

Too Many Cooks?
Tracking Internal Labor Market Dynamics in Food Service with
Case Studies and Quantitative Data:

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I. INTRODUCTION

Core firms in the U.S. economy traditionally had strong internal labor markets that provided opportunities for skill development and advancement. Through training and/or prospects for long-term employment that allowed for on-the-job training and returns to investment in education, workers starting out with low skill levels had opportunities for “good” jobs. Firms were able to provide these opportunities in part because vertical integration and the expansion of various support functions brought together a large and varied set of jobs under a single roof. It is widely perceived that these arrangements have largely been scrapped over the last twenty years (see, for example, New York Times 1996). However, there is a marked difference between the sweeping changes depicted by recent case studies and the small to negligible shifts reflected in large-scale quantitative data.

Case study research, ably reviewed in Cappelli et al. (1997), identifies two types of change, both dramatic: change in the organizational structure of firms, and change in the structure of employment for workers. These are distinct but related shifts. Firms outsource, become “boundaryless”, become embedded in networks, and change in other ways that lead to an altered employment structure. At the same time, businesses are weakening their employment relationships with workers to the point of dissolving internal labor markets (ILMs). Cappelli et al. (1997: 4) conclude that with the breakdown of “traditional methods of managing employees and developing skilled workers inside companies[,]... pressures from product and labor markets are brought inside the organization[,]... [establishing] market-mediated employment relationships.” A key element of both changes is the replacement of vertical integration with outsourcing of all activities save a few “core competencies” (Powell 2001).

Despite such case study evidence suggesting the devolution of ILMs, most aggregate indicators of the vigor of ILMs have changed relatively little (Bernhardt and Marcotte 2000). Declines in average employee tenure are small (Neumark 2000), although some groups, such as less-educated young men, have experienced more substantial drops (Bernhardt et al. 2001). The differential in tenure between large and small firms, which one would expect to narrow over time if ILMs have significantly declined, shows no change between the 1980s and 1990s (Allen, Clark, and Schieber 1998). Estimates of the firm-specific

components of wages, one way of assessing the extent to which ILMs shelter wages, also show essentially no change over the last couple of decades (Groschen and Levine 1998).

One interpretation of this apparent contradiction between case study and aggregate data is compositional: the case studies represent changes that characterize only a small and perhaps atypical subset of firms. In particular, it may be that processes that dismantle job ladders in one set of businesses may create new job ladders elsewhere. These disparate findings are also consistent with a world in which firms intermittently tear down and rebuild ILMs, averaging out to little change in the aggregate.

In this paper, we take a close look at the evolution of ILMs amidst shifting business boundaries, using both new case studies and a new quantitative data set combining firm-level and worker-level data. We focus on the food service sector, whose burger flipper has become a symbol in public discourse for a rapidly expanding category of low-end jobs.¹

The case study research zeroes in on supply chain shifts such as outsourcing. Although the labor impacts of outsourcing have been studied closely in a few industries, above all auto manufacturing (Womack 1991), it is important to broaden this base of knowledge. In contrast with much recent case study analysis of restructuring, we attempt to follow the trajectory of restructuring over a relatively long time span, using retrospective questions to learn about changes from the early 1980s to the present. We also compare the different organizational structures within which particular functions took place before and after the restructuring. Thus, we compare outsourcing firms and their suppliers. In effect, the comparison poses a counterfactual: *What if* the activities had not been outsourced? The quantitative analysis complements the case study findings by searching for generalizations on a large sample of workers and firms—indeed, nearly the universe of workers and firms for the state of Maryland during years 1985-1996 in the industry under study. We analyze an unusual microdata set that links detailed longitudinal information on business establishments and workers, drawing on data from the unemployment insurance system. With these data, we are able to explore firm characteristics such as

¹ This study of food service is part of a larger set of industry case studies, including electronics manufacturing, financial services, and retail sales.

turnover and earnings distribution, in terms of cross-sectional variation, sample-wide trends (including entry and exit of firms), and firm-level trajectories. We can also examine individual worker mobility within the firm, and aggregate up to firm-level or industry-level results.

Our case study and quantitative analyses highlight different aspects of change in food service: the case studies emphasize the results of employment shifts across food sub-sectors, whereas the microdata analysis spotlights trends over time within one key sub-sector. The case studies reveal that shifting functions to suppliers—in particular, food manufacturers—may actually embed them in a *stronger* internal labor market, rather than a weaker one. The quantitative analysis focuses on food manufacturing, the endpoint of employment shifts. The evidence here is consistent with earlier findings in which we suggested that corporate restructuring is iterative, and that successive iterations may have diametrically opposed implications for internal labor markets (Moss, Salzman, and Tilly 2000). . In line with this claim, our quantitative analysis shows both strong persistence in firm-level characteristics such as median earnings or turnover (consistent with the absence of bold shifts and/or the prevalence of successive adjustments that cancel each other out), and wide-ranging idiosyncrasy (indicating great variation in business-level strategies and/or the fact that businesses are at different stages of adjustment at any point in time). Quantitative findings also show *decreased* turnover for low-wage workers, along with slightly higher turnover for the highest paid, in food manufacturing between the 1980s and 1990s. Two generalizations about the impact of restructuring on the workforce seem to hold:

- 1) Businesses still find it necessary to integrate substantial portions of their workforce into the firm via established internal labor markets, and outsourcing in food service appears to have reinforced this pattern.
- 2) New forms of internal labor markets have, however, on the whole reduced opportunities for the least educated workers to enter the firm, and to advance within the firm. In effect, the line between primary and secondary labor markets has shifted within and between firms to the disadvantage of less-skilled workers.

The rest of the paper proceeds straightforwardly with a discussion of data and methods, presentation of findings (first field-based, then microdata-based), and brief conclusions.

II. DATA AND METHODS

As noted above, this research couples qualitative company case studies with quantitative analysis of publicly compiled large microdata sets to study food preparation and service.

Case study data

We conducted case studies of a small number of companies. To examine supply chain shifts, we looked at organizational clusters consisting of final food servers along with their suppliers, including distributors and manufacturers. We gained varying degrees of access to companies, but our goal—successfully realized in the large majority of cases—was to speak to top managers, human resource officials, and frontline managers at each site we visited. We learned about the trajectory of change in internal labor markets primarily by asking retrospective questions. Data gathering extended from 1999 to 2002.

- For the purposes of this paper, our sample of cases includes ten firms at several points along the “food chain.” Final food servers include Masterfood and Great Meals, two national institutional food service companies, the Ourtown School System, and Bellavista, a moderately expensive independent restaurant. (All names in the paper are pseudonyms.) At the food distribution level, we are studying Food King and Quality Express, both national distributors, and two regional ones, Joe’s Produce, which specializes in fruits and vegetables, and Jones Wholesaling, a very small independent. Finally, our study includes two food producers, Salads Supreme and Maritime Seafood. Most of these firms are part of three supply chains: Masterfood buys from Food King, which buys from Maritime Seafood; Great Meals buys from both Food King and Quality Express, Ourtown Schools buys from Joe’s Produce; Salads Supreme sells to Quality Express, Food King, and Joe’s Produce, and buys from Joe’s Produce as well. Total employment in these firms is about 360,000.

Quantitative microdata

An alternative way of examining changing workplace practices is to examine changes in pay and turnover outcomes for large numbers of businesses over time. The ideal data set to address these issues would combine industry and firm information, together with geographic location and longitudinal information on the earnings and tenure profile of the workforce. Such a data set has not hitherto existed. In particular, household based, demographic surveys, such as the Current Population Survey are not appropriate to address firm level issues, both because no respondents can be identified as coming from the same firm and also because no firm level information is provided (other than the survey response to industry and size of firm). Administrative records, such as unemployment insurance system (UI) wage records, while ideal to address worker turnover and wage profile issues, do not have data on workers' demographic characteristics. The Economic Census micro data on firms, which cover all sectors of the economy, do provide detailed geographic information together with data on different facets of firm production and sales patterns, but do not provide information on individual workers, wage profiles, tenure or turnover and is only available every five years. The Census Business Register, which is the master sampling frame for the Bureau of the Census, is available every year, and provides total employment, payroll, sales and detailed geographic information for all establishments. The ideal data set would combine all of these sources of information, and it is just such a data set that we use.

This dataset, derived from the precursor to the Longitudinal Employer-Household Dynamics (LEHD) program, contains quarterly information on the earnings and employment affiliation of the universe of workers in almost the universe of businesses in food manufacturing in the state of Maryland between 1985:3 and 1996:3, combined with demographic information on their characteristics. These data are particularly suited to the task, because they permit two types of analyses: one that is business based - whether jobs for low end *workers within a given firm* have become more transitory; and one that is worker based - whether the jobs they get and *hold at the same firm* offer diminished prospects of earnings growth. The unique strength of these data is that, for the first time in the United States, we can both

calculate workforce composition for all the firms in a given industry and capture the dynamics of change in this composition.

Because these data were developed as part of a new initiative at the Census Bureau², and their characteristics are consequently not yet well known, it is worth discussing them in more detail here. Unemployment insurance data are state level data that are filed each quarter by every employer who employs workers covered by unemployment insurance legislation. These data cover about 98% of employment in each state, and each record consists of an employer identification number, an individual identifier and the earnings associated with each job. An associated state file (the ES202 file) includes information on the employer's industry and location. These data are then integrated with Census Bureau data, under strict protocols³, to provide demographic information (date of birth, place of birth, race and sex) on each worker in the sample.

The data have a number of important advantages. The full sample size is extremely generous: there are roughly 1 1/2 million employees every quarter; and over 100,000 reporting units – even after limiting our attention to food manufacturing and imposing all restrictions, we have over 600,000 records. The data also are longitudinal in three dimensions: we can track employees over time; employers over time; and the employer-employee match (which we refer to here as the “job”). In addition, because we have the universe of workers, we can create measures of employer workforce composition, as well as job and worker flows for different groups of workers.

Even with the Census Bureau enhancements, there are some drawbacks to these data. First, we have no information about the hours or weeks worked – earnings measures reflect quarterly earnings. Second, the data are administrative in nature, and hence the employer can represent either an establishment or a firm, depending on how the business chooses to file the unemployment insurance

² The Longitudinal Employer-Household Dynamics (LEHD) program, which is integrating data for a number of large states, covering some 60% of U.S. employment.

³ Specifically, all analysis must be for statistical purposes only, and only for approved projects that also serve a Census Bureau, Title 13 purpose. All output is disclosure proofed by Census Bureau staff before release. All identifiers are removed and replaced by anonymised keys. Individuals working with the data are subject to a \$250,000 fine and/or 5 years in jail if there is a breach of confidentiality.

record⁴. This problem is mitigated by the fact that about 70% of businesses are single establishments, and hence there is no difference between the two. However, for larger businesses with multiple establishments, the exact structure of the economic entity is often much more complex. Third, because employer identification numbers can change for administrative as well as economic reasons, firm births and deaths (including mergers and acquisitions) may be overstated by about 10% (based on research done at the LEHD program). This problem is minimized because of our focus on continuing firms. However, firms that are acquired by other firms will not be included (because they are not true continuing firms); firms that acquire other firms will show the workers from the source firm to be new hires.

There are three primary selection criteria that we impose on our data. We (i) select firms and workers from food manufacturing, (ii) restrict jobs to full-quarter jobs, and (iii) select continuing employers that at a given point had an annual employment of at least twenty employees and never had fewer than ten employees. We limit our analysis to food manufacturers in order to consider one relatively homogeneous sub-sector within the food supply chain. Since the case studies suggest that supply chain changes are shifting employment toward food manufacturing, this destination sub-sector seems most important to examine; our analysis does include some comparison with other food sub-sectors. In order to minimize the issues that arise as a result of the lack of hours information, we follow Topel and Ward (1992) as well as Burgess, Lane and Stevens (2000), and restrict the dataset to only include “full quarter” jobs. A job is considered a full-quarter job if the worker holding that job was employed by the same employer in the quarter preceding and succeeding the current quarter. We exclude firms that are very small and/or last for a relatively short period of time, since they are unlikely to have internal labor markets and are not amenable to analyses of within-firm mobility and long-term trends.

Our final dataset focuses on continuing firms that have at least 20 employees in at least one quarter in the 1985:3-1997:3 period, and did not disappear for more than two quarters over the period.

⁴ Work is ongoing to match the state data to the Census Bureau Business Register to further inform our knowledge of these issues.

While this reduces the number of firms to 91, we keep the bulk of records – 648,666 observations on a total of 87,366 workers.

III. CASE STUDY FINDINGS

An introduction to food preparation

For our purposes is useful to view the food preparation industry as composed of four segments, omitting the agricultural and fisheries sectors that supply the raw materials:

- Retail: supermarkets and groceries and non-grocery retailers such as Wal-Mart
- Food service providers: restaurants, food service in firms and institutions provided by the firms and institutions, and contracted food service providers
- Food suppliers and distributors
- Food manufacturers

In this paper we focus on industry changes in food service providers, food distributors, and food manufacturers. These three sectors combined accounted for nearly 10 million jobs in 2000 (grocery stores employed another 3 million). Entry-level pay in the relevant jobs ranges from \$5.00 to \$8.00; the number of workers in the sites visited ranged from several to several hundred. None of the entry-level jobs require more than a high school education, and many don't even require this minimal credential. We first review the broad contours of the food industry, and then turn to the results of these cases.

In the food service industry we are most interested in food preparation (as opposed to service) workers, who numbered about 2.8 million out of the 13 million food sector (including grocery store) workers in 1999. Almost 20 percent of food preparation workers are between 16 and 19 years old, and about half are employed part time. In Grocery Wholesaling, which imperfectly corresponds to the food distribution sector we studied, our field data concerned warehouse workers, food preparation workers, food machine operations, supervisors, and drivers, totaling 364,000 workers in 1999. In food manufacturing, the relevant workers are the food preparation workers, food machine operators, and their supervisors, a total of 41,000 workers in 1999. In each segment, supervisors and managers of food preparation workers are a key point on the mobility ladder for food preparation workers. Such supervisors and managers, who are part of the above totals, numbered approximately 650,000 in 1999.

Restructuring in food: Consolidation and outsourcing

All segments of the food industry have experienced significant consolidation. The top four firms account for 52 percent of sales among food service contractors; 28 percent among general line grocery wholesalers; 20 percent among grocery stores; and 14 percent among food manufacturers (ranging much higher in specific food sectors: 35 percent in meat products, 29 percent in baked goods)—though still only 7 percent among full-service restaurants (U.S. Census Bureau 2002a). Consolidation among broad-line food distributors (those supplying a wide variety of products) is particularly noteworthy. Technomic, Inc. reported that among broad-line distributors (evidently defined somewhat more restrictively than the Census definition), the share of the top three (Sysco, Alliant, and U.S. Food) grew from 32 percent in 1995 to 43 percent in 2000 (Refrigerated & Frozen Foods 2000). In 2001, U.S. Food acquired Alliant.

The consolidation in each segment of the industry has fueled consolidation in the others. In food service provision, increased contracting business has generated growth among the larger firms and provided profitable opportunities for them to acquire smaller regional food service providers. Growth among the larger firms allowed them to achieve further economies of scale and scope that feeds continuing growth. As the large players in food service provision grow and consolidate, they demand larger, more stable distributors to supply them—seeking one-stop shopping to the extent possible. Sysco, U.S. Food, and other large distributors have thus grown with new business and have acquired more and more regional suppliers. An executive in a Quality Express regional division stated, “There were thirty-eight competitors in his region when I started [in 1984]. In reality, we now have five, and only two that are real competitors.”

Similarly, as distributors have grown and consolidated, they have sought ways to increase and stabilize the clients that they supply, providing further energy to the growth and consolidation of food service providers, chain restaurants, and supermarkets. The relationship between large distributors and large food service contractors has given both further advantages through mutually reinforcing economies of scale. This allows both to compete more effectively in their own markets, which encourages yet more

outsourcing of food service, and continues to encourage growth and consolidation in both market segments. Consolidation of restaurants into chains has also stimulated and been facilitated by the growth of large, full-service food distributors. And giant distributors have also spurred manufacturing consolidation: in salad manufacturing, for example, “People are starting to buy each other up,” according to the vice president of operations of Salads Supreme. The average food manufacturing plant grew from 62 employees in 1977 to 73 in 1997 (U.S. Department of Commerce 1977, U.S. Census Bureau 2002b).

In step with consolidation, three types of outsourcing have grown:

- Institutional food service is increasingly provided by contractors;
- Food preparation is being outsourced from food service to food manufacture (and food manufacturers themselves have outsourced).
- Food-related services are also being outsourced: distributors now provide services to food servers

Contracted food service firms serve more and more of the meals in firms and institutions. The food service contracting industry is only about 35 years old. Aramark grew from a vending machine contractor providing food service to sporting events established about 35 years ago (Hoovers.Com 2002). Sodexo, Inc. (which now includes Marriott, International), is a French company founded 35 years ago by Pierre Bellon “in borrowed space inside his uncle's anchovy factory.” But according to a recent Merrill Lynch report, the overall fraction of institutional food sales that are outsourced has now reached 51 percent (Hagerty 2002). Organizations are contracting out food service for a number of reasons, the most important of which are cost and quality. Food contractors can achieve economies of scale in buying food, machinery, and off-site food preparation that are not possible for independent food providers. Three firms currently dominate institutional food service: Sodexo, Compass Group, and Aramark. Compass Group, currently number one, has sales of over \$350 billion.

“ ‘Our business is about economies of scale,’ says Compass's Mr. Bailey. ‘Frankly, the bigger you are, the more money you can make’” (Hagerty 2002). Such economies of scale can also help ensure consistency of quality. The benefits of economies of scale have been reinforced by the extraordinary growth of the largest service contractors, which are expected to grow by double-digit rates in the near future (Hagerty 2002). In addition, by contracting out, institutions can shed the costs of recruiting,

training, and worker's compensation insurance, and can avoid pay comparability with non-food service employees in the firm.

The consolidation of food service providers, of restaurants into restaurant chains, and of food distributors has helped feed the second type of outsourcing--the shift of food preparation "upstream" along the supply chain from food providers in cafeterias and restaurants (and to a degree in supermarkets) to food distributors and especially manufacturers. Change across years in the numbers of food preparation workers within industry segments is difficult to gauge, because the categories were modified in the Bureau of Labor Statistics Occupational Employment and Wage Estimates data between 1993, 1996, and 2000. We attempted to create consistent categories, and found that between 1996 and 2000, food preparation workers *within food service establishments* declined by about 160,000 workers, while *in food manufacturing*, the number of workers processing and preparing food increased by about 4800.

Food service providers purchase greater amounts and varieties of pre-prepared food than before, shifting the preparation work to food manufacturers. A Great Meals facility manager explained, "There's more and more foods being done [by] the manufacturer than they are on site. The reason for that is quality. There are things that you could buy that it would make no sense whatsoever for you to make. There's even some desserts out there that the finest pastry chefs in [city] couldn't make them as good. You can pretty much buy anything prefab now... The other thing is all the pre-cut vegetables.... You know, even entrees. I know folks that run hotels ... they're buying their chickens, chicken cordon bleu is already done and they're just baking them. And this is a hotel getting \$50 and \$60 a plate [for catered banquets]." Thus, giant food service providers achieve a scale at which it is easier to plan and execute cost effective outsourcing. But independent restaurants are sourcing more as well. At Bellavista, an upscale restaurant, a line cook said that all meat comes into the restaurant precut and salad greens prepackaged. The pastry chef indicated that improvements in production technology, such as flash freezing, automated cake design, and improvements in transportation had increased the purchasing of cakes and pastry by all but some of the high-end restaurants.

Newly consolidated distributor firms help both their vendors (food producers) and their food service clients coordinate planning, generating larger shipments of prepared foods. The Quality Express manager told us that their customers (primarily Great Meals and a large number of independent restaurants) purchase “more and more prepared foods, for lack of qualified personnel to do that in-house for them.” At distributor Food King, the executive vice president of a regional division described the company’s discovery that purchase of salad preparations lowered transportation costs compared to shipping component ingredients separately. He and the owner of Joe’s Produce pointed out that prepared food has less weight and bulk because the waste is removed, and prepared food is better preserved, reducing spoilage and easing shipping constraints by allowing greater latitude in delivery and logistical tolerances. According to the owner of Joe’s, preparing carrots and onions close to the growers reduced transport weight by 40 percent. (Interestingly, restaurants report that a significant cost savings of prepared food is in lower workers’ compensation costs, by having fewer workers wielding large knives) Joe’s took an additional step, actually moving into the food preparation business. The owner reported that taking over the preparation of difficult-to-prepare items (such as cauliflower) or highly labor-intensive foods (such as fruit salad) significantly increased the quantity sold to food servers. He claimed that restaurants’ preparation costs amount to three times the cost of raw produce, but that his company’s scale and mechanization, along with lowered transportation costs, allowed them to offer the same product to final servers at a significantly lower cost while reaping higher margins on the sale.

Like other manufacturers, food manufacturers themselves have also outsourced. At Salads Supreme, where one of the main products is potato salad, the vice president spoke of the contrast between the late 1980s and today. “Back then, we brought the potatoes in, dumped ‘em, peeled ‘em, washed ‘em, and made salad. Now a guy in [a nearby area] peels and washes them—all we do is cook. We don’t want to bring bacteria into the plant.” Sounding like any number of executives in other manufacturing sectors, she added, “Our philosophy is to do what we do best, and let other people do what they do best.”

Finally, in addition to new goods, food distributors are providing new services to food servers. One goal is to facilitate the survival of small firms, because a stable firm is easier to service than a

succession of firms—and is likely to grow, as well. The other goal is to compete for new business. Services provided include general management consulting, marketing menu planning and product expansion, setting prices, inventory and purchasing control, and worker training in safety and food handling. In the cases we heard about, these services are provided without charge, as the services pay for themselves by securing and helping expand the business of customers. The largest food distributors are most active in providing such services. Food King has a large division devoted to providing this assistance. Quality Express, similarly, offers its customers management and menu planning services. However, some smaller, regional distributors are also pitching in; for instance, Joe's Produce trains clients in food handling.

Despite outsourcing's momentum, many of the companies in our sample have begun to encounter its limits, as we will explore below.

Job quality and mobility in food: Before and after

Industry consolidation, the shift of food preparation from food service providers to manufacturers and distributors, and the shift of business services from food providers and manufacturers to distributors have impacts on the quality of jobs in the industry as a whole. We see three types of outcomes produced by these, all in general, leading to higher paying jobs.

1. Jobs are shifting to higher paid industries.
2. Jobs are shifting to larger enterprises.
3. Jobs that once were done *ad hoc* or informally (such as menu planning, inventory management) are becoming more specialized and professionalized.

As food preparation shifts, for example in salad preparation, work moves from low skill food preparation workers onsite to machine operators at manufacturing sites using large machines, with significant changes in pay level and job conditions. Looking at pay by industry, the pay level in food manufacturing tends to reflect that of the manufacturing sector, with median wages of \$11.80 an hour (SIC 20) compared to \$6.70 an hour in the food service sector (SIC 580) (U.S. Bureau of Labor Statistics 1998). Looking, alternatively, at pay levels of occupations affected by the food preparation shift, food

preparation workers in food service establishments average \$7.25 an hour as compared to machine tenders and operators in the food manufacturing industry, who receive \$10.88 an hour. In food distribution, where more food preparation is shifting, food preparation workers earn \$8.68 an hour and food machine operators \$8.72 per hour. Even for the same occupation, wage differentials between industries are striking: bakers in restaurants have median wage of \$7.60 an hour as compared to \$10.20 in the food manufacturing industry. Supervisors of food preparation workers earn more in manufacturing and distribution than they earn in food service as well. The wage rates for these supervisors are \$16.29 in manufacturing, in distribution, \$16.47 and in food service, \$11.46 (U.S. Bureau of Labor Statistics, Occupational Employment and Wage Estimates for 1999). Moreover, the average food manufacturing establishment (55 employees) is significantly larger than the average eating and drinking place (16), suggesting more opportunity for career growth (U.S. Census Bureau 2002b).

Comparing jobs and wages for Ourtown Schools, a free-standing food service (Table 1) with salad manufacturers Salads Supreme (Table 2) suggests some of the changes involved. Both businesses are located in the same metropolitan area. Although entry wages start slightly higher at Ourtown, pay at higher occupational levels, opportunities for wage growth, and opportunities for movement into higher level jobs are substantially greater at the manufacturer.

Table 1: Job grid for Ourtown Schools food service

<i>Job title</i>	<i>Wage</i>	<i>Requirements</i>
Assistant Cook/ Food Preparer	\$7.33 - \$7.48	High school or less
Cook	\$7.62 \$8.05 \$8.90	0-5 years experience 6-12 years 12+ years
Food Supervisor	Salaried, approx. 17,000	High school or less

Table 2: Job grid for Salads Supreme

<i>Job Title</i>	<i>Wage</i>	<i>Requirements</i>	<i>Upward mobility</i>
Hand packer	\$7-9.50	Literacy not required	yes
Assistant cook or mixer	\$7.50-\$10.75	Literacy not required	yes
Cook, mixer, lead person,	\$10.50-13.50	Literacy required	yes

warehouse worker, assistant supervisor			
Supervisor	\$10-20 (nobody making \$20)	No high school	yes
Production manager	(not able to determine salaries at this level and above)	No high school	yes
Plant manager, Quality control manager		High school	little
Vice President		College	little
President		College	little

While shifting jobs from food servers to manufacturers improves job quality, it also alters the geographic locations and degree of geographic concentration of entry-level jobs. When Food King buys vegetables prepared near the farm—rather than selling unprocessed vegetables that are prepared by the restaurant—jobs shift from urban to rural areas (and presumably to the south and west of the country). For other prepared goods, ranging from pastry to prepared entrees, upstreaming food preparation shifts jobs scattered throughout urban areas, in the restaurants, to larger factory settings generally outside of the center city. While the demographic characteristics of the two groups of workers might plausibly be quite similar—modestly skilled Latino immigrants in rural California produce processors or in suburban bakeries displacing modestly skilled Latino immigrants in central cities—the implications for less educated workers rooted in central cities may nonetheless be significant. Young people comprised 25 percent of food service employment in 2000, and food service jobs are often important first jobs through which workers gain more employability skills and establish an employment history.

The value of these jobs is significant in some urban areas where there are few other available jobs (see Newman 1999). This may be particularly true for non-English speakers since it reduces the number of jobs that do not require high levels of communication with either customers or co-workers (with notable exceptions depending on the location of the restaurant, of course). Although mobility and job quality in the food service sector is not high, these jobs may provide launching pads for mobility outside the sector. However, such cross-sector mobility requires geographical proximity to other industries with better job opportunities.

To take a preliminary closer look at geographic shifts in food preparation, we examine food industry shifts between 1977 and 1997⁵ for California, our most populous state. We limit our analysis to a single representative state because compiling county-by-county data is quite laborious. We have divided the food industry into three components: food manufacturing, grocery wholesaling, and eating and drinking places. (To simplify the discussion, we omit grocery stores, since our main concern is with the food *service* supply chain.) We have divided California geographically into agricultural and non-agricultural counties, defined by whether a county falls above or below the statewide proportion employed in agriculture in 1997. By this definition, 21 of California’s 58 counties are nonagricultural, accounting for 60 percent of the state’s total employment and 55 percent of its food industry employment.

Table 3 shows that as California food *manufacturing* employment grew, it shifted dramatically from agricultural to nonagricultural counties, to the extent that the absolute number of food manufacturing jobs in agricultural counties actually declined. In food *wholesaling* employment, urban regions slightly outpaced their agricultural counterparts. Only eating and drinking place jobs grew faster in agricultural regions—exploding in rural areas, while only slightly exceeding population growth in urban ones. This presumably reflects the diffusion the pattern of eating more meals outside the home, especially in fast food restaurants—patterns already well established in urban areas by 1977—to rural America. Thus, supply chain shifts do not appear to be leading to the ruralization of food preparation jobs. Data at the county level, however, do not permit us to adequately distinguish central city from suburban locations.

Table 3: Employment growth for total and food industry employment in California, by geographic area, 1977-97

	Total	Total Food	Food manufacturing	Nondurable wholesale	Eating and drinking places
<i>Percentage increases in employment, 1977-97</i>					
California total	73%	76%	11%	63%	115%
Agricultural counties	55%	61%	-7%	60%	103%
Nonagricultural counties	110%	100%	36%	67%	91%

⁵ After 1997, County Business Patterns data shifted from the Standard Industrial Classification (SIC) to North American Industrial Classification System (NAICS), making accurate time series comparisons with earlier years considerably more difficult.

<i>Ratio of percentage increase to total for relevant area</i>					
California total	1.00	1.05	0.16	0.86	1.58
Agricultural counties	1.00	1.11	-0.12	1.10	1.89
Nonag counties	1.00	0.90	0.33	0.61	0.82

Sources: County Business Patterns data from U.S. Census Bureau 2002b, University of Virginia 2002, and U.S. Commerce Department 1977

Our two manufacturing cases shed further light on geographic changes. Maritime Seafood is based in a remote coastal area, close to sources of the seafood it processes. Salads Supreme, on the other hand, is in a major metropolitan area. It was established in the mid-1980s in a working class community neighboring the central city, but shortly afterwards relocated to a suburban community on a major peripheral highway. Salads Supreme is planning another relocation to a larger facility, but is limiting attention to a ten mile radius, since, “Sixty to seventy percent of our workforce still comes from [an inner city neighborhood in the central city] and [the community in which it was originally located],” according to the vice president. She stated that the workforce is comprised entirely of Latin American and African immigrants. The evidence from Table 3 suggests that more workers are shifting to Salads Supreme types of locations than to isolated rural areas as in the case of Maritime Seafood.

In addition to the industry effect, there is a firm size effect. Of course, the shift from food service to manufacturing itself entails a shift to larger businesses: in 1997 the average food manufacturing plant had 73 employees, more than four times the 17 at the average eating place (U.S. Census Bureau 2002b). But in addition, with the outsourcing of food service provision and consolidation among food service providers, food preparation workers within food service itself are working for larger firms. Economic research in general indicates that larger firms pay better (Brown, Hamilton, and Medoff 1990), and this effect is evident in our field data as well. As shown by the job grids in Tables 1 and 4, Ourtown School System, an independent food service provider, pays lower wages for food prep workers than does Great Meals at the nearby site we studied (\$7.38-\$7.48, compared to \$7-\$9) and much lower wages for cooks (\$7.62-\$8.90, compared to \$9-\$13) and supervisors (\$17,000 compared to \$13 per hour). Similarly (not shown), the comparison to a Masterfood facility (in the same area as Ourtown) shows higher wages than

Ourtown for cooks (\$10+) and a higher wage ceiling for prep workers (\$9). Wages at Great Meals and Masterfood come close to those at Salads Supreme, although they are still somewhat lower.

Table 4: Job grid for Great Meals institutional facility

<i>Job Title</i>	<i>Wage</i>	<i>Requirements</i>	<i>Upward mobility</i>
Hourly Line Staff: Dishwashers	\$7-8	No high school, no experience necessary, god attitude, good ethic	yes
Hourly Line Staff: Prep cooks, some entry level cooks, some part time cashiers	\$7-9	No high school	yes
Cooks and senior cooks; cashiers	\$9-13; \$9-12	No high school	yes
Supervisors (6-7), Cashier, Faculty Club	\$13	No high school	yes
Management (9): Chef Manager, Assistant Manager	~\$25,000 to low 30s; chef can go up to \$45,000	~ 7years, some college but not necessary	yes, but limited
Foodservice Director		Most have college	some
General Manager	\$50,000-\$60,000	Most have college	some

Distributor consolidation is shifting distribution workers to larger enterprises, too. To see the result, compare wages for a regional division of Quality Express—a former regional company, acquired two years before the interview—with those of Food King. While warehouse workers start at the same level (\$8), Food King employees pull ahead within a short period of time (taking a large jump to \$16 after three months) compared to Regional Foods (maximum of \$12). Drivers also receive significantly better pay at Food King(\$56,000) than at Quality Express (\$35,000-\$40,000).

While our data on manufacturing are limited, the example of Maritime Seafood suggests there can be substantial consolidation-driven scale effects on wages in manufacturing as well. Maritime supplies the majority of its products through Food King and to a national chain restaurant. By increasing skills and changing production, Maritime developed what is, *for this industry*, a higher road job, of better pay and better working conditions. Training workers to separate different qualities of seafood (vs. processing all incoming seafood mixed into one batch), they were able to offer a premium grade at a higher price, unlike their competitors. They instituted teams and job rotation to fight boredom and apathy that comes from typical seafood assembly line operations. The enthusiastic manager said, “some years

ago I created a team of core people that believed in accomplishment, in pride, that realized they were doing something better, and I now have an incredible group.” The manager also increased average pay by going to a piecework system based on both quantity and quality. Workers are paid a base wage of \$5.50 to \$6.50 an hour, which is the industry standard, and they can increase their base wage 30% or more based on their piece rate. Currently two out of five Maritime workers make 20% or more above their base wage. All supervisors are promoted from the floor. Maritime has been able to develop the premium market that supports higher wages only by partnering with a large distributor with national reach; in fact, Maritime trains Food King sales people so they can promote the higher premium products. Thus, the consolidation that created Food King created the opportunity for Maritime to take the high road.

Business services such as menu planning, now provided by distributors to restaurants and food service contractors, have created a class of jobs within distributors that do not seem to have existed as separate jobs in most restaurants. These tasks were most likely taken on by restaurant personnel in less systematic ways or not done at all. The result is expanded opportunities in the food industries and a new set of more professional and specialized jobs. The regional Quality Express warehouse, for instance, employs a chef solely to demonstrate alternative food preparation ideas to clients.

What are the implications for upward mobility for low-level workers? The key effect here, once more, is scale: larger, national level firms now employ a larger fraction of food processing and food distribution workers. We can characterize this shift very generally as a move from firms with smaller job pyramids (layers in the job hierarchy) with fairly frequent mobility up the pyramid, to firms with larger pyramids, but with significant barriers between certain strata.

For instance, the job ladders for Great Meals and Masterfood have several more rungs of management than the job ladder for Ourtown. Added to this are the layers above the individual facility: in the case of Great Meals, Resident District Manager, District Manager, Vice President of Operations, up to CEO. The many managerial levels have no parallel in Ourtown Schools, let alone in a freestanding restaurant like Bellavista. The same is true in comparing the Quality Express division—when it was an

independent regional distributor—with the national hierarchy of Food King. Thus, the shift to larger national level firms provides more *potential* mobility.

However, the national food contractors and distributors alike tend to partition jobs into three main segments: line workers, facility-level managers, and managers above the facility level. The top two of these strata are difficult to penetrate from below. National firms are inclined to adopt corporate human resources practices and tend to seek managers from the outside who have more education (college or at least associate degrees) than supervisors promoted from within typically have. The managerial ranks have been made more professional by the corporate structure. The two managers we spoke with at Great Meals and the manager at Masterfood have bachelor's degrees in food service management. Further, the District Manager for higher education for Great Meals answered the question, "So what's the route into management? Get a college degree?" with "That's probably the easiest, probably the most common. It's probably not the fairest way... You can grab onto someone who's a great cook and can take responsibility. They might have a high school education. The next step into management is often very difficult for them. There's a high level of failure. By the same token, someone could be a great General Manager, run a place really well, but it could be a tough step to running eight schools." The Bureau of Labor Statistics' *Occupational Outlook Handbook*, based on upon extensive field data, confirms that "Most food service management companies and national or regional restaurant chains recruit management trainees from 2- and 4-year college hospitality management programs. Food service and restaurant chains prefer to hire people with degrees in restaurant and institutional food service management, but they often hire graduates with degrees in other fields..."(U.S. Bureau of Labor Statistics 2002b). The vice president at Salads Supreme, who has worked in food preparation in a grocery chain and two food manufacturers, stated that in manufacturing as well, it has become more difficult to move up without the college degree.

Promotion from chef to manager in food service, from warehouse supervisor to manager in food distribution, or from shift supervisor to plant manager in food manufacturing, appears to be more likely at smaller independent or regional firms. These smaller firms are more likely to choose managers from

among shift or station supervisors in the establishment. Supervisors themselves typically have come from the workers below.

A final change is that food distributors have raised the initial hurdle for entry-level jobs. Food distributors now service larger and more varied accounts. The larger accounts reflect the fact that the food service contractors and restaurants now depend on a smaller number of suppliers (usually one large one) for a much greater fraction of the food they will be serving. The Great Meals facility manager explained, “Well because we are such a large company, a lot of our purchasing decisions are made...at a corporate level.... Obviously, a company wants to make as few stops as possible, so they don’t want to drop off a case of lettuce. Used to be years ago, again talking about a chain, you’d have fifteen different companies. One would just deliver your eggs. One would deliver your lettuce. One would deliver your cheese. One would deliver your meat. Now you have these big companies that pretty much deliver everything other than milk, because they’re not allowed to deliver milk.” Hence, the customers of food distributors, the food service contractors and the restaurant chains, depend much more on the accuracy and timeliness of the deliveries they receive from the large distributors.

As a result, distributors have increased the skills they need from warehouse workers and supervisors, and from drivers, both to maintain a high level of service to their clients and to push drivers to sell more. The Food King executive told us that demand for a “perfect pallet” coming out of the warehouse has heightened. Warehouse workers must pay more attention to detail, and have more computer skill to handle inventory scheduling, for example, than before. We heard a similar story from Quality Express, where in the last few years, clients have demanded and received more computer reporting of transactions. Quality Express has implemented a warehouse computer system to track expiration dates on products so as to guarantee clients at least four days’ shelf life. They have increased training and provide computer instruction for warehouse workers.

Similarly, the large distributors in our sample have recognized that the driver not only provides transportation, but is a strategic point of contact with customers to make sure customer needs (of a variety of types) are met, and to sell new prepared food products. Consequently, at the large distributors, drivers

now do more and receive more training than previously. Drivers at Quality Express receive extensive training in customer service, computers, and accounts receivable. At Food King, drivers are now taking on more sales and accounts management tasks.

We did not observe a parallel trend in food service, nor in food manufacturing. As more food preparation is outsourced, the skill demands placed on food preparation workers has not increased, in general, according to our field interviews. The major skill initiative by food service contractors, aside from government-mandated food safety instruction, is trying to boost customer service skills among employees. At Salads Supreme, despite the tighter federal food safety regulations, the vice president repeated several times that “Illiterate workers are sometimes the best, because they don’t get creative on you.”

In summary, these case study findings in food sub-sectors provide no evidence of the disappearance of internal labor markets. As employment shifts toward manufacturing and toward larger firms, it appears to be shifting toward higher quality jobs and more extensive job ladders. Within firms, the only evidence of curtailed mobility is increased credentialization of some promotion paths.

Variation in managerial strategy in food

The discussion of food to this point may convey the impression of an unstoppable juggernaut driving the industry toward consolidation, toward shifting food preparation back along the supply chain, and toward the creation of credentialized job ladders. Such a uniform picture would be misleading, however. Every trend in food has exceptions, which may signal future countertrends.

In outsourcing, there is often a tradeoff between cost savings on the one hand, and quality and timeliness on the other. The Great Meals division manager voiced this tradeoff: “If I buy lettuce already sliced, the expectation is that I eliminate the person who’s doing salad prep. We don’t need a full-time person to just dump the lettuce in the bowls. Now, we’re a people business. The [customers] see Betty Ann there every day cutting lettuce, and they feel like they have a relationship with her. They’re not going to feel the same way about a machine somewhere cutting lettuce. So we’re striving not to buy the

products.” He concluded that despite the importance of Betty Ann, the overall trend “has moved to manufacturers preparing foods to make our lives easier.” However, the tradeoff sets limits on what can be outsourced and has led to some insourcing of preparation as well. His own facility manager noted that fresh fruit preparations are rarely outsourced. That facility’s kitchen buys fresh bagels from an independent local distributor, not because the frozen bagels supplied by Food King are inferior, but because the Great Meals site sells so many bagels that they would have to significantly increase oven capacity in order to warm the frozen bagels. At Masterfood, the site manager told us that the costs of some fully prepared items, such as breaded frozen fish and canned soups, are rising, and they have found that they can produce higher quality at lower cost in house. Masterfood employees are now once more breaded fresh fish, preparing soups, and even peeling carrots themselves. And the Great Meals division manager himself referred to increasing demand for the “marché concept,” in which food is prepared in front of the customer.

In distribution, as well, outsourcing is not irreversible. Our interviewee at Quality Express pointed out that three years earlier they had outsourced the sorting and repacking of produce into smaller quantities. But four months before the interview, they brought sorting and repacking back in-house, due to quality concerns. He also reported that his Quality Express site is considering re-insourcing custom cutting of red meats and some fish processing, so that they can cut down on the lead time currently required for customer orders.

Similarly, several factors—labor market tightness, the importance of specialized knowledge, and the determination of individual managers—limit the credentialization of managerial job ladders. Most of the food interviews took place during the recent labor shortage, and we heard about companies’ shortage-driven quest to “make” rather than “buy” a greater proportion of their managerial talent. At Great Meals, the District Manager told us, “For managerial workers the shortage has led to more promotions from within.... We recruited fewer from inside in earlier years. The market [of available workers] has shrunk. And the work has become specialized.... We have a strategic plan to keep those people. There’s 25-30 hours of training for hourly workers [which gets lost when a worker leaves]—that’s multiplied by many

factors more for the management ranks.” In fact, Great Meals recently added the Resident District Manager category between the (facility-level) General Manager and the District Manager, in part as a way of gradually increasing a manager’s level of responsibility to ease upward mobility.

The Great Meals facility manager, meanwhile, argued for promotion from within strictly in terms of firm-specific knowledge, without referring to the labor market squeeze. “It is so much easier to move somebody up that already knows an operation than to move somebody in who [doesn’t],” he declared. “I have folks that know this operation inside and out that may not have the most experience as a manager. A very, very, very well seasoned manager coming in from [another institution] may have more experience than the person that I promote but it would take him so long to learn [my institution] that it’s a trade off.” Although himself a graduate of a culinary institute, he dismissed the importance of schooling for chef work: “The school gives you a foundation.... But it doesn’t tell you what to do when four people are out sick and you have a function for 150 people.” He reported that all his supervisors and managers save one were promoted from within, and proudly recounted that his assistant manager and one of his chef managers had both started out as dishwashers in the facility. Regardless of the Great Meals corporate policy, a site manager like this one has the power to create mobility opportunities.

IV. QUANTITATIVE FINDINGS

Since the case study information comes from a small sample of firms, it is difficult to determine the generalizability of the results. This section uses a completely different, yet complementary, approach to the same industry – using a very large employer-employee dataset to compare earnings, mobility and turnover patterns over time for workers in different parts of the within-firm earnings distribution.

We begin by using the firm as the unit of analysis to establish some basic facts about food manufacturing. We then examine turnover as an (inverse) indicator of the vigor of ILMs, and track the correlates of a firm’s average earnings level. We turn to individual level data to examine the evolution of promotion in firms. Finally, we compare food manufacturing with other food sub-sectors. Unless

otherwise specified, all data are computed from the precursor to the Longitudinal Employer-Household Dynamics (LEHD) program, for firms and workers in the state of Maryland.

Basic facts

We begin by explicitly categorizing workers by their position in the earnings distribution in the business for which they work⁶. As Table 5 reveals, there is a substantial gap in earnings between the bottom and top quartiles. We cannot distinguish between the effects of hours differences and hourly wage differences, but since part-time employment is relatively uncommon in manufacturing (Tilly 1996), we presume that much of the earnings gap is due to hourly wage disparities.

Table 5: Quarterly Earnings Distribution, Food Manufacturing

Average Size of Workforce	Earnings Distribution of Median Firm			
	Average Earnings	Bottom Quartile Earnings	Top Quartile Earnings	Ratio of top to bottom
128	5,498.16	2,537.71	9,888.67	3.90

The dual labor market literature has observed that women, minorities and youth are much more likely to be in the bottom part of the *overall* earnings distribution than are white, prime-age males. This evidence comes from worker-based surveys, however, not from firm based evidence. Our ability to describe the workforce composition of firms at a very detailed level permits us to determine whether these types of workers are also at the bottom of *firms'* earnings distribution. Table 6 shows women as a proportion of the bottom earnings quartile workforce, and contrasts this to the proportion in the top quartile. As in the overall earnings distribution, women are overwhelmingly represented in the bottom part of the firm earnings distributions; men are overwhelmingly represented in the top part.⁷ The same holds true in all industries for younger workers (not shown) – they are much more likely to be in the bottom than in the top portion of the earnings distribution (presumably reflecting lower levels of human capital and experience). Interestingly, however, by the late 1990's food manufacturing saw growing numbers of women in the top quartile and fewer women in the bottom quartile.

⁶ This is for 1990:3, in 1990 dollars, and is calculated for firms with more than 10 employees. All earnings are quarterly.

⁷ Recall that these are quarterly earnings, so they incorporate both lower wage rates and fewer hours.

Table 6: Women as a percentage of workforce in top and bottom earnings quartiles, food manufacturing

Earnings quartile	1985	1990	1997
Bottom	52.88%	52.74%	51.67%
Top	11.59%	14.17%	18.53%

Dismantling and rebuilding: Changes in turnover over time

Do firms dismantle and rebuild their internal labor markets? Firms in the food manufacturing industry have had ample opportunity to change their workforce structure – our data demonstrate just how pervasive job changes are. In order to understand this, it is worth noting that worker change (worker flows) can come from two main sources: job reallocation – jobs being created or destroyed at the firm level – or worker churning – different workers churning through the same set of jobs. Table 7 reports average job and worker reallocation rates – together with the standard deviation of each - over the period for which we have data. This demonstrates that there are huge amounts of worker reallocation. Worker reallocation exceeds job reallocation: for example, even though 21% of workers had either left or begun work in this quarter, only 9% of jobs was new or destroyed. The churning rate reconciles these two – it measures the amount of worker flows in excess of job growth or decline, and that also paints a picture of substantial turnover, averaging 12% per quarter. Again, it is worth noting that the standard deviation is very large, suggesting widespread differences in turnover choices by firms. It is also worth noting that these reallocation figures are not directly comparable to either the monthly or annual turnover rates reported in other sources, because longer measurement periods lose information on intermediate turnover. Thus annual rates will always be much less than four times the amount, and monthly rates much more than one-third.

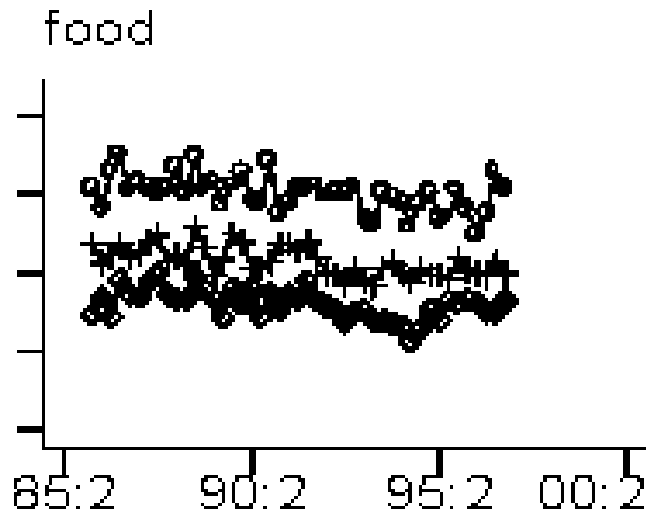
Table 7: Worker Flows, Job Reallocation and Churning (Quarterly)

Worker Flow Rate			Job Reallocation Rate			Churning Rate		
Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
21.39%	13.28%	28.09%	9.11%	4.00%	17.50%	12.28%	7.84%	20.25%

Figure 1: Churning Rates by Industry, Year, and Earnings Quartile—continuing firms only

- Bottom Quartile
- ◊ Top Quartile

+ Middle 2 Quartiles



While Table 7 reports results for the entire set of firms and all workers within our dataset, we are particularly interested in examining turnover patterns for continuing firms, as well as the churning of workers at the bottom end of the earnings distribution. We would expect churning to be higher for low-wage workers, and we find this, in fact, to be the case. Figure 1 describes churning rates for the different quartiles of the income distribution (bottom, top and the two middle quartiles grouped together) and for different industries over time. It is clear that they are much higher, indeed, almost twice as high, for the bottom end of the distribution as at the top.

But these are industry-level aggregates, and the internal labor market story is a firm level, not an industry level story. We now fully exploit the richness of our dataset, which enables us to track firms over time and examine in more detail one of the standard stories of the devolution of internal labor markets – that of rising job instability. Since this should manifest itself as a powerful trend toward increasing turnover, particularly at lower wage levels, we can directly test the hypothesis by estimating a set of regressions, with the firm as the unit of analysis and the churning rate as the dependent variable. Because

we want to examine trends over time, controlling for the base churning rate at each firm, we include firm fixed effects. We capture firm level persistence by including the lag of the dependent variable on the right hand side, and since we are also interested in the effects of firm growth, we also include firm size as an independent variable (which, in a fixed effect model, can be interpreted as changes to the firm base size).

An examination of the first sets of columns in Table 8 reveals several trends that fit poorly with the standard story of ILM devolution. First, firm-level churning rates are strongly persistent (as shown by the statistically significant coefficient on the lagged dependent variable)—indicating that businesses have not in general dramatically altered their turnover patterns. Second, food manufacturing shows a statistically significant *decrease* over time in churning rates, as shown by the negative time trend coefficient. In addition, the explanatory power of the regression for all quartiles is quite low, at .05, indicating wide-ranging firm-level idiosyncrasy in churning.

The divergence from the standard story widens still further when we examine turnover patterns separately for workers at the top and bottom of the earnings distribution, as shown in the “Top” and “Bottom” columns in Table 8. The persistence that we documented with the overall firm churning rate becomes much more marked, and the explanatory power increases substantially – suggesting that firms are much less idiosyncratic in their treatment of workers at the top and bottom end of the earnings distribution. In addition, the negative time trend on churning that was seen in the overall regression decomposes into relatively large decrease in churning of low-wage workers and a much smaller decrease in churning for high-wage workers. Indeed, in a separate analysis, we find that when exiting and entering firms are included, churning actually increases for high-wage workers – which might be consistent with reduced job security, and increased cross-firm mobility for managers.

Table 8: A Firm Level Analysis of Churning Rates in Food Manufacturing

<i>Variable</i>	All quartiles	Top	Bottom
Lagged churning	0.21910 (15.50)**	0.49788 (31.16)**	0.37194 (22.37)**
Time trend	-0.00139 (6.47)**	-0.00152 (5.46)**	-0.00249 (6.59)**

Employment size (in logs)	0.00279 (1.23)	0.00510 (1.45)	0.00926 (1.95)
Constant	0.11612 (10.05)**	0.18977 (12.11)**	0.42103 (18.88)**
Observations	5366	3187	3254
R-squared	0.0521	0.2450	0.1471

The finding of persistence suggests little net dismantling of internal labor markets in food manufacturing, consistent with our (admittedly limited) case study evidence from this sub-sector. Indeed, the negative turnover trend for low-wage workers suggests that in recent years reconstruction has outweighed dismantling. Complicating these findings, there are also high levels of firm-level idiosyncrasy in turnover (large variation in turnover rates within the industry, much of which cannot be accounted for by our statistical models). This idiosyncratic pattern, while possibly due to a wide variety of omitted variables, is also consistent with the wide variety of firm practices that was noted in the case studies.

Growth effects and average earnings

We noted above that food manufacturing plants are growing larger. At the level of the individual plant, what is the connection between changes in firm size and changes in the average pay level of the firm? We find that changes in pay and changes in firm size are negatively related, suggesting that in general firms add and shed workers disproportionately at the bottom (Table 9). The fixed effects specification controls for cross-sectional differences in firm size, so this does not contradict the familiar finding that larger firms offer higher pay. Also interesting is the finding that increases in turnover are strongly negatively correlated with average pay. Most of the other results are not surprising: average payroll falls as the proportion of women in the firm increases, and rises the higher the proportion of prime age and older workers. Increases in sales per worker, which is a rough proxy for productivity, are unsurprisingly consistently associated with greater earnings growth. Quarterly earnings have fallen over time (by 0.3% a quarter, or over 1% per year).

Table 9: Determinants of Average Quarterly Earnings in Food Manufacturing

<i>Worker characteristics</i>

Female	-0.554
	(7.60)**
Prime age (25-54)	0.457
	(4.74)**
Older (55+)	-0.032
	(0.28)
<i>Firm characteristics</i>	
Size of firm	-0.047
	(2.72)**
Age of firm	0.030
	(0.84)
Time	-0.003
	(5.06)**
Churning rate	0.041
	(1.84)*
Salesper worker	0.030
	(2.99)**
Constant	8.437
	(55.83)**
Observations	2789
R-squared	0.80

The relationship between firm characteristics and promotion

What determines the probability that workers at the bottom end of the distribution will move up within food manufacturing firms? We focus on two cohorts of new hires from 1985 and 1991, and examine the likelihood of the workers moving up and down the earnings distribution of their individual firm. The first cohort (referred to as the 1985 cohort) includes those workers that were hired by a given firm between 1985:4 and 1986:3, excluding any workers who disappear for more than two quarters while continuing to work for the same firm. We follow those workers until 1991 or until they stop working for the firm, whichever comes first. Analogously to the 1985 cohort, we follow workers in the second, 1991 cohort until 1997 or until they stop working for the original firm.

Part of the resulting story is one of exit—one third of workers are no longer there five years later. There is also less mobility than one might expect – most stayers do not change quartiles. In fact, the probability of promotion from the bottom tier for 1991 hires is only .49; down from .6 for 1985 hires (if the worker stays)⁸.

In order to scrutinize the relationship between firm personnel practices and the probability of moving up in the firm, we correlate the probability of promotion with both worker characteristics and firm personnel practices. Table 10 shows results with a worker fixed-effect, which controls for all unchanging worker characteristics that affect the probability of promotion. These results suggest, not surprisingly, that younger and less senior workers are more likely to move up than older ones (25-54 year old workers are less likely to advance than the baseline group of workers aged 24 or less, though the results do not attain statistical significance). Firm characteristics are very important – after controlling for individual unobserved heterogeneity, higher churning firms provide more opportunity for promotion. This is not surprising, since vacancies are necessary for promotions to occur (unless a firm is growing), but the strength of the relationship is interesting. Working for a high productivity firm (high sales per worker) also boosts the likelihood of promotion.

Table 10: Probability of promotion from the bottom earnings quartile in food manufacturing

	1985 cohort	1991 cohort
Tenure	-0.011	-0.007
	(1.76)	(1.12)
=1 if age of worker is 25-54	-0.024	-0.161
	(0.14)	(0.80)
=1 if age of worker is 55+	0.153	-0.003
	(0.36)	(0.01)
quarterly firm churning	0.501	0.724
	(1.49)	(2.88)**
Firm Size (log)	0.035	-0.533
	(0.12)	(2.84)**
Real sales/employee (log)	0.143	-0.511
	(1.52)	(1.97)*
Observations	8464	14688

⁸ Findings in this paragraph are from pooled analysis of food manufacturing, electronics manufacturing, financial services, and retail with no store. Unfortunately, changes in the LEHD program data make it extremely difficult to replicate these results for food alone. However, comparison of the results of Table 10 for the four industries combined and for each industry separately indicate that differences in mobility patterns across the industries are relatively small.

Notes: Absolute value of z-statistics in parentheses; * significant at 5% level; ** significant at 1% level. Worker fixed effects included.

One might expect to find a “new establishment effect”—there is ample room for promotion in a new plant or office, but this upward mobility decreases as the business ages—and we have identified such an effect in other industry case studies not discussed in this paper. It is not possible to observe the correlation of firm age with promotion probability, since firm age effects would be confounded with worker tenure effects. However, increases in firm size could be viewed as an alternative way to track the aging of a firm. As Table 10 shows, larger firms are much less likely to promote than smaller firms. This size effect persists after controlling for worker fixed effects, suggesting that it is driven primarily by changes in firm size rather than cross-sectional differences, lending support to the new establishment effect.

A view that internal labor markets are in dramatic decline would predict major differences between the two time cohorts, but there are few such systematic differences. The one notable change, again, cuts against the standard story. Bottom quartile workers hired in 1985 became less likely to move up with each added year of tenure. This suggests a sorting process, in which those likely to move up do so quickly. Among 1991 hires, however, likelihood of advancement climbed with tenure, indicating that rising rewards to longevity have offset the sorting process.

Comparing food manufacturing with other food sub-sectors

These quantitative explorations have been limited to food manufacturing, since case study and aggregate evidence indicate that food preparation jobs are shifting toward manufacturing. However, it is of interest to compare food manufacturing with the other components of the food preparation industry. Table 11 makes this comparison. It is not strictly comparable to earlier tables, because it includes all firms, not just continuing firms with 20 or more employees—and therefore reports higher rates of churning and lower quarterly earnings than in the more restricted sample of firms we examined earlier.

However, it has the advantage of incorporating several other states in addition to Maryland, yielding a large sample.

Table 11 confirms that food manufacturing jobs are higher quality than other jobs in the food sector, showing higher quarterly earnings and lower churning (turnover) dates. In fact, the closer food jobs are to a large scale, automated, "factory-like" setting, the better they are. The ranking goes from food manufacturing, to wholesale groceries, to retail food, to eating places. However, part of the difference in quarterly earnings is surely due to hours differences, since grocery stores and eating places have high proportions of part-time employees.

Table 11: Comparing worker flows and earnings for food sub-sectors, 1994-98, selected states

	Food manufacturing	Grocery wholesaling	Food stores	Eating places
<i>Total worker flow rate</i>				
1994	0.312	0.411	0.517	
1996	0.306	0.373	0.517	
1998	0.357	0.402	0.724	1.760
<i>Churning rate</i>				
1994	0.311	0.405	0.510	
1996	0.295	0.372	0.510	
1998	0.356	0.380	0.669	1.252
<i>Average quarterly earnings</i>				
1994	\$7,767	\$7,856	\$4,386	
1996	\$8,348	\$8,470	\$4,455	
1998	\$9,050	\$9,207	\$5,030	\$2,830
<i>Average quarterly earnings, new hires</i>				
1994	\$5,530	\$5,540	\$2,275	
1996	\$6,117	\$6,016	\$2,256	
1998	\$6,790	\$6,515	\$2,761	\$2,529
<i>Ratio of average earnings to new hire earnings</i>				
1994	1.40	1.42	1.93	
1996	1.36	1.41	1.97	
1998	1.33	1.41	1.82	1.12

Note: Includes all firms. Combines Florida, Illinois, Maryland, and North Carolina. Eating places data restricted to a subset of these states.

The one exception to this ranking is opportunity for earnings growth, as crudely measured by the ratio of average wages to new hire wages. Here wholesale shows a slightly higher ratio than food manufacturing. Food stores show a much higher ratio, but this may reflect widespread two-tier wage

structures, in which incumbents are grandfathered in at a higher rate, and new hires come in at a lower rate with no prospect of ever making the higher rate. Eating places still show the lowest ratio.

Overall, the differences between the food sub-sectors are quite substantial, suggesting that additional quantitative analysis of the other food sub-sectors would be informative.

V. CONCLUSIONS

Both case study and quantitative evidence indicates that internal labor markets are alive and well—despite significant shifts and changes. The case studies demonstrate that, in the case of food service, removing internal labor markets in one place involves expanding them in another. Food preparation job ladders are disappearing in final food service organizations (restaurants, cafeterias, food service contractors), but these functions are being shifted to food manufacturing firms with job ladders of their own. Our case study findings on the nature of ILMs in food manufacturing are limited, but there is certainly evidence that food preparers in the manufacturing sector enjoy better paid jobs, embedded in larger organizations, than their counterparts in food service organizations. The story is not simply one of outsourcing a fixed set of food preparation activities. Food distributors' aggressive marketing, coupled with manufacturers' economies of scale, have greatly expanded eating places' offerings and have presumably fueled the growing number of meals purchased rather than prepared by Americans. In addition, consolidation grafts the limited management ladder of local or regional operators onto national or international management structures.

In earlier work on electronics manufacturing and financial services, we argued that corporate restructuring is iterative, often alternating between deconstruction and reconstruction of internal labor markets (Moss, Salzman, and Tilly 2000). The case for iteration is less clear in food preparation, where consolidation and supply chain shifts appear to be continuing—at a heightened pace—a twenty-year trend. In particular, the consolidation of food distribution, which has helped to propel outsourcing as well as consolidation in other food sectors, has accelerated rapidly in the last several years, resulting in the dominance of two industry giants that are beginning to reshape the practices of their newly acquired

affiliates, vendors, and customers. Nonetheless, we do find some movements toward re-insourcing—driven primarily by concerns for quality and customer service. Many of the outsourcing initiatives are quite recent—for instance, the contracting of produce breakdown and repackaging by the Quality Express division beginning in 1997 or 1998—and companies may in time reevaluate and reverse them (as Quality Express did in 2001). The question is whether quality and service concerns will indeed compel companies to reverse direction, or open new niches for competitors adopting a different structure. However, one clear pattern is that managerial and corporate strategy constantly shapes the restructuring of ILMs. Food service managers weigh the tradeoffs between reducing cost and adding value. Food distributors invent markets—for chopped vegetables, soups, sauces, pastries, entrées—where none existed before.

The microdata evidence confirms the continued importance of internal labor markets, and is consistent with either relatively little change in ILMs, or with iterative restructuring—although it also reminds us that ILMs’ reach has been and remains limited. Firm-level persistence in turnover suggests that dramatic shifts in turnover strategy are exceptional. Turnover idiosyncrasy may be generated by divergent managerial strategies or by firms scattered across different points in an iterative process. Turnover at the low end has decreased over time, contrary to expectations of shortened job tenure. However, this does not mean it’s a great time to be a low-wage worker. Turnover remains much higher for those at the low end, and firms’ tendency to add and shed workers at the low end translates into a higher risk of layoff. The most common five-year mobility outcomes for low-end workers are stagnation—remaining in the lowest quartile—and exiting the firm, rather than moving up. Microdata evidence for the “new establishment effect” tells us that while there are exceptional opportunities for workers present at the opening of an establishment, those possibilities diminish as the establishment grows.

We also claimed at the outset of the paper that new forms of internal labor markets have reduced opportunities for the least educated workers to enter and advance within the firm. Our food industry findings provide evidence for this proposition as well. The credentialization associated with

consolidation in large corporate structures appears to have reduced the opportunities for entry-level workers to rise to management (in fact, in the case studies, it is difficult to distinguish between this size-driven effect and the new establishment effect). The geographic relocation of less-skilled food preparation may have diminished urban entry-level job opportunities. The microdata do not measure skill (but see Abowd, Haltiwanger, and Lane 2001). They therefore do not address the question of entry requirements directly. However, they do reveal that despite lower turnover, the probability of moving up from the lowest quartile declined between the 1980s and 1990s.

Combining quantitative and qualitative data to examine these questions has yielded payoffs, but also frustrations and unanswered questions. The key payoff is the ability to link stories, such as the persistence of ILMs, to aggregate data. But the frustrations are significant as well. Supply chain shifts move jobs across the borders of the industries defined in quantitative data, making it difficult to track the relevant changes. Quantitative data lack the descriptive detail that would be needed to fully compare with case studies, whereas case studies tend to lack precision, especially in retrospectively viewed changes. Significant questions remain: above all, to what extent are the quantitative and qualitative results actually capturing the same processes?

Despite these unresolved issues, the combination of qualitative and quantitative analysis is fruitful. Both methods raise significant challenges to the notion of a dramatic devolution of internal labor markets, at least in the food industry. Our findings point to the promise of future research drawing on the two approaches in tandem.

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