THE IMPACT OF EMPLOYERS ON THE OUTCOMES OF LOW-WAGE WORKERS

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TABLE OF CONTENTS

1. INTRODUCTION

The reasons for and consequences of persistently low wages have been the focus of a fruitful research agenda over the past decades. Much research has focused on the supply side, and consequently on ways to improve labor market outcomes by changing the characteristics of workers. Inevitably, policy recommendations have informed policies such as education and training programs, or programs that improve work experiences. Newly available data on both employers and employees now mean that the research community can examine the impact of the demand side. Much was already known about the effect of relatively crude employer characteristics such as industry and size on earnings. Now new stylized facts are emerging about the impact of personnel policies, such as wage premia, worker turnover, as well as of changes in product demand, such as technological change, demand shifts and competitiveness. This knowledge serves to inform other policy levers, such as placement programs, geographical relocation, and industrial extension.

This paper provides a review of some research using linked employer-employee data in the US, particularly focusing on four key questions:

1. What has happened to low-wage work as a result of technological change and globalization?
2. How important are firm characteristics in affecting the quality of career paths and job ladders?
3. What is the impact of access to jobs on outcomes for low-wage workers?
4. What is the impact of increased product competition on low-wage workers?

The paper begins by sketching out a conceptual framework, and then describes the source dataset and the new measures that have been developed that permit answering these questions. It then addresses what has been learned about each topic in turn before outlining a set of next steps.

2. CONCEPTUAL FRAMEWORK AND BACKGROUND

The conceptual framework for analyzing the demand for low-wage workers is relatively straightforward. Standard labor economics theory indicates that the demand for labor is derived from the demand for the product that is produced. In particular, employment levels and the wages for particular types of workers are determined by the firm's production function.

This framework is important for understanding the demand for low-wage workers. As Abowd et al. (2005) note, suppose firms are faced with a production relationship given by:

$$y_{jt} = F(Z_{jt}, L_{1jt}, ..., L_{Bjt}) \qquad (1)$$

where y_{jt} is output for firm j in period t, the vector Z_{jt}, indexes the state of technology including capital, and L_{bjt} is the number of workers of type b. If Z is quasi-fixed, cost minimization for a given output level yields (using Shepherd's lemma) the generalized demand for worker of type s as given by:

$$S_{bjt} = S(Z_{jt}, y_{jt}, w_{1jt} / w_{Bjt}, ..., w_{bjt} / w_{Bjt}, ...) \qquad (2)$$

where S_{bjt} is the share of type b workers, $b = 1, \ldots, B$, and w_{bjt} is the appropriate shadow wage rate of type b workers.[1]

Here the demand for workers of type b by a particular firm depends upon the type of technology adopted (Z), the nature of the firm-worker type complementarities, the scale of operations and the relative shadow wages. There are many reasons that firms, even within the same industry, adopt different technologies. In particular, in a related paper by Haltiwanger, Lane and Spletzer (2006), Z may reflect differences in managerial/entrepreneurial ability, location or vintage. As a result, firms even within the same industry are likely to have very different demands for workers of type b and this heterogeneity may vary over time in response to technological, demand or life cycle changes.

Both case study and empirical evidence confirm the theoretical hypothesis: different firms in same industry choose different production functions, different skill combinations, and different wage rates for their work force. An example of the case study evidence is provided by a study of Batt et al., who note the different human resource practices of call centers – some of which take a "high road' approach to worker pay and turnover; others which take a "low road". Researchers using linked employer employee data, such as Bolvig (2006) find support for the notion that firms employ different wage setting schemes with either high starting wages and low wage growth or low starting wages and high wage growth, and firms apply the same wage strategy towards unskilled and skilled labor market entrants. Hellerstein et al. (2006) find substantial workplace segregation by education across firms. Similarly, Haltiwanger Lane and Spletzer (2006) show that, even after controlling for

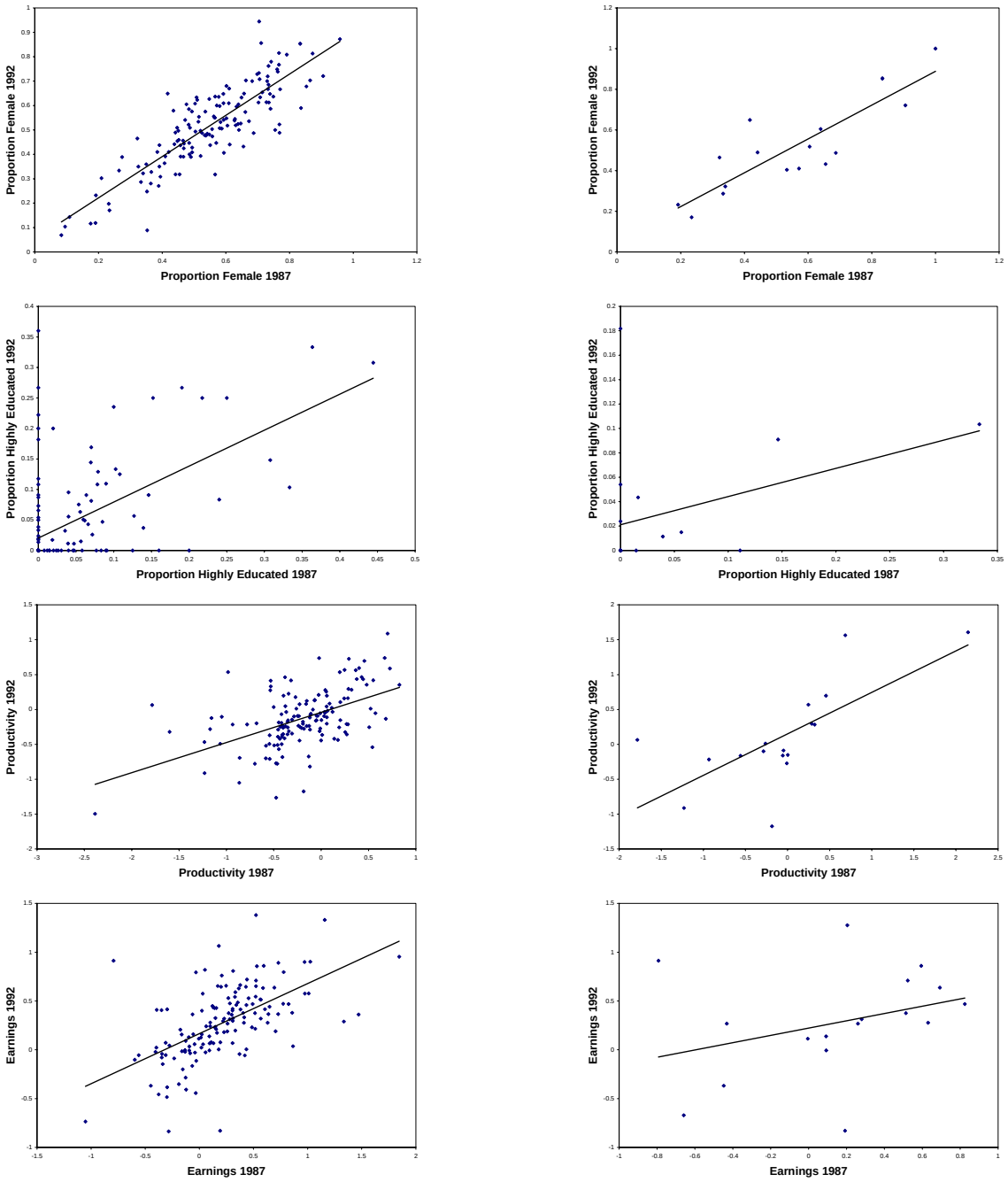
[1] *Our proposed analysis of earnings dynamics described below will shed light on internal labor market and rent sharing considerations.*

geography and detailed industry, not only are firms very heterogeneous in the types of workers they employ, but that this heterogeneity is clearly persistent. Figure 1 provides a vivid illustration from Haltiwanger Lane and Spletzer 2006 for the (low-wage) restaurant industry. It presents eight panels of firm level scatter plots on the relationship between variables on worker mix, earnings and productivity for firms with observationally equivalent characteristics in 1987 against the corresponding variable for the same firm in 1992. The left column of panels present these relationships for the entire restaurant industry in the state of Maryland; the right-hand column for the subset of restaurants that have table service, that are in metropolitan areas in the state, and where the average customer spends the same amount (within a $5 range).

What this shows is that firms within very narrowly defined industries are very heterogeneous in the type of workforce that they choose – the spread on the horizontal axis demonstrates that some firms choose almost no workers with a given characteristics, while others choose almost all their workers to have the same characteristics. The clustering around the 45-degree line shows that not only are firms heterogeneous in their workforce choices, but these choices are not random – they persist many years later. Such insights can only be derived from linked employer-employee data, and these are described in more detail below.

Figure 1: Productivity, Earnings and Worker-Mix in Restaurant Industry

All Restaurants **Table Service Restaurants**



Source: Haltiwanger, Lane and Spletzer, 2006

4. DATA

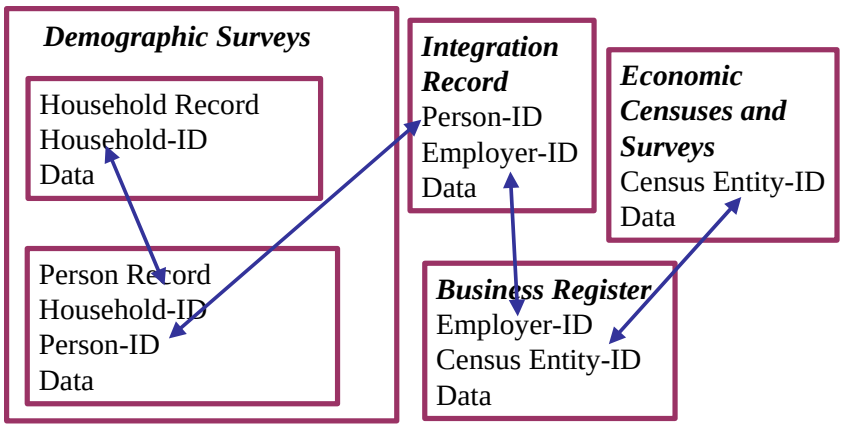
This section describes the key characteristics of the US linked employer-employee dataset, as well as the definition of low-wage workers and the approach that is used to separate out firm effects from worker effects.

4.1 BASIC INFORMATION

The dataset that is used in the papers described in this chapter are derived from the new program at the U.S. Census Bureau: the LEHD program. This combines unemployment insurance (UI) wage record and Quarterly Census of Employment and Wages (QCEW) data for 42 states from the mid 1990's to 2005. These data are described in more detail elsewhere (see, for example, Andersson Holzer and Lane 2005) but they provide longitudinal and almost universal coverage for employees and employers in each state[2]. Figure 1 provides a basic outline of how these datasets are combined. The core characteristic of these data is that they describe both sides of the labor market – both the demand and the supply side – which is clearly necessary for understanding both the labor market and the spatial interactions of workers and firms.[3]

Figure 1

The Longitudinal Employer - Household Dynamics Program



[2] *UI coverage is relatively comparable across states, capturing roughly 96 percent of total wage and salary for civilian jobs. UI wage records do not, however, capture the following: federal employees, military personnel, self-employed and independent contractors, and state residents who are employed out-of-state. Detailed information is available in Stevens (2002).*

[3] *For more information on the dataset, go to http://lehd.dsd.census.gov.*

The data include quarterly earnings information, as well as limited demographic characteristics on the workers. They have been integrated with other data to also provide detailed geographic information on both the place of work and place of residence on individuals, as well as detailed industry. Almost 100 million individual records are processed every quarter; about 6 million employer records.

The information in the UI wage records is also quite limited with regard to characteristics of the employer. The Census Business Register has limited information on total employment, payroll, industry classification, sales, and geographic location on each business. However, because the UI data contain information about all the workers in each business, it is possible to create detailed information about the demographic characteristics of the workforce at each business, together with information on the demographic characteristics of worker and job flows into and out of the business. In addition, detailed information on firm inputs, outputs, and performance is available in the economic census years—primarily 1992 and 1997.

One of the difficulties of working with such rich data is that there are typically substantial definitional challenges. Most obviously, the constant flow of workers into and out of jobs and industries makes it difficult to impose a static concept like "works for an employer" on an inherently dynamic process. However, because the focus of interest is on the impact of firms on workers, we impose a requirement that the employer and the employee should be substantively attached to each other.

To be more specific, we use a concept of the "dominant employer" or the "dominant job." The definition of a dominant employer is the employer from whom the worker has generated the most earnings in the given period. The job of workers associated with this dominant employer is the dominant job. Depending on the research questions, we either use a quarter or a year as our time period. We require that the workers' "dominant employer" must be in the given sector.[4] In addition, we focus on workers who have real annual earnings of at least $1,000.

Similarly, because we do not observe hours worked in the data but instead only observe quarters worked, quarterly earnings reported in UI data may not be a good earnings measure when we examine earnings inequality or calculate earnings growth over time. In some cases, earnings may be three-month earnings and, in other cases, they may be one-month earnings. To overcome this problem, we have constructed "full-quarter" earnings for a quarterly measure and "annualized" earnings for an annual measure.

First, the worker is considered full quarter employed in quarter *t* if positive earnings are reported in quarters *t*-1, *t* , and *t*+1. Then her earning in quarter *t* is considered "full-quarter" earning. We still do not know whether she worked full time or part time during quarter *t*. However she is more

[4] *Comprehensive discussion of the rationale for and consequences of this choice is provided in Andersson, Holzer and Lane (2005), and Abowd, Lengermann and McKinney (2003)*

likely to have worked all three months during that quarter regardless of her full time status. So this measure is more comparable across workers than the simple quarterly earnings measure.

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 earning measure is computed as 4 times average full quarter earnings at that employer (total full quarter earnings divided by the number of full quarters worked). This accounts for 84% 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 earnings are average earnings in all continuous quarters of employment at the dominant employer multiplied by 8 (i.e., 4 quarters divided by expected employment duration during the continuous quarters of 0.5). This accounts for 11% of all observations. For the remaining 5%, annualized earnings are average earnings in each quarter multiplied by 12 (i.e., 4 quarters divided by an expected employment duration during discontinuous quarters of 0.33). This "annualized" earnings measure is, for each worker, the full-time full year earnings equivalent and is used as the dependent variable in the decomposition of the individual's "wage" into person effect, firm effect, and an experience component, as discussed below.

5. DECOMPOSING EARNINGS: INDIVIDUAL AND FIRM EFFECTS

A major issue confounding the analysis of employer effect of earnings has been the difficulty of separating out the pay premium (or discount) paid to workers because of their characteristics from the pay premium (or discount) paid by firms because of their characteristics. One of the major advantages of the LEHD data is that the two separate effects have been statistically distinguished. A full description of how they are calculated is provided in Abowd, Lengermann and McKinney (2005). Essentially, however, the effects are estimated from a regression of the annualized measure of earnings on dummy variables for each worker and each firm in a sample that includes all person-quarters of UI-covered employment in each state.

The individual effects can be thought of as the market value of the portable component of an individual's skill, or human capital. They have two components: an individual or person effect, which does not vary over time (θ) and a component based on labor market experience $(x\beta)$. The individual effect includes some factors that are often observable to the statistician, such as years of education and sex; and some factors that are often not, such as innate ability, "people skills," "problem solving skills," perseverance, family background, and educational quality. The experience component[5] is directly calculated from the data, and, as such, is left censored at the start of the data period. This left censoring is ameliorated by estimating the number of years of labor force experience an individual accumulates prior to the first appearance in the data.

Table 1: Sources of Industry Earnings Differentials

SIC	*Name*	*Industry Wage Premium*	*Premium attributable to workforce human capital*	*Premium attributable to firm wage setting policy*
	Highest Paying Industries			
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%
	Lowest Paying Industries			
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%

[5] *The notation is in matrix form: the actual matrix includes experience as a quartic.*

Why do firm effects differ? More research is needed to determine this, but work by Haltiwanger, Lane and Spletzer (2006), as well as by Abowd et al (2004) suggests that some firms pay a premium because they choose to operate with a high quality low turnover workforce; others the reverse. This might be due to a higher level of capital in the firm. Or, it might be due to unionization – in Table 1, for example, the transportation equipment industry has a relatively high average firm fixed effect. It might also be a compensating differential -- the high average firm fixed effect in the mining industry is presumably in order to compensate workers for the riskiness and unpleasantness of mine work. Finally, the firm effect will capture a range of human resource policies chosen by the firm, including the effects of training and promotion policies as well as compensation.

Two points are important to make here. First, the human capital measure is not the same as a wage measure. There are three distinct components of wages: human capital, a firm effect and an unexplained residual. Because the human capital measure and the firm effect are virtually uncorrelated, when measured at the level of an individual job, an individual's earnings may be due to who they are or where they work. This is illustrated in Table 1. Clearly the highest paying industry – security, commodity and brokers and services – is high paying both because it has high quality workers, and because firms within that industry pay a premium 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, hire workers of lower than average quality and pay them less. However, another very low wage industry - food stores – actually hire workers of above average quality, but just pay them less.

The second point is just how important these new measures are. Traditional surveys of workers that measure the "kitchen sink" of demographic characteristics - such as education, occupation, age, sex, marital status and even include some firm characteristics such as firm size and industry – are typically able to explain some 30% of earnings variation. Longitudinal data on workers and firms explain about 85% of earnings variation.

6. DEFINING LOW WAGE WORK

Defining low-wage workers using administrative data present a particular challenge. Previous work using household surveys has typically used measures based on hourly earnings, which are unavailable in the data. In developing a working definition, it was necessary to avoid categorizing workers as low-wage those whose earnings were low for transitory or voluntary reasons. The approach used is discussed in detail in Holzer Lane and Vilhuber (2004) and Andersson Holzer and Lane (2005). We define workers to be low-wage if they earn less than $12,000 per year, and if they had earnings below this level for three consecutive years. A parallel analysis of a match of the data to Current Population Survey data confirmed that this administrative definition agreed, for the most part, with survey-based definitions.

Question 1: What has happened to low-wage work in industries affected by technological change, deregulation and globalization?

One of the challenges with examining this question is that it is almost impossible to develop direct measures of technological change, deregulation and globalization. Recent work by Brown Haltiwanger and Lane (2006) addresses this using a broad-brush approach. The authors examined five industries -- trucking, financial services, retail food, semiconductors and software – over a 12-year period from 1992 to 2003. These industries, which span the spectrum from low-wage to high-wage, and from services to manufacturing, have separately been buffeted by change. Globalization is a driving force in both the software and semiconductor industries due to the relocation abroad of design and manufacturing activities; technological change has been important in both financial services industry and retail food, as is clear from the respective advent of ATM machines and scanning technology. And deregulation, brought on by NAFTA, has had a major impact on the trucking industry.

The effect on the number of jobs, as well as the earnings associated with those jobs, is described in Table 2. This shows what has happened to the number of jobs and to the earnings thresholds for workers in the bottom quartile, middle two quartiles, and top quartiles categories.

The first thing to note is that in all industries, there were more jobs at the end of the period than at the beginning. The second thing is that in the fastest growing industries, semiconductors and software the rising tide raised all boats. The top, middle and bottom earnings thresholds rose.

However, in the two slowest-growing, and lowest-paying, industries, retail food and trucking, only low-income workers experienced substantial earnings growth – yet even then over a 12 year period,

the earnings threshold rose by a scant 6% in retail food (from $13,079 to $13,806) and by 10% in trucking (from $22,137 to $24,318). Earnings grew by less than 2% for the median retail food worker and by just over 3% for the median trucking worker over the ten-year period. And the earnings threshold for top income workers actually declined by more than 1% in both industries.

Table 2: Earnings Levels for Dominant Jobs (in 1999 dollars)

	All Workers			
Year	Job Growth	75th	Median	25th
Financial Services				
2003	19%	$62,479	$37,509	$24,559
1992		$47,780	$30,684	$20,900
Retail Food				
2003	7%	$33,144	$21,396	$13,806
1992		$33,635	$21,042	$13,079
Semiconductors				
2003	26%	$98,589	$66,595	$42,208
1992		$66,350	$44,242	$30,206
Software				
2003	130%	$96,281	$68,665	$45,028
1992		$74,851	$52,082	$35,586
Trucking				
2003	4%	$44,504	$34,247	$24,318
1992		$45,033	$33,188	$22,137

Source; Brown Haltiwanger and Lane, 2006, Figure 7.1

It is interesting to delve into the sources of these changes in the earnings distribution. There are several possibilities. One-way is that the workforce has changed: that there have been changes in the types of workers who are hired in an industry. We examine this by determining whether worker fixed effects or experience are different at the beginning than at the end of the period. Another is firm entry and exit: firms paying a wage premium can replace firms that paid less well (had a lower firm fixed effect). Another is different sorting between firms and workers.

Brown Haltiwanger and Lane (2006) find that there is ample potential for the first possible change. Many fewer low-income workers remain in their jobs, or in their industries, compared to high-income workers. The differences in retention patterns across industries and between low and high-

income workers are striking.[6] In the low-skill industries, retail food and trucking, about one in seven of the low-income workforce is with the same industry, and about one in fourteen with the same firm after more than a decade. In the high-skill industries of financial services and in semiconductors, more than one in five low-income workers in the financial services industry stay in the industry, and one in ten with their firm. Software is the most turbulent – fewer than one in seven low-income workers are still in the same industry more than a decade later, and fewer than one in sixteen with the same firm.

There is also ample potential for the source to be the entry and exit of firms. Out of the five industries the annual shut down rate in the trucking industry rose as high as 25 percent, while the software industry was below ten percent in several years (although exit for software firms grew rapidly in the late 1990s). As noted, the reason for such differences range from deregulation with industry restructuring to changes in domestic or foreign competition.

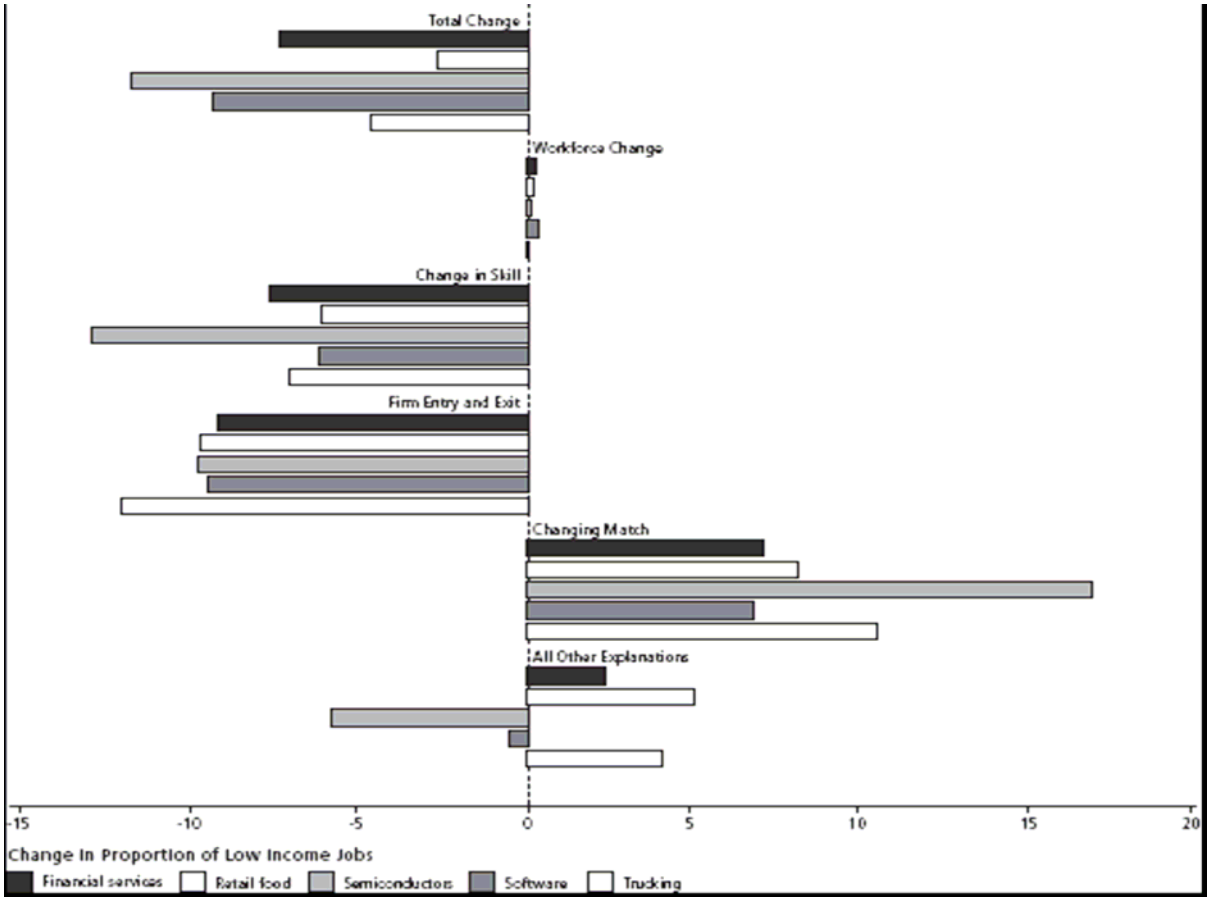
Using techniques described in the book, as well as in Davis et al (2006), we decomposed all the sources of changes in the jobs for low-income workers and present them in Figure 2. Briefly, this shows that in every industry, the proportion of low wage jobs actually declined (the first set of bars in the Figure). Almost none of this decline can be traced back to changes in the type of workforce (the second set). Much of it was due to changes in workforce experience, or skill; and much due to net firm entry (the third and fourth sets of bars).

The latter factor actually implies that in each industry, buffeted as they have been by deregulation and globalization, new firms pay a greater premium (or a smaller discount) than old. Indeed, in two of the three high skill industries, new firms – at every point of the earnings distribution – pay more than old, although in the two low-wage industries retail food and trucking, pay premia declined in the top paying firms.

Interestingly, however, the changing match between firms and workers over time acts to partially offset the shift to the right of the earnings of low-wage workers.

[6] *It is a little misleading to compare retention rates across industries, since larger industries, such as financial services are, almost by definition, likely to retain higher proportions of their workforce. For this reason, firm retention rates are more comparable.*

Figure 2



Source: Brown, Haltiwanger and Lane (2006) Figure 7.1a

Question 2: What is the impact of firm on career paths and job ladders?

Summarizing the movements of the workforce is very difficult given the dynamism of the US economy. Brown Haltiwanger and Lane (2006) simulated prototypical career paths in the five industries, focusing on two groups of workers: younger prime-aged (25-34 years old) and mature prime-aged (35-54 years old), dividing each age group into three education groups, roughly approximating high school and less ("low"), some college ("medium"), and college graduate and above ("high"), and also creating separate groups for females and males.

In order to characterize the impact of the employer, we characterized workers' jobs by whether they were in firms with the most typical firm characteristics (size, excess turnover, and growing or shrinking).

The career path and job ladder simulations are based primarily upon the results of within-job and between-job earnings growth regressions for each of the five industries. Initial earnings and within job earnings growth can be thought of as job ladders; initial earnings combined with between job

earnings growth can be thought of as career paths. The number of jobs held over a ten-year period was documented for the job histories of millions of workers over a ten-year period. The majority could be classified into one of three types:[7]

- Loyalist: worker has only one job in the five industries over the ten year period
- Job switcher: two jobs over the period (with at least one in the five industries)
- Job hopper: three jobs over the period (with at least one in the five industries)

In reviewing literally hundreds of job ladders, some stylized facts emerged about the impact of firms on low-wage jobs:[8]

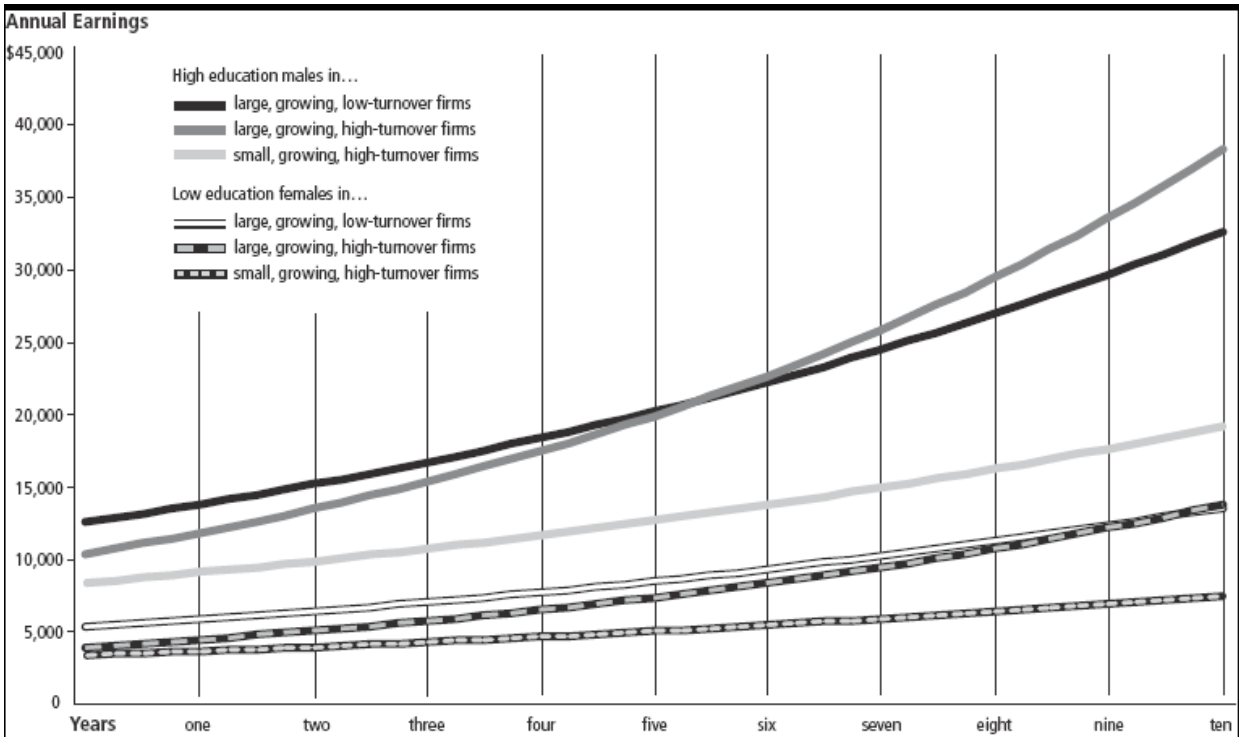
- *A firm's growth and turnover rates can provide some clues to whether the firm offers "good jobs".* In general, lower quality job ladders are associated with firms that have high worker turnover, that are small and shrinking. Higher quality ladders are associated with large, growing firms. The results vary by industry: in some industries, notably semiconductors, financial services and trucking, small growing firms often provide excellent job ladders
- *Even when a company offers good job ladders, only a select group of workers may be able to move "up" onto these ladders, and men experience better job ladders than women.* High turnover firms seem to follow an "up or out" strategy. In all industries except semiconductors, male workers who are able to keep their jobs in high-turnover firms end up earning more than similar workers in low-turnover firms.
- *Women are less likely to have "good jobs" than are men*. Within each industry, women's job ladders in general started at a lower initial level and had slower earnings growth; even with the same education level, although the impact of economic turbulence does not differ noticeably by gender.

Figure 3 below provides a striking example of some of these points. Job ladders for both high-educated males and low-educated female (middle-aged) workers in large and small (growing high-turnover) firms show that large firms pay slightly higher initial earnings and have higher earnings growth. At the end of a decade, workers in large firms earn over 80 percent more than comparable workers at small firms. The earnings differences by firm size are so dramatic that low-educated workers (both males and females) in large firms, if they are able to keep their jobs, eventually earn more than their high-educated peers at small firms (not shown). The bottom line is that a bagger who moves up to stocker in a large store will end up making much more than the worker who does a variety of jobs in a small store.

[7] *The proportion of all workers in the sample (not just prime-aged) holding 1-3 jobs is 71% in software, 74% in semiconductors, 76% in financial services, 78% in trucking, and 82% in retail food.*

[8] *Brown, Haltiwanger and Lane (2006) Chapters 5 and 6.*

Figure 3



Job Ladders in Retail Food (Source: Brown Haltiwanger and Lane 2006 Figure 5.3)

In terms of career paths, the research by Brown Haltiwanger and Lane, found that external shocks and idiosyncratic firm characteristics do affect firm career paths. In each industry, loyalists had better career paths than job hoppers for all education groups of prime-aged men and women.

However, most workers change jobs: typically fewer than 40 percent of workers are loyalists, and sometimes this is as low as 25 percent. As before, there are substantial industry-specific differences: the low-wage retail food and trucking industries as well as the financial services industry are much more likely to have workers who are loyalists. Mobility is much more a characteristic of the high-wage industries, semi-conductors and software. Although the "fear" that a job change will occur is grounded in reality, most workers who stay in the labor market are able to improve their career paths through changing jobs, until they finally find a relatively good job ladder. In general, workers did better by moving into the high-wage software, semiconductor, financial services, and trucking industries, and by moving out of the low-wage retail food and trucking industries.

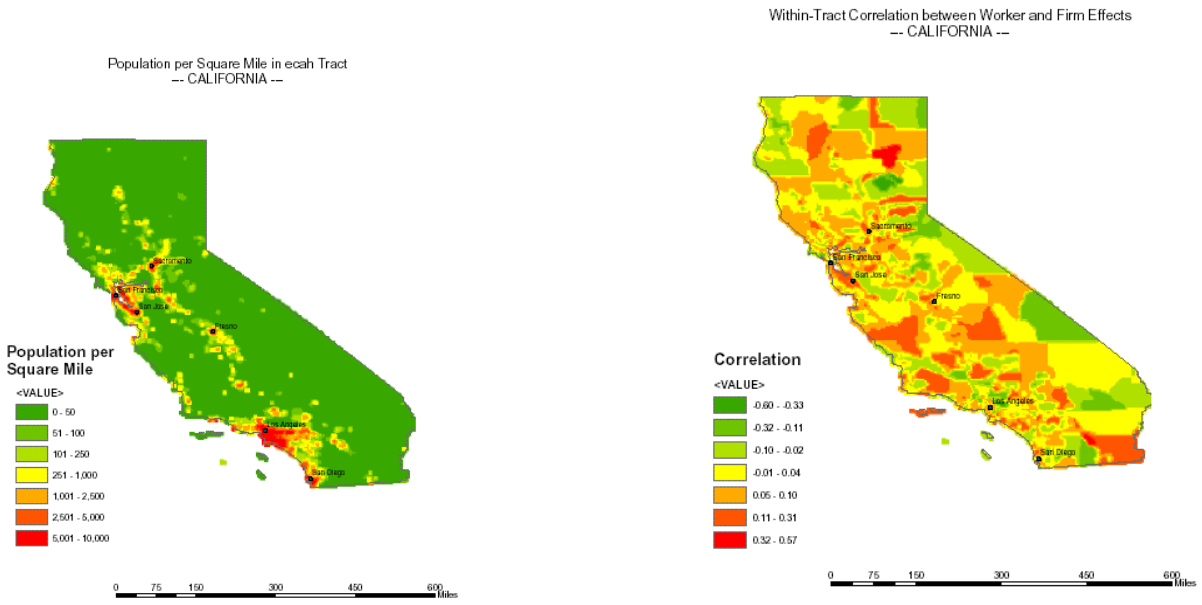
Question 3: What is the impact of access to jobs on outcomes for low-wage workers?

The work using LEHD data has examined the impact of access on low-wage workers in two ways: access to employers through temporary help agencies (Andersson et al, 2005), and geographic access (Andersson et al 2005 and Andersson et al 2006).

The evidence shows that early work experience at a "temp" agency is associated with higher subsequent earnings for initially low earners. And this effect is totally accounted for by the quality of jobs that these workers hold in subsequent periods. "Temp agencies" appear to improve the quality of subsequent job matches for low earners. This result is completely consistent with the research by Lane et al (2002) using a completely different dataset.

Geographic access is also important. Andersson, Holzer and Lane (2005) also show that the quality of locally available jobs is significantly negatively correlated with the fraction of workers who are low-wage workers. The lower mobility of low-wage workers means that variations across space in job quality accounts for a substantial fraction of variations in low earnings status. The relationship also holds dynamically: they show a strong positive relationship between local employer quality and an individual's chances of escaping low earnings.

Figure 4



Source: Andersson, Burgess and Lane, 2006, Figure 7

In related work, Andersson Burgess and Lane present some evidence that might account for the disproportionate amount of rural low-wage work. They show that the degree of matching of firm

and worker quality does vary with labor market density, and that there is evidence of complementarity in production. This process, which means that the combination of high quality workers with high worker firms results in greater productivity than simply the sum of the individual parts, contributes to the urban premium. A vivid illustration of this premium is provided in Figure 4: the sorting between workers and firms is much greater in densely populated areas than in unpopulated tracts.

Question 4: What is the impact of increased product competition on low-wage workers?

The retail industry is one of the poster stories for low-wage work. The fear of Wal-Mart entry on job and wages is so great that recently the city of Chicago refused to allow Wal-Mart to operate within the city boundaries. The quotation below is typical of the types of concerns that are raised.

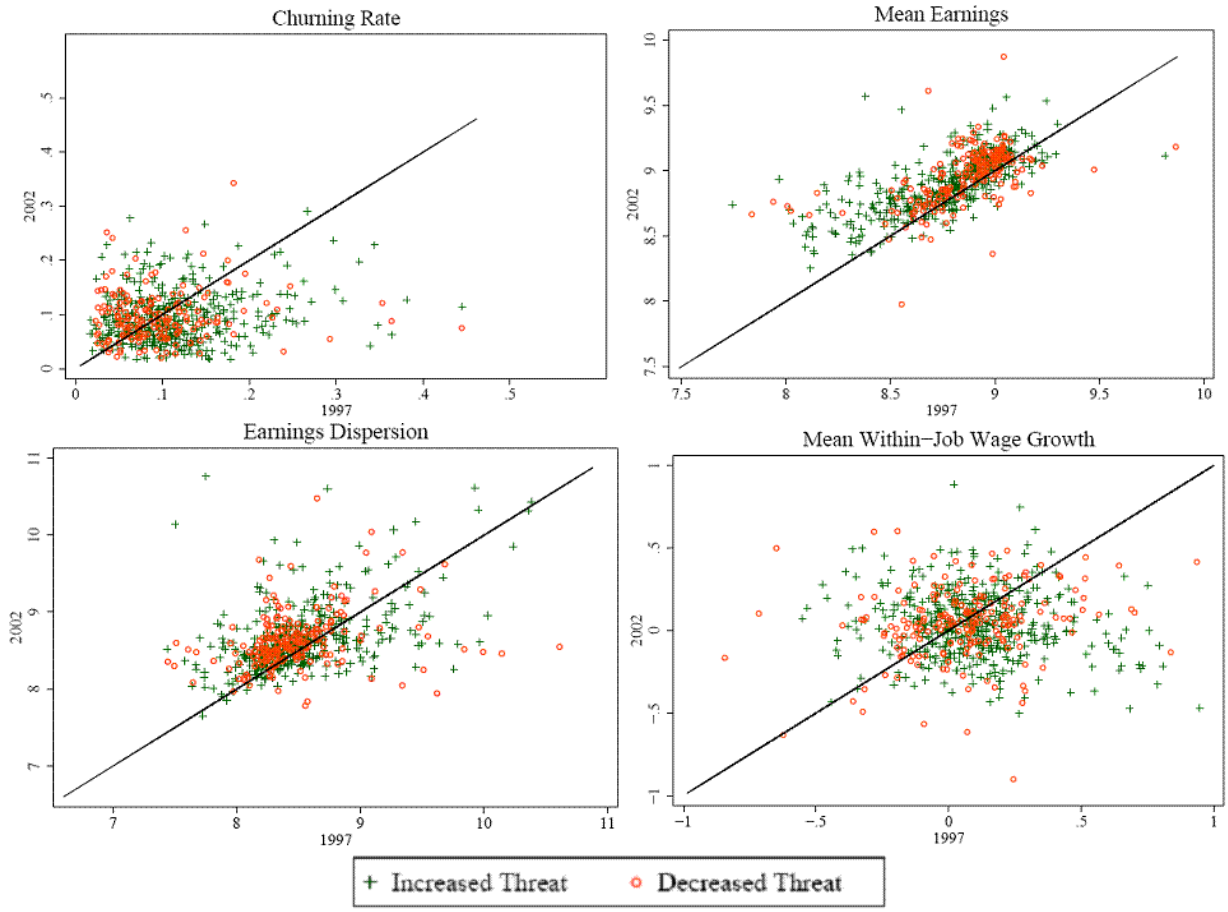
"Whereas Wal-Mart employees start at the same salary as unionized employees in similar lines of work, they make 25 percent less than their unionized counterparts after two years at the job. The rapid turnover - 70 percent of employees leave within the first year - is attributed to a lack of recognition and inadequate pay, according to a survey Wal-Mart conducted." PBS, "Store Wars: When Wal-Mart Comes to Town," http://www.pbs.org/itvs/storewars/stores3.html (February 2, 2004)

Work by Davis et al. (2006) used linked employer-employee data to investigate how the labor market of a very low-wage industry – retail food -- adjusted to such competitive shocks. It examined whether existing firms revamp the way in which they hire, promote, and compensate employees or whether firms with older ways of doing business simply contract and exit and get replaced by entering firms that adopt the new way of doing business.

The essential findings of the study are summarized by Figure 5. This examined *changes* in human resource practices in establishments as the degree of competition *changes:* this is possible because of the existence of longitudinal information on establishments over time. In order to graphically examine this, we plotted four measures of human resources practices[9] in each establishment in 1997 and compared it with the same measure in 2002. Firms in markets that face a mounting competitive threat Figure 5 (an increase in the number of mass merchandisers within five miles of a given establishment) are denoted with a "+" while those facing a declining competitive threat (a decline in the number) with a "0". The reference point 45-degree line represents firms that did not change any practices at all over the period.

[9] *The measures of the earnings distribution at each establishment are the natural log of average quarterly earnings among all full quarter workers in the establishment and the natural log of the standard deviation of quarterly earnings among all full-quarter workers in the establishment. The turnover measure is the churning rate of all full-quarter workers in the establishment. The fourth measure is mean within job wage growth for workers in each establishment.*

Figure 5



The results are quite striking. First, firms engage in very different human resource practices even within this very narrowly defined industry. Churning rates range from less than 10% to over 40%. The standard deviation of log earnings varies from seven points up to ten points. The indices of log mean earnings and workforce stability are similarly varied. Second, human resource practices are not adopted at random. Firms are heavily clustered around the 45-degree line regardless of which measure is used. The firms that had churning rates of 20% in 1997 have churning rates of about 20% five years later. Firms with a standard deviation of log earnings of ten points in 1997 have the similar standard deviation five years later. A third point is that these persistent and heterogeneous human resource strategies are, at best, only mildly responsive to changes in the external competitive environment. Across measures, there is no strongly evident difference among those grocery stores that face greater competition from mass merchandisers.

This very vivid graphical representation of persistence in HR practices held up in the deeper analysis. The ultimate finding of the research was that despite rapid changes in the competitive landscape of food retailing in recent years, supermarkets and grocery stores retain the same practices even in the face of new competition from firms like Wal-Mart. The margin of change in the industry appears to be through entry and exit.

7. SUMMARY AND POLICY IMPLICATIONS

This brief summary of recent research using matched employer-employee data has highlighted the value of such data in low-wage research. The data provide new ways of quantifying economic turbulence at the firm level, and, while recognizing it as a driving force in productivity and economic growth, provides evidence that some transition support is needed for workers caught up in the down draft of economic change.

The data also permit researchers to document the enormous heterogeneity in firm HR practices, as well as the clearly substantial impacts on workers of all skill levels. This result, combined with the fact that firms that have poor HR practices are more likely to exit, suggests that one potential area for policy is improving firm level HR practices. Indeed, just as agricultural extension policies were implemented in the large land grant state universities in the U.S. to improve farming practices, it might be sensible to establish industrial extension practices to do the same for businesses whose major input is workers.

The new information about the value of temporary help agencies points to the importance of job placement as well as job training policies, while the importance of geographic access suggests that combining transportation with workforce development policies would be a fruitful avenue to investigate. Understanding the spatial aspects of social networks and placement is similarly a natural extension.

Finally, the great variation in outcomes for low-wage across industries particularly documented by Brown, Haltiwanger and Lane (2006) as well as by Andersson et al. (2005) provides strong evidence that "one size does not fit all" when it comes to studying the low-wage labor market. Further research should focus more deeply on an industry-by-industry analysis. In this vein, it is worth noting that important insights can be gleaned by working with qualitative researchers, like Sloan Industry Center researchers, who understand the forces affecting the labor market in a deeper fashion than can be apparent from examining large scale datasets.

In general, however, it is worth noting that much of the research to date is somewhat atheoretical and descriptive in nature. Better theoretical models are needed, and it is to be hoped that there will be new theoretical work that can be applied to these new rich datasets.

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