually lost earnings capacity between 2000 and 2001—almost half of all workers earned less in 2001 than they did in 2000—regardless of the income category that they were in. This is most marked for the highest earning public assistance recipients—the average wage growth for this group was *negative* \$1,269—which is in stark contrast to the relatively robust earnings growth of workers in the other income bands. It is worth noting that *this is measured only among workers who were employed in both 1999 and 2000*. We now turn to examining the degree to which low-wage workers and public assistance recipients stay attached to the labor market and transition out of low-wage status.

**Table 5c.**  
**How Much Have TANF Recipients Wages Grown Relative to Wages**  
**For All Low-Wage Workers?**

	Low-Wage Worker in 1999	TANF Recipient in 1999
<b>Earnings in 2000: \$1,000–\$2,000</b>		
<b>Earnings Growth: 2000–01</b>		
Negative Growth	49%	53%
\$0–\$1,000	13%	13%
\$1,000–\$4,000	17%	17%
> \$4,000	19%	18%
Average Wage Growth	\$2,154	\$1,720
<b>Earnings in 2000: \$2,000–\$6,000</b>		
<b>Earnings Growth: 2000–01</b>		
Negative Growth	48%	50%
\$0–\$1,000	11%	9%
\$1,000–\$4,000	19%	18%
> \$4,000	22%	24%
Average Wage Growth	\$1,449	\$1,313
<b>Earnings in 2000: \$6,000–\$12,000</b>		
<b>Earnings Growth: 2000–01</b>		
Negative Growth	47%	49%
\$0–\$1,000	12%	10%
\$1,000–\$4,000	20%	19%
> \$4,000	21%	22%
Average Wage Growth	\$710	\$362
<b>Earnings in 2000: &gt; \$12,000</b>		
<b>Earnings Growth: 2000–01</b>		
Negative Growth	45%	48%
\$0–\$1,000	9%	10%
\$1,000–\$4,000	19%	19%
> \$4,000	27%	22%
Average Wage Change	\$198.15	-\$1269
<b>Wage Growth in 2000–01:</b>		
<b>Overall</b>	\$1,345	\$934

**5.D. TANF Recipients Are Much More Likely To Transition To Higher-Wage Status Or Become Unemployed By 2001—But Demographic Characteristics And Industry Matter**

The substantial earnings volatility for low-wage workers and TANF recipients gives rise to several questions: How successful are these two different groups of workers in transitioning out of low-wage status after 1999, and how contingent are the transitions on their demographic characteristics? Again, we follow Andersson, et al. (2004) and create several categories of labor market outcomes for the 2000–01 period.

The first of these is low-wage—where the worker earns less than \$12,000 a year in both 2000 and 2001. We define non-low-wage as earning more than \$15,000 in each of the two years—this level helps to ensure that we do not include small or transitory earnings increases as measures of labor market success. Thus, we also define two additional earnings categories: (1) partial low-wage, in which a worker might earn more than \$12,000 in one or both years, but never more than \$15,000; and (2) partial non-low-wage, in which individuals might earn above \$15,000 in one, but not the second period. Finally, we define two employment-based outcomes: (1) low attachment (where the individual has a job in one, but not both years) and (2) no reported earnings at all.

The results of the analysis are reported in table 5d. Almost half of low-wage workers stay low-wage in the 2000–01 period—with the proportions that escape being higher for whites than for blacks, for males than for females. However, it is also the case that substantial proportions of those working in 1999 reduce their labor force attachment in the subsequent period—about 20 percent have no earnings in 2000–01, and about 4 percent have only low attachment.

The outcomes for low-wage workers who also received public assistance (the second panel of results) are quite close to the first panel. However, substantially more were not employed in the subsequent year, and fewer were able to achieve non-low-wage status.

In the next set of tables, we examine possible correlations of these changes—focusing particularly on the industry, the type of firm, and the types of jobs available in the worker’s neighborhood.

**Table 5d.**  
**Transitions of 1999 Low-Wage Workers and TANF Recipients by Sex and Race**

Status	Sex	Race	Low-Wage Status As Of 2001					
			Low-Wage	Partial Low-Wage	Partial Non-Low-Wage	Non-Low-Wage	Low Attachment	No Earnings
<b>Low-Wage Worker</b>	Male	White	45%	9%	13%	9%	4%	19%
		Black	46%	9%	12%	6%	5%	22%
	Female	White	51%	10%	11%	6%	4%	18%
		Black	51%	11%	12%	5%	4%	16%
<b>Low-Wage Worker Who Received TANF</b>	Male	White	43%	8%	10%	6%	5%	28%
		Black	45%	6%	8%	4%	6%	31%
	Female	White	51%	10%	8%	4%	6%	22%
		Black	54%	9%	9%	3%	5%	19%

Note: The categories are as follows: (1) low-wage, where the worker earns less than \$12,000 a year in each of the two years; (2) non-low-wage, where the worker earns more than \$15,000 in each of the two years; (3) partial low-wage, in which a worker might earn more than \$12,000 in one year, but never more than \$15,000; (4) partial non-low-wage, in which individuals might earn more than \$15,000 in one, but not the second, period; (5) low attachment, where the individual has a job in one but not both years; and (6) no reported earnings at all.

### ***5.E. The Likelihood Of Exit From Low-Wage Status Varies By Industry***

In earlier work (Andersson, et al. 2004), we found that the success rates in transitioning out of low-wage work varied substantially by industry—only 7 percent of those hired into retail trade escaped, versus 27 percent of those hired into public administration. This is consistent with the idea that the different nature of production means that the firms in those industries might find it profitable to train and promote low-wage workers rather than to hire high-wage workers. However, industries associated with the greatest number of escapes—as distinct from those with the highest proportion of workers to escape from low-wage status—are those that are the greatest low-wage hirers. Indeed, the top 10 low-wage industries account for 34 percent of workers to escape low-wage status. These 10 industries are the focus of the discussion and table below.

In examining the transitions for low-wage workers and public assistance recipients alike, it is clear that the industry employing the low-wage worker in 1999 had a substantial impact on the probability of exiting low-wage status by 2001. In particular, work in industries such as special trade contractors, business services, and health services offer the greatest likelihood of escape from low-wage status—for both low-wage workers and public assistance recipients alike.

**Table 5e.**  
**Transitions of 1999 Low-Wage Workers and TANF Recipients by 1999 Industry**

Status	Industry in 1999	Low-Wage Status in 2001					
		Low-Wage	Partial Low-Wage	Partial Non-Low-Wage	Non-Low-Wage	Low Attachment	No Earnings
Low-Wage Worker	17 Special Trade Contractors	37%	9%	15%	10%	6%	23%
	53 General Merchandise Stores	49%	13%	13%	6%	4%	16%
	54 Food Stores	53%	12%	12%	5%	4%	15%
	58 Eating and Drinking Places	57%	10%	10%	4%	4%	15%
	59 Miscellaneous Retail	51%	10%	12%	6%	4%	17%
	73 Business Services	41%	9%	13%	9%	5%	22%
	79 Amusement and Recreational Services	55%	8%	11%	5%	4%	17%
	80 Health Services	45%	12%	13%	9%	4%	18%
	82 Educational Services	52%	11%	10%	8%	3%	16%
	83 Social Services	47%	12%	12%	6%	4%	19%
TANF Recipient (Employed in 1999)	17 Special Trade Contractors	21%	6%	15%	33%	5%	21%
	53 General Merchandise Stores	42%	12%	10%	10%	4%	21%
	54 Food Stores	45%	10%	10%	11%	5%	20%
	58 Eating and Drinking Places	52%	9%	7%	6%	5%	21%
	59 Miscellaneous Retail	38%	10%	12%	14%	4%	21%
	73 Business Services	36%	8%	12%	13%	6%	25%
	79 Amusement and Recreational Services	39%	8%	10%	15%	5%	23%
	80 Health Services	33%	10%	13%	24%	3%	17%
	82 Educational Services	36%	10%	12%	26	3	14%
	83 Social Services	41%	10%	10%	13%	4%	21%

Note: The categories are as follows: (1) low-wage, where the worker earns less than \$12,000 a year in each of the two years; (2) non-low-wage, where the worker earns more than \$15,000 in each of the two years; (3) partial low-wage, in which a worker might earn more than \$12,000 in one year, but never more than \$15,000; (4) partial non-low-wage, in which individuals might earn more than \$15,000 in one, but not the second, period; (5) low attachment, where the individual has a job in one but not both years; and (6) no reported earnings at all.



### 5.F. *The Likelihood Of Escape From Low-Wage Status Varies By Type Of Firm*

The impact of firm workforce composition on outcomes for low-wage workers and public assistance recipients is quite marked, as evident in table 5f. A low-wage worker who worked primarily with higher-wage coworkers in 1999 is almost *four times as likely* to transition into non-low-wage status by 2001 compared with a low-wage worker who worked primarily alongside other low-wage coworkers. Among public assistance recipients, those working with primarily higher-wage coworkers are more than *10 times as likely* to have non-low-wage status by 2001 compared with those working primarily alongside other low-wage workers.

**Table 5f.**  
**Transitions of 1999 Low-Wage Workers and TANF Recipients**  
**By Type of 1999 Employer**

Status	Type of Firm	Low-Wage Status in 2001					
		Low-Wage	Partial Low-Wage	Partial Non-Low-Wage	Non-Low-Wage	Low Attachment	No Earnings
Low-Wage Worker	Type of Firm						
	Substantially Low-Wage	55%	9%	10%	4%	4%	18%
	Somewhat Low-Wage	48%	11%	13%	7%	4%	18%
	Marginally Low-Wage	45%	11%	13%	9%	4%	18%
	Few Low-Wage	36%	10%	16%	15%	4%	19%
TANF Recipient (Employed in 1999)	Type of Firm						
	Substantially Low-Wage	50%	8%	7%	4%	6%	24%
	Somewhat Low-Wage	40%	12%	11%	11%	5%	21%
	Marginally Low-Wage	31%	11%	14%	22%	4%	19%
	Few Low-Wage	15%	6%	15%	46%	3%	15%

Note: The categories are as follows: (1) low-wage, where the worker earns less than \$12,000 a year in each of the two years; (2) non-low-wage, where the worker earns more than \$15,000 in each of the two years; (3) partial low-wage, in which a worker might earn more than \$12,000 in one year, but never more than \$15,000; (4) partial non-low-wage, in which individuals might earn more than \$15,000 in one, but not the second, period; (5) low attachment, where the individual has a job in one but not both years; and (6) no reported earnings at all.

### 5.G. *The Worker's Neighborhood Affects The Likelihood Of Exiting Low-Wage Status*

The neighborhood effects evident in table 5g are almost as striking as the firm workforce composition effects. Low-wage workers were *twice as likely* to end up in non-low-wage status in 2001 if they lived in a neighborhood with a low fraction of low-wage workers in 1999 than if they lived in a neighborhood with a high fraction of low-wage workers —public assistance recipients were *more than three times as likely*.

**Table 5g.**  
**Transitions of 1999 Low-Wage Workers and TANF Recipients by Type of Residence**

		Low-Wage Status in 2001				
		Low-Wage	Partial Low-Wage	Partial Non-Low-Wage	Non-Low-Wage	Low Attachment
<b>Low-Wage Worker</b>	<b>Type of Neighborhood</b>					
	<b>Substantially Low-Wage</b>	50%	11%	10%	6%	4%
	<b>Somewhat Low-Wage</b>	47%	11%	12%	8%	4%
	<b>Marginally Low-Wage</b>	46%	10%	14%	9%	4%
	<b>Few Low-Wage</b>	43%	9%	14%	12%	4%
<b>TANF Recipient (Employed in 1999)</b>	<b>Type of Neighborhood</b>					
	<b>Substantially Low-Wage</b>	42%	10%	11%	15%	4%
	<b>Somewhat Low-Wage</b>	33%	10%	13%	23%	4%
	<b>Marginally Low-Wage</b>	23%	7%	14%	35%	3%
	<b>Few Low-Wage</b>	17%	5%	12%	45%	3%

Note: Types of neighborhood are defined as follows: (1) substantially low-wage has more than 30 percent of residents earning low-wages; (2) somewhat low-wage has between 20 and 30 percent of residents who are low-wage; (3) marginally low-wage has between 15 and 20 percent of residents earning low-wages; and (4) few low-wage has less than 15 percent of residents earning low-wages. Index is employment weighted. Because the index is calculated over all years and all workers, the mean job quality index in any given year will not be zero.

## 6. Quantifying The Analysis: How Much Do Firm, Neighborhood, And Individual Characteristics Contribute To The Transition Out Of Low-Wage Status?

These interesting descriptive statistics beg the question—how important is each contributing factor to the transition out of low-wage status? To determine this, we run a simple logistic regression to estimate the contribution of each factor while accounting for all other factors simultaneously.<sup>22</sup> In displaying our results below, we break out our findings into three sections—

<sup>22</sup> We took the cohort of all individuals who were in the 2000 Decennial Census and matched them to the LEHD data for our partner states—and subset only those who were either low-wage workers or public assistance recipients. We then examined the correlations (by means of a logistic regression) between the transitions of low-wage workers in 2001 and our three contributing characteristics: (1) individual characteristics, such as education, age, sex, foreign born status, and previous employment history; (2) firm characteristics, such as industry and firm quality, the proportion of workers in the firm who are low-wage, the size of the firm, and whether the firm is expanding, contracting, or dying; and (3) neighborhood characteristics. While the full regressions are reported in appendix 4 table A4, in this section, we discuss each subset of conditioning factors in turn—and examine the effects of each on the transition out of low-wage status. The coefficients reported are marginal effects evaluated at the mean.

—individual characteristics; firm and industry characteristics; and neighborhood characteristics. All results, however, are based on the full model that holds all other factors constant.

#### ***6.A. The Importance Of Individual Characteristics In Determining Transitions Out Of Low-Wage Status—Worker Quality And Employment History Matter***

The portion of the full regression that is reported in table 6a shows the expected relationship between transitions out of low-wage status<sup>23</sup> and demographic characteristics. The more educated and older a worker is, the more likely he or she is to exit low-wage status (although this decreases with age). Women are less likely to transition out of low-wage status; foreign born are more likely. In all cases, regardless of specification, TANF recipients are more likely to transition out of low-wage status than are low-wage workers (although this is, of course, conditional on having employment in both 1998–99 and 2000–01). Higher levels of education are also associated with higher probabilities of transitioning.<sup>24</sup>

There are, however, other very important effects—notably those of worker quality (the portable component of skill) and employment history. The effect of worker employment history—such as job and industry transitions on the likelihood of exiting low-wage status is particularly marked. Changing employers between 1999 and 2000 substantially increases the likelihood of exiting low-wage status, but all other transitions are associated with lower probabilities. The notable exception is for TANF recipients—changing employers between 2000 and 2001 has a significant negative effect on their likelihood of transitioning out of low-wage status. This is similar to findings reported under the descriptive analysis.

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We also ran two specifications: one which directly controlled for individual and firm quality, and one which included industry dummies as right-hand side variables. We did not attempt to control for selection bias, other than in the regressions that directly controlled for worker quality—so these regressions should be interpreted as correlations, rather than causal relationships. We also ran regressions on both annual and quarterly earnings—also reported in appendix 4 tables A2 and A3—with similar quantitative results.

<sup>23</sup> This refers to transitions out of low-wage status (defined by 1998 and 1999 earnings levels) into non-low-wage status in 2000 and 2001.

<sup>24</sup> The transition regressions for each demographic group are provided in appendix 4 table A5.

**Table 6a.**  
**The Effect of Individual Characteristics on Transitions**

<b>Low-Wage Workers in 1999</b>				
	<b>Separate Industry Controls</b>	<b>Firm Quality Index</b>		
	<b>All Workers</b>	<b>All Workers</b>	<b>TANF Recipients</b>	<b>Non-TANF Recipient</b>
<b>TANF Recipient</b>	0.159 (92.80)**	0.136 (82.83)**		
<b>Age</b>	0.004 (16.12)**	0.007 (28.46)**	0.022 (15.74)**	0.006 (26.92)**
<b>Age Squared</b>	-0.000 (22.18)**	-0.0004 (22.73)**	-0.000 (8.95)**	-0.000 (23.96)**
<b>Female</b>	-0.041 (47.43)**	-0.048 (58.67)**	-0.132 (29.11)**	-0.038 (47.27)**
<b>Foreign Born</b>	0.004 (3.73)**	0.004 (3.48)**	-0.015 (2.98)**	0.004 (3.75)**
<b>High School Graduate</b>	0.027 (21.29)**	0.022 (17.70)**	0.044 (8.46)**	0.019 (15.34)**
<b>Some College</b>	0.042 (33.90)**	0.034 (29.37)**	0.075 (14.11)**	0.029 (24.41)**
<b>College</b>	0.174 (85.69)**	0.134 (73.11)**	0.173 (18.65)**	0.127 (68.25)**
<b>Worker Quality</b>	0.147 (45.22)**	0.055 (94.76)**	.162 (50.03)**	.046 (79.13)**
<b>Not Employed 1999; Employed 2000</b>	-0.076 (29.32)**	-0.070 (28.27)**	-0.173 (33.30)**	
<b>Changes Industry between 1999 and 2000</b>	-0.012 (9.09)**	-0.008 (6.49)**	-0.047 (7.62)**	-0.006 (4.46)**
<b>Changes Industry between 2000 and 2001</b>	-0.044 (31.60)**	-0.040 (29.76)**	-0.074 (11.12)**	-0.036 (27.10)**
<b>Changes Employer between 1999 and 2000</b>	0.012 (9.59)**	0.009 (7.47)**	-0.077 (12.72)**	0.016 (13.22)**
<b>Changes Employer between 2000 and 2001</b>	-0.051 (38.02)**	-0.073 (22.61)**	-0.110 (17.63)**	-0.046 (35.88)**

### ***6.B. The Importance Of Firm And Industry Characteristics In Determining Transition Probabilities—Workforce Composition Matters***

The earlier sections indicated that both firm and industry characteristics were important drivers of the transition out of low-wage work—and we structured the firm and industry measures to mirror the measures used in the previous sections.<sup>25</sup> These findings, which show the importance of workforce composition within the firm, are striking. The degree to which one works together with low-wage versus higher-wage coworkers is the strongest predictor of low-wage exits in the dataset—and the negative effect on earnings increases systematically with the proportion of low-wage workers in a given firm. For example, working in a predominantly low-wage firm (more than 60 percent low-wage workers) lowers earnings for the typical low-wage worker by about 14 percent, relative to working for a non-low-wage firm (a workforce with fewer than 20 percent of workers that are low-wage). The effect is particularly strong for TANF recipients—workers in heavily low-wage firms will earn about 20 percent less than working in non-low-wage. This correlation may imply that firms employing large proportions of low-wage workers see such workers as interchangeable and explicitly have low-skill, low-promotion personnel policies. It could also imply that working together with higher-wage coworkers provides opportunities for enhancing a low-wage worker’s human capital.

The effect of job creation and destruction on low-wage workers has been the subject of a great deal of debate. This analysis documents that employment in an expanding firm increases the probability of transitioning out of low-wage employment; employment in a contracting firm decreases the probability. The quality of the firm for which workers work is still a driving factor: High-quality firms are associated with better exits, even after controlling for other factors. This suggests, despite the fact that earnings premia are estimated for all workers, that the effects extend to low-wage workers. Another interesting finding is the effect of industry on the transition out of low-wage work. Confirming the descriptive analysis, even when all other characteristics are controlled for, employment in business services (which includes temporary help) and special trade contractors is associated with higher probabilities of exiting low-wage status.<sup>26</sup>

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<sup>25</sup> Namely, the proportion of low-wage workers in the firm; the size of the employer; whether the firm is expanding, contracting, or dying; the industry; and the measure of firm quality.

<sup>26</sup> The comparison group here is all industries other than the 10 low-wage industries listed in the table.

**Table 6b.**  
**The Effect of Firm Characteristics on Transitions into Non-Low-Wage Status**

Low-Wage Workers in 1999				
	Separate Industry Controls	Firm Quality Index		
	All Workers	All Workers	TANF Recipients	Non-TANF Recipient
<b>Percentage of Firm Employment that is Low-Wage</b>				
<b>High Proportion of Higher-Wage Workers</b>	-0.071 (87.36)**	-0.058 (71.47)**	-0.104 (24.75)**	-0.053 (65.18)**
<b>High Proportion of Low-Wage Workers</b>	-0.095 (106.21)**	-0.073 (78.05)**	-0.141 (28.31)**	-0.067 (70.99)**
<b>Predominantly Low-Wage</b>	-0.140 (129.85)**	-0.107 (91.80)**	-0.203 (34.12)**	-0.098 (83.53)**
<b>Employer Size</b>				
<b>25-50</b>	0.021 (15.48)**	0.016 (12.80)**	0.040 (6.03)**	0.014 (10.80)**
<b>100-500</b>	0.025 (19.74)**	0.016 (13.51)**	0.034 (5.48)**	0.014 (11.91)**
<b>500-1,000</b>	0.030 (17.58)**	0.017 (11.05)**	0.043 (5.27)**	0.015 (9.40)**
<b>&gt; 1,000</b>	0.022 (18.01)**	0.006 (5.65)**	0.033 (5.67)**	0.003 (3.26)**
<b>Rate at Which Firm Expands</b>	0.007 (9.31)**	0.004 (5.89)**	0.009 (3.16)**	0.004 (5.39)**
<b>Rate at Which Firm Contracts</b>	-0.012 (13.69)**	-0.011 (13.54)**	-0.037 (9.09)**	-0.009 (11.09)**
<b>Firm Dies in the Year</b>	0.003 (3.20)**	0.007 (8.85)**	0.009 (2.18)*	0.007 (9.31)**
<b>Special Trade Contractors</b>	0.017 (7.48)**			
<b>General Merchandise Stores</b>	-0.021 (9.11)**			
<b>Food Stores</b>	-0.012 (5.01)**			
<b>Eating and Drinking Places</b>	-0.019 (10.56)**			
<b>Miscellaneous Retail</b>	-0.006 (2.40)*			
<b>Business Services</b>	0.007 (4.58)**			
<b>Amusement Services</b>	-0.018 (6.29)**			
<b>Health Services</b>	-0.020 (16.39)**			
<b>Education Services</b>	-0.062 (59.09)**			
<b>Social Services</b>	-0.023 (12.16)**			
<b>Firm Quality Index</b>		0.088 (70.37)**	0.183 (26.12)**	0.079 (63.32)**

### 6.C. *Living In A Low-Wage Neighborhood Reduces The Likelihood Of Transitioning Out Of Low-Wage Status*

These results are based on the same measures of neighborhood characteristics as were used in the previous sections. Remarkably, even after controlling for the characteristics of the worker and the firm that employs them, workers residing in low-wage neighborhoods still seem to be at a disadvantage—and this is particularly true for TANF recipients.

**Table 6c.**  
**The Effect of Neighborhood Characteristics on Transitions**

	Separate Industry Controls	Firm Quality Index		
	All Workers	All Workers	TANF Recipients	Non-TANF Recipient
<b>Proportion of Workers Living in Census Tract Who Are Low-Wage</b>				
<b>Marginally Low-Wage</b>	0.008 (5.60)**	0.008 (6.43)**	0.040 (5.44)**	0.007 (5.19)**
<b>Heavily Low-Wage</b>	-0.002 (1.42)	0.001 (0.82)	-0.006 (0.96)	0.002 (1.57)
<b>Substantially Low-Wage</b>	-0.019 (14.97)**	-0.015 (12.37)**	-0.046 (7.37)**	-0.011 (8.97)**

## 7. Concluding Comments

We began this analysis by posing the following set of important questions:

1. Where are the low-wage jobs?
2. How has the labor market for low-wage workers changed over time in terms of the key industries, firms, and neighborhoods in which jobs can be found?
3. How are TANF recipients doing in the labor market relative to all low-wage workers, and how are they progressing?
4. What are the factors associated with transitions out of low-wage status for TANF recipients?
5. What factors are most predictive of job retention and wage advancement when simultaneously controlling for a set of worker, firm, and location characteristics?

This report has provided preliminary answers to these questions using a unique combination of survey and administrative data combined with new measures of job quality and worker human capital.

In answering the question of where the low-wage jobs are, and how the labor market for low-wage workers has changed over time, we find that low-wage employment is concentrated in a

few industries, and opportunities in these industries have expanded between 1997 and 2001. In addition, although many low-wage workers work with high-wage workers, the opportunity to do so is declining. We also find that firms in low-wage industries pay workers—with the same set of skills—less, and that, while job quality has increased over time, this trend has been less strong in heavily low-wage firms. In terms of the importance of neighborhood characteristics, we find that low-wage jobs do exist in low-wage neighborhoods, but there remains a mismatch between the location of low-wage workers and jobs. In sum, most low-wage workers are in industries, firms, and neighborhoods that have low job quality indices, and the changes over time have not been positive.

We also find marked differences in outcomes for TANF recipients, who do better than low-wage workers—but only if they were employed in the previous periods. There is substantially more heterogeneity in the characteristics and outcomes of TANF recipients—who are much more likely to be either non-low-wage or not employed in 2001—than in low-wage workers, but demographic characteristics and industry matter. Earnings changes are volatile for both TANF recipients and low-wage workers. Finally, while changing employers is a good strategy for low-wage workers, the same is not true for TANF recipients.

In the analysis of transitions out of low-wage states, the industries and firms for which workers work, and the neighborhoods in which they live, all affect the likelihood of exit from low-wage status. When we examine these relationship between these characteristics in a regression framework—holding all other characteristics constant—we find that a number of the descriptive results still hold. In particular, the most important individual characteristic is worker quality; firm workforce composition and job quality do matter; and living in a low-wage neighborhood strongly reduces the likelihood of transitioning out of low-wage status.

In sum, we find that jobs were created for low-wage workers between 1997 and 2001. While opportunities exist, however, the challenge for TANF agencies is to identify the job-creating firms that provide opportunities for low-wage workers, as well as coworkers that are primarily non-low-wage. This will maximize TANF recipients' chances of transitioning out of low-wage status. In addition, given the importance of residential location, TANF agencies might want to examine alternative transportation options.

More work remains to be done. This information is aggregate in nature, but it would be extremely useful to provide TANF agencies with information about specific industry, firm, and residential characteristics in their area. In addition, it would be useful to provide agencies with information about the factors that help TANF recipients transition out of TANF, rather than simply out of low-wage work—which is not possible given the cross-sectional nature of the 2000 Decennial Census. Future work in this area would greatly benefit by the ability to access and merge the national TANF file with the LEHD data. This innovation, combined with an expansion of the number of LEHD-affiliated states from the current 29, would create the potential for using the current methodology and improved datasets to provide more local information to local decision makers.



## Appendix 1. Definitions And Measures

**Earnings:** According to the *BLS Handbook of Methods* (1997) UI wage records measure “gross wages and salaries, bonuses, stock options, tips, and other gratuities, and the value of meals and lodging, where supplied.” They do not include Old-Age, Survivors, and Disability Insurance (OASDI), health insurance, workers compensation, UI, and private pension and welfare funds. In addition, because neither hours nor weeks worked are available in the data, there is no information on hourly or weekly earnings. These earnings are annualized as described in Abowd, et al. (2003) using constant 1998 dollars.

“Annualized earnings are constructed as follows. First, define full quarter employment in quarter  $t$  as having an employment history with positive earnings for quarters  $t - 1$ ,  $t$ , and  $t + 1$ . Continuous employment during quarter  $t$  means having an employment history with positive earnings for either  $t - 1$  and  $t$  or  $t$  and  $t + 1$ . Employment spells that are neither full quarter nor continuous are designated discontinuous. If the individual was full-quarter employed for at least one quarter at the dominant employer, the annualized wage is computed as four times average full-quarter earnings at that employer (total full-quarter earnings divided by the number of full quarters worked). This accounts for 84 percent of the person-year-state observations in our eventual analysis sample. Otherwise, if the individual was continuously employed for at least one quarter at the dominant employer, the annualized wage is average earnings in all continuous quarters of employment at the dominant employer multiplied by 8 (i.e., four quarters divided by an expected employment duration during the continuous quarters of 0.5). This accounts for 11 percent of all observations. For the remaining 5 percent, annualized wages are average earnings in each quarter multiplied by 12 (i.e., four quarters divided by an expected employment duration during discontinuous quarters of 0.33)” (pp. 15–16)

The earnings measures are deflated by the Consumer Price Index (CPI) to 1998 dollars.

**Firm:** Although we typically refer to the employer as a “firm,” the actual reporting unit in the data is an administrative, rather than an economic entity, because the filing unit reflects an Employer Identification Number, rather than a specific firm. The distinction is immaterial for about 70 percent of workers, who work for a single establishment employer—but for those who work with an employer with multiple establishments, the use of the term “firm” in this paper is less well-defined.

**Jobs versus Employment:** The LEHD data are job based,<sup>27</sup> and, hence, different from the worker-based data with which many researchers are familiar. In particular, because all jobs held by all workers are in the dataset, it is possible to analyze two different facets of the labor market—both jobs and employment. The two obviously differ to the extent that there is multiple job holding, and to the degree in which there is churning of workers through different sets of jobs. Because both of these measures describe different facets of the labor market, we will use both in our analysis. In particular, when we use workers as the unit of analysis, we will typically

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<sup>27</sup> In the literature on matched employer-employee data, a “job” is an employer-employee match.

describe their employment with their main (or dominant) employer over the year, and characterize that employer's industry, size, and turnover rates. When a geographical unit is described, however, the labor market concept that is used is jobs—which reflects all employer-employee matches. More concretely, because individuals can have multiple jobs during a year but only one “dominant” employer, employment counts will be the same as worker counts, but job counts will be greater than employment counts to the extent that there is multiple job holding. For example, if a worker has five jobs with firms A, B, C, D, and E, and earned \$2,000, \$5,000, \$3,000, \$1,000, and \$500 in each job, respectively, the dominant employer would be firm B. We would then use firm B's characteristics (such as industry, quality, and turnover) to describe the characteristics of the dominant firm in which the worker was employed. However, when we describe the characteristics of jobs in a local area, we describe all jobs that are available—and would include A, B, C, D, and E.

## **Appendix 2. Public Assistance Measures On The 2000 Decennial Census**

### How Public Assistance Recipients are Identified in the 1999 Cohort

The 1999 Cohort Files are the universe of 2000 Decennial Census Long Form respondents (a 1-in-6 sample of the U.S. population) who can be matched to LEHD data, were between 15 and 60 years of age, and reported residing in CA, IL, FL, MD, MN, PA, NC, or TX at the time of the survey.

Public assistance recipients are identified by a question on the 2000 Decennial Long Form, which asks respondents to report any income received from public assistance programs in 1999. Any respondents who report receiving \$1 or more in public assistance income in 1999 are then flagged as public assistance recipients in the cohort file. Those who report \$0 of income from public assistance programs in 1999 are identified as nonrecipients.

### Appendix 3. Occupations In The Low-Wage Industries

**Table A1.**  
**Characteristics of the Workers in the Analytical Dataset**

Low-Wage Industries		All Industries	
1997	1999	1997	1999
Cashiers	Cashiers	General Operations Managers	Secretaries
Cooks	Retail Sales Persons	Sales Supervisors	Retail Sales Persons
Waiters and Waitresses	Waiters and Waitresses	Cashiers	Cashiers
Sales Workers	Supervisors of Food Preparation Servers	Truck Drivers	Truck and Delivery Drivers
Janitors and Cleaners	Psychiatric Aids	Secretaries	Elementary School Teachers
Stock Handlers and Baggers	Secretaries	Janitors and Cleaners	Retail Sales Managers
Nurses Aides	Manual Laborers	Cooks	Customer Service Representatives
Teachers Aids	Teacher Assistants	Elementary School Teachers	Registered Nurses
Secretaries	Customer Service Representatives	Bookkeepers	Managers, Other
Truck Drivers	Child Care Workers	Nurses Aides	Manual Laborers

Source: Authors' calculations from 1995-96 Current Population Survey (CPS) matched to LEHD data; 2000 Decennial matched to LEHD data.

## Appendix 4. Constructing The Index Of Firm Quality

We created a measure ( $\psi_{et}$ ) that takes on the value zero if a firm pays average wages for equivalent workers—that is, workers with the same set of human capital characteristics. If the job quality for a firm is greater than zero, then that firm pays equivalent workers a “premium” above and beyond the average wage. Similarly, it takes on a negative value if that firm pays equivalent workers a “discount.” We then sum all the firm premia and discounts together to create an index that is derived from the wage premium,  $\psi_{et}$ , each firm  $e$  pays observationally equivalent workers<sup>28</sup> at time  $t$ . A positive value of the index,  $P_t$ , can be interpreted as the average wage premium (in log points) paid to workers; a negative value means that the firm, on average, is less than the going wage rate.<sup>29</sup>

We can also examine how this index changes over time— $\Delta P_t$ —as well as determine the sources of the change by decomposing the index into an expansion of current opportunities (expanding firms), a contraction of existing opportunities (contracting firms), new opportunities (new firms), and lost opportunities (exiting firms). The decomposition is summarized as follows:

$$P_t = \sum s_{et} \psi_{et}$$

$$\Delta P_t = \sum_{\text{Continuers}} \Delta^+ s_{et} (\psi_{et} - P_{t-1}) + \sum_{\text{Continuers}} \Delta^- s_{et} (\psi_{et} - P_{t-1}) + \sum_{\text{Entrants}} s_{et} (\psi_{et} - P_{t-1}) + \sum_{\text{Exiters}} s_{et-1} (P_{t-1} - \psi_{et-1})$$

Here, the first term represents the quality of the expansion of current opportunities, or the contribution to the index that is derived from expanding firms; while the second term represents the quality of the contraction of opportunities, or the contribution to the aggregated firm effect from contracting firms. If the former term is positive, it means that the expansion of job opportunities are of higher quality than before; if the second term is positive, it means that below-average firms are contracting and, hence, bad jobs are being substituted for good ones. The third term is the contribution to average firm quality from new firms—this will be negative if entering firms are of lower-than-average quality. The fourth term is the contribution from exiting firms, which will be positive if exiting firms are of lower-than-average quality. In the tables that follow, the decomposition will be broken out into its component parts in percentage terms.

<sup>28</sup> A full description of this is available in Abowd, et al. (2003).

<sup>29</sup> The earnings premium is in constant 1998 dollars.

## Appendix 5. Earnings and Transitions Outcomes—the Marginal Effects

**Table A2.**  
**Earnings Outcomes for Entire Earnings Cohort**

	Annual Earnings		Quarterly Earnings	
	Specification 1	Specification 2	Specification 1	Specification 2
<b>Public Assistance Recipient</b>	0.176	0.204	-0.003	0.195
	(53.27)**	(60.53)**	(0.69)	(63.80)**
<b>Age</b>	0.021	0.012	0.015	0.013
	(36.89)**	(21.29)**	(17.12)**	(25.66)**
<b>Age Squared</b>	-0.000	-0.000	-0.000	-0.000
	(26.36)**	(26.01)**	(10.91)**	(30.57)**
<b>Female</b>	-0.094	-0.076	-0.120	-0.100
	(47.64)**	(36.62)**	(39.40)**	(52.88)**
<b>Foreign Born</b>	0.032	0.035	0.016	0.039
	(11.39)**	(12.20)**	(3.78)**	(15.12)**
<b>High School Graduate</b>	0.059	0.069	-0.024	0.055
	(21.67)**	(25.07)**	(5.81)**	(22.21)**
<b>Some College</b>	0.103	0.113	-0.007	0.100
	(38.62)**	(41.62)**	(1.60)	(40.51)**
<b>College</b>	0.264	0.314	0.110	0.317
	(75.78)**	(86.94)**	(20.63)**	(96.90)**
<b>Individual Worker Fixed Effect</b>	0.173		0.088	-0.024
	(122.56)**		(40.43)**	(5.36)**
<b>Not Employed 1999; Employed 2000</b>	-0.204	-0.230	0.198	-0.159
	(18.21)**	(20.21)**	(11.53)**	(15.44)**
<b>Not Employed 2000; Employed 2001</b>	-0.547	-0.556	1.017	-0.225
	(103.36)**	(103.24)**	(125.23)**	(46.15)**
<b>Changes Industry between 1999 and 2000</b>	-0.008	-0.016	0.013	-0.014
	(2.51)*	(4.85)**	(2.65)**	(4.66)**
<b>Changes Industry between 2000 and 2001</b>	-0.098	-0.105	0.058	-0.082
	(26.95)**	(28.17)**	(10.37)**	(24.40)**
<b>Changes Employer between 1999 and 2000</b>	0.025	0.030	0.010	0.037
	(7.75)**	(9.18)**	(2.12)*	(12.50)**
<b>Changes Employer between 2000 and 2001</b>	0.025	0.030	0.010	0.037
	(7.75)**	(9.18)**	(2.12)*	(12.50)**
<b>Proportion of Workers Living in Census Tract Who Are Low-Wage</b>				
<b>Marginally Low-Wage</b>	0.011	0.009	-0.034	-0.000
	(3.40)**	(2.83)**	(6.90)**	(0.08)
<b>Heavily Low-Wage</b>	-0.001	-0.006	-0.046	-0.018
	(0.29)	(1.94)	(10.48)**	(6.88)**

	Annual Earnings		Quarterly Earnings	
	Specification 1	Specification 2	Specification 1	Specification 2
<b>Substantially Low-Wage</b>	-0.034	-0.040	-0.039	-0.047
	(10.77)**	(12.38)**	(8.18)**	(16.36)**
<b>Percentage of Firm Employment that is Low-Wage</b>				
<b>High Proportion of Higher-Wage Workers</b>	-0.250	-0.306	-0.066	-0.309
	(97.84)**	(118.79)**	(16.77)**	(132.38)**
<b>High Proportion of Low-Wage Workers</b>	-0.333	-0.466	-0.133	-0.476
	(108.99)**	(151.50)**	(28.25)**	(170.85)**
<b>Predominantly Low-Wage</b>	-0.449	-0.644	-0.204	-0.667
	(129.94)**	(199.10)**	(38.53)**	(227.26)**
<b>Employer Size</b>				
<b>25–50</b>	0.033	0.043	-0.072	0.025
	(11.36)**	(14.26)**	(15.96)**	(9.02)**
<b>100–500</b>	0.034	0.055	-0.096	0.031
	(12.07)**	(18.92)**	(22.21)**	(11.73)**
<b>500–1,000</b>	0.032	0.059	-0.104	0.033
	(8.49)**	(15.33)**	(18.16)**	(9.42)**
<b>&gt; 1,000</b>	0.029	0.057	-0.094	0.036
	(11.31)**	(20.20)**	(23.57)**	(13.84)**
<b>Rate at Which Firm Expands</b>	0.012	0.024	0.049	0.044
	(6.75)**	(12.85)**	(17.57)**	(25.88)**
<b>Rate at Which Firm Contracts</b>	-0.145	-0.141	0.308	-0.038
	(77.17)**	(72.67)**	(106.32)**	(21.38)**
<b>Firm Dies in the Year</b>	-0.007	-0.020	0.121	0.015
	(3.53)**	(9.91)**	(39.17)**	(8.17)**
<b>Special Trade Contractors</b>		0.011		0.034
		(1.81)		(6.34)**
<b>General Merchandise Stores</b>		0.009		-0.011
		(1.63)		(2.12)*
<b>Food Stores</b>		0.012		-0.016
		(2.25)*		(3.19)**
<b>Eating and Drinking Places</b>		-0.015		-0.065
		(3.98)**		(18.83)**
<b>Miscellaneous Retail</b>		-0.000		-0.019
		(0.03)		(3.82)**
<b>Business Services</b>		0.025		-0.006
		(6.48)**		(1.84)
<b>Amusement Services</b>		-0.069		-0.092
		(9.83)**		(14.41)**
<b>Health Services</b>		-0.054		-0.067
		(15.71)**		(21.24)**
<b>Education Services</b>		-0.216		-0.211
		(61.79)**		(66.82)**
<b>Social Services</b>		-0.008		-0.024
		(1.67)		(5.36)**
<b>Firm Quality Index</b>	0.284		0.211	
	(95.33)**		(46.22)**	
<b>Observations</b>	0.284		0.211	
	(95.33)**		(46.22)**	
<b>Constant</b>	9.175	9.456	2.329	8.117
	(851.55)**	(878.25)**	(140.75)**	(831.51)**

	Annual Earnings		Quarterly Earnings	
	Specification 1	Specification 2	Specification 1	Specification 2
<b>Observations</b>	465,529	465,529	465,529	465,529
<b>R-Squared</b>	0.27	0.25	0.09	0.25

Absolute value of *t* statistics in parentheses: \* significant at 5%; \*\* significant at 1%.

**Table A3.**  
**Annual Earnings Outcomes by Demographic Group**

	Female	Male	Young	Old	TANF Recipient	Non-TANF Recipient
<b>TANF Recipient</b>	0.114 (30.06)**	0.303 (46.36)**	0.047 (7.79)**	0.234 (59.95)**		
<b>Age</b>	0.016 (23.54)**	0.029 (28.05)**	0.152 (20.87)**	0.052 (32.84)**	0.038 (17.24)**	0.019 (33.00)**
<b>Age Squared</b>	-0.000 (15.74)**	-0.000 (21.69)**	-0.003 (19.48)**	-0.000 (27.67)**	-0.000 (9.24)**	-0.000 (25.76)**
<b>Female</b>			-0.060 (21.05)**	-0.129 (47.07)**	-0.221 (32.68)**	-0.070 (34.06)**
<b>Foreign Born</b>	0.013 (3.92)**	0.054 (11.26)**	0.015 (3.27)**	0.034 (9.77)**	-0.048 (5.84)**	0.037 (12.52)**
<b>High School Graduate</b>	0.060 (18.20)**	0.053 (11.25)**	0.080 (18.60)**	0.051 (14.81)**	0.068 (8.90)**	0.054 (18.88)**
<b>Some College</b>	0.095 (29.14)**	0.112 (24.42)**	0.132 (32.25)**	0.073 (20.87)**	0.129 (16.48)**	0.091 (32.42)**
<b>College</b>	0.240 (56.85)**	0.301 (48.93)**	0.495 (84.12)**	0.105 (24.35)**	0.437 (35.01)**	0.246 (67.75)**
<b>Individual Worker Fixed Effect</b>	0.174 (100.47)**	0.169 (69.24)**	0.103 (47.98)**	0.237 (124.82)**	0.264 (59.13)**	0.155 (104.28)**
<b>Not Employed 1999; Employed 2000</b>	-0.165 (13.26)**	-0.286 (12.00)**	-0.162 (8.01)**	-0.219 (16.76)**	-0.247 (21.31)**	0.000 (.)
<b>Not Employed 2000; Employed 2001</b>	-0.551 (84.16)**	-0.545 (60.77)**	-0.605 (75.12)**	-0.513 (74.59)**	-0.784 (53.25)**	-0.503 (88.78)**
<b>Changes Industry between 1999 and 2000</b>	-0.010 (2.52)*	-0.004 (0.73)	-0.017 (3.65)**	-0.000 (0.01)	-0.044 (4.27)**	-0.003 (0.90)
<b>Changes Industry between 2000 and 2001</b>	-0.101 (22.59)**	-0.091 (14.85)**	-0.117 (23.33)**	-0.067 (12.98)**	-0.127 (11.39)**	-0.093 (24.35)**
<b>Changes Employer between 1999 and 2000</b>	0.033 (8.57)**	0.008 (1.49)	0.001 (0.22)	0.030 (6.89)**	-0.096 (9.49)**	0.039 (11.48)**
<b>Changes Employer between 2000 and 2001</b>	-0.256 (60.73)**	-0.305 (51.42)**	-0.289 (59.20)**	-0.266 (55.54)**	-0.326 (30.83)**	-0.268 (73.92)**
<b>Proportion of Workers Living in Census Tract Who Are Low-Wage</b>						
<b>Marginally Low-Wage</b>	0.008 (2.16)*	0.020 (3.47)**	0.010 (2.09)*	0.014 (3.44)**	0.064 (5.74)**	0.004 (1.15)
<b>Heavily Low-Wage</b>	0.000 (0.03)	0.000 (0.01)	-0.005 (1.09)	0.004 (1.11)	-0.020 (2.14)*	-0.000 (0.14)
<b>Substantially Low-Wage</b>	-0.035	-0.029	-0.043	-0.029	-0.085	-0.026



	Female	Male	Young	Old	TANF Recipient	Non-TANF Recipient
	(9.30)**	(5.17)**	(8.63)**	(7.22)**	(8.59)**	(7.80)**
<b>Percentage of Firm Employment That is Low-Wage</b>						
<b>High Proportion of Higher-Wage Workers</b>	-0.237	-0.267	-0.249	-0.225	-0.254	-0.242
	(77.12)**	(58.65)**	(64.68)**	(66.79)**	(31.03)**	(90.41)**
<b>High Proportion of Low-Wage Workers</b>	-0.312	-0.372	-0.346	-0.304	-0.360	-0.322
	(85.56)**	(67.49)**	(73.97)**	(75.98)**	(35.60)**	(101.03)**
<b>Predominantly Low-Wage</b>	-0.429	-0.487	-0.458	-0.426	-0.489	-0.437
	(103.44)**	(78.37)**	(82.61)**	(97.80)**	(42.51)**	(121.29)**
<b>Employer Size</b>						
<b>25–50</b>	0.048	0.008	0.020	0.041	0.064	0.027
	(13.31)**	(1.59)	(4.35)**	(10.86)**	(6.58)**	(8.95)**
<b>100–500</b>	0.046	0.016	0.034	0.034	0.040	0.032
	(13.62)**	(3.17)**	(7.74)**	(9.28)**	(4.36)**	(10.80)**
<b>500–1,000</b>	0.048	0.009	0.042	0.025	0.040	0.028
	(10.85)**	(1.26)	(7.37)**	(5.12)**	(3.34)**	(7.31)**
<b>&gt; 1,000</b>	0.046	0.009	0.030	0.030	0.053	0.025
	(14.90)**	(1.89)	(7.69)**	(8.92)**	(6.13)**	(9.22)**
<b>Rate at Which Firm Expands</b>	0.017	0.009	0.016	0.007	0.028	0.010
	(7.38)**	(2.89)**	(5.46)**	(3.28)**	(5.34)**	(5.41)**
<b>Rate at Which Firm Contracts</b>	-0.142	-0.152	-0.161	-0.133	-0.174	-0.143
	(61.96)**	(46.20)**	(52.63)**	(56.84)**	(28.00)**	(72.82)**
<b>Firm Dies in the Year</b>	0.003	-0.020	0.018	-0.039	0.025	-0.008
	(1.27)	(5.60)**	(5.94)**	(14.68)**	(3.68)**	(3.87)**
<b>Firm Quality Index</b>	0.269	0.301	0.295	0.280	0.363	0.267
	(73.42)**	(59.16)**	(59.57)**	(76.43)**	(34.46)**	(86.31)**
<b>Constant</b>	9.146	9.081	7.676	8.461	9.040	9.199
	(695.17)**	(476.41)**	(90.42)**	(243.75)**	(209.44)**	(824.78)**
<b>Observations</b>	303,438	162,091	212,839	252,690	44,345	421,184
<b>R-Squared</b>	0.26	0.30	0.31	0.27	0.47	0.25

Absolute value of *t* statistics in parentheses: \* significant at 5%; \*\* significant at 1%.

**Table A4.  
Transitions for Entire Cohort**

	<b>Industry Controls</b>	<b>Firm Quality Index</b>
<b>TANF Recipient</b>	0.159 (92.80)**	0.136 (82.83)**
<b>Age</b>	0.004 (16.12)**	0.007 (28.46)**
<b>Age Squared</b>	-0.000 (22.18)**	-0.0004 (22.73)**
<b>Female</b>	-0.041 (47.43)**	-0.048 (58.67)**
<b>Foreign Born</b>	0.004 (3.73)**	0.004 (3.48)**
<b>High School Graduate</b>	0.027 (21.29)**	0.022 (17.70)**
<b>Some College</b>	0.042 (33.90)**	0.034 (29.37)**
<b>College</b>	0.174 (85.69)**	0.134 (73.11)**
<b>Not Employed 1999; Employed 2000</b>	-0.076 (29.32)**	-0.070 (28.27)**
<b>Changes Industry between 1999 and 2000</b>	-0.012 (9.09)**	-0.008 (6.49)**
<b>Changes Industry between 2000 and 2001</b>	-0.044 (31.60)**	-0.040 (29.76)**
<b>Changes Employer between 1999 and 2000</b>	0.012 (9.59)**	0.009 (7.47)**
<b>Changes Employer between 2000 and 2001</b>	-0.051 (38.02)**	-0.073 (22.61)**
<b>Proportion of Workers Living in Census Tract Who Are Low-Wage</b>		
<b>Marginally Low-Wage</b>	0.008 (5.60)**	0.008 (6.43)**
<b>Heavily Low-Wage</b>	-0.002 (1.42)	0.001 (0.82)
<b>Substantially Low-Wage</b>	-0.019 (14.97)**	-0.015 (12.37)**
<b>Percentage of Firm Employment That is Low-Wage</b>		
<b>High Proportion of Higher-Wage Workers</b>	-0.071 (87.36)**	-0.058 (71.47)**
<b>High Proportion of Low-Wage Workers</b>	-0.095 (106.21)**	-0.073 (78.05)**
<b>Predominantly Low-Wage</b>	-0.140 (129.85)**	-0.107 (91.80)**
<b>Employer Size</b>		
<b>25–50</b>	0.021 (15.48)**	0.016 (12.80)**
<b>100–500</b>	0.025 (19.74)**	0.016 (13.51)**
<b>500–1,000</b>	0.030 (17.58)**	0.017 (11.05)**
<b>&gt; 1,000</b>	0.022	0.006

	<b>Industry Controls</b>	<b>Firm Quality Index</b>
	(18.01)**	(5.65)**
<b>Rate at Which Firm Expands</b>	0.007	0.004
	(9.31)**	(5.89)**
<b>Rate at Which Firm Contracts</b>	-0.012	-0.011
	(13.69)**	(13.54)**
<b>Firm Dies in the Year</b>	0.003	0.007
	(3.20)**	(8.85)**
<b>Special Trade Contractors</b>	0.017	
	(7.48)**	
<b>General Merchandise Stores</b>	-0.021	
	(9.11)**	
<b>Food Stores</b>	-0.012	
	(5.01)**	
<b>Eating and Drinking Places</b>	-0.019	
	(10.56)**	
<b>Miscellaneous Retail</b>	-0.006	
	(2.40)*	
<b>Business Services</b>	0.007	
	(4.58)**	
<b>Amusement Services</b>	-0.018	
	(6.29)**	
<b>Health Services</b>	-0.020	
	(16.39)**	
<b>Education Services</b>	-0.062	
	(59.09)**	
<b>Social Services</b>	-0.023	
	(12.16)**	
<b>Worker Quality</b>	0.147	0.055
	(45.22)**	(94.76)**
<b>Firm Quality Index</b>		0.088
		(70.37)**
<b>Observations</b>	520,600	
Absolute value of <i>t</i> statistics in parentheses: * significant at 5%; ** significant at 1%.		

**Table A5.**  
**Transitions by Demographic Group**

	Female	Male	Young	Old	TANF Recipient	Non-TANF Recipient
<b>Public Assistance Recipient</b>	0.105	0.195	0.079	0.141		
	(61.45)**	(53.17)**	(26.26)**	(77.82)**		
<b>Age</b>	0.004	0.013	0.042	0.013	0.022	0.006
	(14.15)**	(27.76)**	(12.98)**	(21.30)**	(15.74)**	(26.92)**
<b>Age Squared</b>	-0.000	-0.000	-0.001	-0.000	-0.000	-0.000
	(10.24)**	(23.31)**	(11.94)**	(18.62)**	(8.95)**	(23.96)**
<b>Female</b>			-0.034	-0.060	-0.132	-0.038
			(27.72)**	(54.41)**	(29.11)**	(47.27)**
<b>Foreign Born</b>	-0.000	0.009	-0.002	0.006	-0.015	0.004
	(0.28)	(3.86)**	(0.89)	(4.88)**	(2.98)**	(3.75)**
<b>High School Graduate</b>	0.021	0.027	0.028	0.018	0.044	0.019
	(14.66)**	(11.81)**	(13.33)**	(13.01)**	(8.46)**	(15.34)**
<b>Some College</b>	0.037	0.032	0.036	0.032	0.075	0.029
	(26.19)**	(14.67)**	(18.40)**	(22.45)**	(14.11)**	(24.41)**
<b>College</b>	0.136	0.129	0.253	0.057	0.173	0.127
	(60.55)**	(38.96)**	(68.44)**	(30.16)**	(18.65)**	(68.25)**
<b>Individual Worker Fixed Effect</b>	0.050	0.066	0.047	0.061	0.162	0.046
	(75.20)**	(58.33)**	(49.00)**	(83.65)**	(50.03)**	(79.13)**
<b>Not Employed 1999; Employed 2000</b>	-0.058	-0.097	-0.082	-0.058	-0.173	
	(22.52)**	(17.13)**	(14.46)**	(23.95)**	(33.30)**	
<b>Changes Industry between 1999 and 2000</b>	-0.008	-0.006	-0.013	-0.003	-0.047	-0.006
	(6.15)**	(2.53)*	(6.37)**	(1.87)	(7.62)**	(4.46)**
<b>Changes Industry between 2000 and 2001</b>	-0.035	-0.048	-0.052	-0.028	-0.074	-0.036
	(23.59)**	(17.94)**	(24.19)**	(16.19)**	(11.12)**	(27.10)**
<b>Changes Employer between 1999 and 2000</b>	0.013	-0.003	-0.005	0.015	-0.077	0.016
	(9.73)**	(1.11)	(2.50)*	(9.65)**	(12.72)**	(13.22)**
<b>Changes Employer between 2000 and 2001</b>	-0.037	-0.081	-0.068	-0.039	-0.110	-0.046
	(26.37)**	(31.45)**	(32.57)**	(25.30)**	(17.63)**	(35.88)**
<b>Proportion of Workers Living in Census Tract Who Are Low-Wage</b>						
<b>Marginally Low-Wage</b>	0.007	0.012	0.009	0.008	0.040	0.007
	(5.05)**	(4.49)**	(4.36)**	(4.87)**	(5.44)**	(5.19)**
<b>Heavily Low-Wage</b>	-0.001	0.006	0.000	0.001	-0.006	0.002
	(0.68)	(2.45)*	(0.13)	(0.75)	(0.96)	(1.57)
<b>Substantially Low-Wage</b>	-0.016	-0.015	-0.019	-0.013	-0.046	-0.011
	(11.39)**	(5.96)**	(9.19)**	(8.96)**	(7.37)**	(8.97)**
<b>Percentage of Firm Employment That Is Low-Wage</b>						

	Female	Male	Young	Old	TANF Recipient	Non-TANF Recipient
<b>High Proportion of Higher-Wage Workers</b>	-0.049	-0.072	-0.063	-0.049	-0.104	-0.053
	(55.40)**	(43.14)**	(46.51)**	(51.27)**	(24.75)**	(65.18)**
<b>High Proportion of Low-Wage Workers</b>	-0.060	-0.100	-0.085	-0.062	-0.141	-0.067
	(57.92)**	(51.20)**	(52.33)**	(56.49)**	(28.31)**	(70.99)**
<b>Predominantly Low-Wage</b>	-0.086	-0.147	-0.114	-0.096	-0.203	-0.098
	(66.12)**	(62.55)**	(58.54)**	(69.38)**	(34.12)**	(83.53)**
<b>Employer Size</b>						
<b>25–50</b>	0.018	0.016	0.018	0.013	0.040	0.014
	(11.94)**	(6.69)**	(8.57)**	(8.42)**	(6.03)**	(10.80)**
<b>100–500</b>	0.018	0.019	0.021	0.012	0.034	0.014
	(12.81)**	(8.25)**	(10.51)**	(8.19)**	(5.48)**	(11.91)**
<b>500–1,000</b>	0.020	0.019	0.024	0.013	0.043	0.015
	(11.25)**	(5.88)**	(9.18)**	(6.67)**	(5.27)**	(9.40)**
<b>&gt; 1,000</b>	0.011	0.002	0.006	0.006	0.033	0.003
	(8.90)**	(1.11)	(3.22)**	(4.95)**	(5.67)**	(3.26)**
<b>Firm Job Creation Rate</b>	0.005	0.002	0.005	0.003	0.009	0.004
	(6.50)**	(1.27)	(3.66)**	(3.87)**	(3.16)**	(5.39)**
<b>Firm Job Destruction Rate</b>	-0.008	-0.019	-0.015	-0.008	-0.037	-0.009
	(8.34)**	(11.54)**	(11.12)**	(8.35)**	(9.09)**	(11.09)**
<b>Firm Dies in the Year</b>	0.010	0.000	0.016	-0.003	0.009	0.007
	(11.64)**	(0.30)	(12.61)**	(2.58)**	(2.18)*	(9.31)**
<b>Firm Quality Index</b>	0.080	0.105	0.096	0.078	0.183	0.079
	(55.70)**	(43.51)**	(45.09)**	(52.76)**	(26.12)**	(63.32)**
<b>Observations</b>	338,209	182,391	239,037	281,563	48,983	471,617
Absolute value of z statistics in parentheses: * significant at 5%, ** significant at 1%						