

**Global Production Networks from Below:  
Geographies of Labor in Logistics**

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THESIS

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## **LIST OF ABBREVIATIONS**

3PL – third party logistics company

4PL – fourth party logistics company

5PL – fifth party logistics company

BLS – Bureau of Labor Statistics

GCC – global commodity chain

GVC – global value chain

GPN – global production network

KPI – key performance indicator

TEU – twenty-foot equivalent unit, standard measurement for a container

US – United States

WWJ – Warehouse Workers for Justice

## SUMMARY

In economic development, the number of jobs created in a development project is the most common measure of success, while the quality of those jobs is often peripheral to the promotion of new development projects. Economic developers are increasingly concerned with the tension between job quality and quantity, as debates over the changing nature of work in the United States have gained attention in popular media and among policymakers. This dissertation examines the production of job quality as a product of multiple factors that originate locally and beyond. It brings together frameworks for analyzing the organization of production and distribution, theories of the social production of place and labor markets, and the perspectives of workers and managers, to offer a view of global production networks “from below.” Aggregate accounts of economic change and globalization inspire a certain pessimism among those dedicated to a more just world: low-road employment that relies on vulnerable workers seems to be the inevitable result of the changing structure of the global economy, outside the realm of influence by local agents and institutions. This dissertation troubles this inevitability, and expose some of the “welds” that hold together supply chains. A view of global production networks from below disrupts the aspirational image of logistics and reveals it as a lurching and experimental affair that is, at its core, the product of the social world.



## **Chapter One: Introduction**

At a city council hearing in Moreno Valley, California in August 2015, those present were discussing a proposed 41 million square foot warehouse development called World Logistics Center. The developer, Iddo Benzeevi, in stylish spectacles and a wide pinstripe suit, spent two hours detailing his vision in a polished slide show presentation. He characterized the development in grand terms: “State of the art, next generation logistics center” that will “catapult Moreno Valley as a leader in innovation in advanced logistics technologies” (Ghori, 2015).

In his presentation, Benzeevi touted the many jobs that would be created, the LEED certification of the buildings, and the water conservation efforts that the development project would feature. In the audience, some held signs encouraging council members to vote “yes.” But a competing vision from the crowd emerged, one that raised questions about the environmental impacts, increased traffic congestion, job creation, and the reports the developer produced to support his case. “Everything that we’re being told about the project is Tomorrowland,” said a lawyer for a Laborers Union local, making reference to the shiny, futuristic Disneyland theme park. The union lawyer wasn’t buying it.

The meeting was contentious, including when the mayor walked out, to boos from the audience, when one council member asked pointed questions of the

developer. But a few weeks later, the council voted 3-2 in favor of approving the World Logistics Center, and they were off and running.

Developers, and sometimes their allies in government, are prominent peddlers of a high-gloss, utopian version of modern logistics. Others contribute to this reification, including business and supply chain scholars, industry analysts and boosters, consultants, and sometimes unwittingly, the critics. Technology, efficiency, innovation, and integration are words that embolden what Rossiter (2014, p. 54) calls the “operational fantasies” of supply chains coordinated by rational actors who adhere to well-trod conventions of efficiency and transaction costs. Modern supply chains are extremely complex, involving myriad actors, transactions, processes, and infrastructures, and their dispersion has made logistics critical to making globalization *work* for capital. But the notion of a constant flow, linear logistics system belies a host of tensions, contradictions, and interruptions. The messy reality of logistics on the ground tells a different story.

If cracks in the veneer of idealized logistics appear on the shop floor, it demands attention to the perspective of front-line workers in global supply chains, and this view of logistics looks markedly different. In most distribution centers I toured in the course of this research, goods were not in motion but standing still on shelves. Labor cost, and thus labor strategy, is of central concern to managers and represents an area of significant experimentation, trial and error, and

divergence across facilities. The use of technology and automation is highly variable but much lower than one might expect from reading the trade press, particularly for third-party logistics providers (3PLs) to which firms outsource their distribution activities.

The nexus of supply chain structure and conditions shaping local labor markets is the focus of this research. My interest is animated by the desire to understand the ways in which causal forces come together to shape outcomes for workers. I draw from critical work on global supply chains and analyses of local labor markets to examine the production of work and workers in the warehousing and distribution sector in the Chicago region, in what I call global production networks “from below.” My research questions are twofold:

1. *What are the driving logics of warehousing and distribution?* This question orients the inquiry to the relationship between the demands of global supply chains and the structure of contractor industries, including lead firms, third-party logistics firms (3PLs) that provide logistics outsourcing, and temporary staffing agencies.
2. *What are the conditions of possibility that allow this 21<sup>st</sup> century logistics sector to function in its current form?* This question trains attention on the intersection of firms in place, and processes of articulation between networks and labor markets. In particular, I seek to understand the role of multiple actors in shaping the labor markets in which GPNs are embedded.

My research questions are inherently co-constituted through the mutual relationship between changes in industry structure, the workforce, and regulatory frameworks on the one hand, and employers’ strategies to enroll particular kinds of workers on the other. During the past four decades, the geography of

economic activity, the ways in which work is organized and carried out, and the experience on shop floors across many industries have all changed significantly. Wages have stagnated, labor protections have been eroded, and workers find themselves in precarious employment relationships without long-term job security. In many ways, the warehousing industry is emblematic of these long-run trends in the economy: increased outsourcing has led to competition based largely on cost; labor market intermediaries play a critical role in the hiring and firing of workers, and low-paid work is common.

The implications of these trends on the communities in which urban planners live and work are serious. In economic development, the number of jobs created in a development project is the most common measure of success—indeed, the World Logistics Center development with which this chapter opened claimed the project would yield 20,000 jobs for the community. The quality of those jobs was not central to the promotion of the project. Yet economic developers are increasingly concerned with the tension between job quality and quantity, as debates over the changing nature of work in the United States have gained attention in popular media and among policymakers. Job quality is, of course, an economic problem: if wages, one central dimension of job quality, are too low, they place a drag on consumer spending and slow economic growth. But work also constitutes a major investment of an individual's time and energy over their lifetime, and societies place enormous emphasis on workforce participation as a signifier of self-worth (Findlay, Kalleberg, & Warhurst, 2013). Jobs that offer

dignity, stability, and prosperity have wide-ranging effects on people and the communities in which they live.

### **Organization of the Dissertation**

In the pages that follow, I bring together frameworks for analyzing the organization of production and distribution, theories of the social production of place and labor markets, and the perspectives of workers and managers, to offer a view of global production networks “from below.” In doing so, I aim to trouble the notion of “upgrading,” in which firms enhance their economic position in a supply chain without necessarily improving workers’ outcomes, and to bring an analysis of labor markets into the framework of global production networks.

In Chapter Two, I lay out the theoretical groundwork on which this research has been built. I review the momentous changes in the nature of work in the U.S. over last 40 years and casual explanations for these shifts. I then turn to the organization of global production and to frameworks for understanding the dynamics of firms in supply chains. A pan-disciplinary set of approaches has, over the last two decades, produced voluminous insights on the functioning of the global economy. These constructs—global commodity chains, value chains, and production networks (or taken together, global ‘chain’ approaches)—employ, to varying degrees, an approach that grounds interconnected processes of globalization and industrial restructuring in a range of actors at multiple spatial scales. Yet the latter have tended to overlook workers and the labor markets in

which they are embedded, which limits the power of these frameworks to account for labor as constitutive of the global economy, in contradictory ways. To remedy this, I bring theories of the social production of place and labor markets to bear on the storyline of linear development. I then problematize the concept of upgrading, which features prominently in the global 'chain' approaches and posits conditions under which firms can move up the value curve. Finally, I propose GPNs from below as one way forward in better understanding the relationship between supply chains and labor markets.

Chapter Three reviews the methodological approach of the research and the fieldwork that followed. Grounded in a critical realist framework, I entered this topic from the perspective of workers, in close relationship to a worker center that has been organizing in the warehouse industry in the Chicago region. The methods utilized were both extensive and intensive, including analysis of official datasets, interviews with key actors and diaries kept by workers.

In Chapter Four I turn to the logistics function of global supply chains and its role in organizing and enabling capital accumulation. I survey trends in outsourcing and tendencies toward particular labor strategies before turning to the texture of the distribution cluster in the Chicago region, including the results of the first survey of warehouse workers in the country. I describe the "logistics revolution," which has shifted the role of logistics in supply chain strategy, and the characteristics of the local warehousing industry. These dynamics, set amidst

profound changes in the nature of work in the United States, are critical to understanding the structural forces shaping economic development at the local scale.

Chapter Five explores the competitive dynamics of distribution that originate elsewhere in the supply chain, including the industry-shaping dynamics of outsourcing and variability and volatility. I argue that the driving logics of distribution are twofold: flexibility and shifting risk. Through processes of transferring risk and flexibility, it is the front-line workers who feel the pressure of being caught between a rock and a hard place. Yet it's not just the availability of low-cost labor that sets the conditions of possibility for these dynamics. Instead, logistics services, densely populated by transportation and warehouse workers' bodies, are inherently socialized phenomena, in which the asymmetrical production of power, value, and embeddedness are processes struggled over, not given.

Chapter Six explores the mechanisms through which the driving logics of flexibility and risk-shifting come to ground in local labor markets. This involves the complex process of producing workers—contrary to dominant narratives that assume the existence of a pliant workforce. The temporary staffing agencies contracted by warehouse operators figure prominently in this process, and I explore the particular ways temp agencies structure local labor markets and shape workers' opportunities. Drawing largely on in-depth interviews, I show that

these mechanisms produce new dynamics of segmentation, methods of compelling workers into the labor market, and contradictory processes of employers valuing and devaluing their workforces.

Finally, Chapter Seven concludes with a consideration of the implications of this research for applied and theoretical realms.



## Chapter Two: Globalization and Labor Markets

*If the ideological project of neoliberal globalism rests on a (powerful yet misleading) vision of a flat-earth economy, comprised of free-trading, flexible agents, then a critical economic-geographic counterproject would seek strategically to survey the uneven landscape, to expose the cracks and fissures—what Block (2000) called “welds”—in this supposedly unitary system. It would draw attention to the ways in which uneven spatial and social development disrupt this universalist narrative; it would map out the command centers and constitutive networks of the project; and it would explore its vulnerable flanks, its fissures of stress and contradiction, its sites of localized failure and frontiers of active extension, and the alternative economic geographies that are being made both in its wake and in its stead.*

*- Peck (2005, p. 161)*

The nexus of supply chain structure and competitive dynamics on the one hand, and the conditions shaping local labor markets on the other, is the focus of this research. My interest is animated by the desire to understand the ways in which causal forces come together to shape outcomes for workers. I draw from critical work on global supply chains and nuanced analysis of local labor markets to examine the production of work and workers in the warehousing and distribution sector in the Chicago region, in what I call global production networks “from below.” My research questions are twofold:

1. *What are the driving logics of warehousing and distribution?* This question orients the inquiry to the relationship between the demands of global supply chains and the structure of contractor industries, including lead firms, third-party logistics firms (3PLs) that provide logistics outsourcing, and temporary staffing agencies.
2. *What are the conditions of possibility that allow this 21<sup>st</sup> century logistics sector to function in its current form?* This question trains attention on the intersection of firms in place, and processes of articulation between networks and labor markets. In particular, I seek to understand the role of multiple actors in shaping the labor markets in which GPNs are embedded.

While I have somewhat artificially cleaved these dynamics into two separate questions, they are inherently co-constituted through the mutual relationship between changes in industry structure, the workforce, and regulatory frameworks on the one hand, and employers' strategies to seek particular kinds of workers on the other. In the following chapters, I draw together workers' experiences, the perspectives of managers, analysis of global logistics, and theories of the social regulation of labor markets to offer a view of GPNs "from below." In doing so, I aim to trouble the notion of "upgrading," in which firms enhance their economic position in a supply chain without necessarily improving workers' outcomes, and to bring an analysis of labor markets into the framework of global production networks.

### **Relevance to Planning**

In many ways, the warehousing industry is emblematic of long-run trends in the economy. Over the last 40 years, as I discuss in more detail below, major shifts have merged in the geography of economic activity, the ways in which work is organized and carried out, and the experience on shop floors across many industries. Wages have stagnated broadly and labor protections have been eroded. Across many industries and occupations workers find themselves in contingent employment relationships without long-term job security. In warehousing, cost-based competition drives the outsourcing and subcontracting dynamics, labor market intermediaries are marshaled to provide flexibility and

smooth processes of hiring and firing workers, and wages in the most prominent occupations are low.

This presents a wicked problem for planners. The field of economic development has long been concerned with the tension between job quality and quantity, usually appearing as the binary of low-road and high-road firm strategies (Bailey & Bernhardt, 1996; Milkman, 1998), and the question of job quality has gained recognition amongst policy makers and planners as an important element of individual, regional and national prosperity (Kalleberg, 2013). Job quality is, of course, an economic problem: if wages, one central dimension of job quality, are too low, it puts a drag on consumer spending and slows economic growth. But work also constitutes a major investment of an individual's time and energy over their lifetime, and societies place enormous emphasis on workforce participation as a signifier of self-worth (Findlay et al., 2013). Jobs that offer dignity, stability, and prosperity have wide-ranging effects on people and the communities in which they live.

From an urban planning perspective, the post-Fordist economy is characterized by heightened pressure on local and regional economies as they are embedded in the activities of global production and subject to the whims and decisions of remote actors and forces. The concentration of logistics firms in Chicago is a prime example. While all firms face competitive pressures, those in supply chains are subject to the reverberations of additional exogenous factors—for example,

severe weather events or work stoppages upstream that produce dramatic day-to-day volatility—the spillover effects of which are absorbed by local and regional economies, and the people who work in them.

The growth in global production should have, in theory, provided greater economic opportunity in the diffuse geographies that play host to functions along the supply chain. Yet as GPN research has shown, in some cases the outcomes from engaging in a global trade network have brought mixed results, and sometimes greater poverty and inequality (Kaplinsky, Morris, & Readman, 2002). The crude employment practices of global markets for labor are staggering—from “bodyshopping” for Indian H1-B workers in software value chains (Mir, Mathew, & Mir, 2000) to “body slamming,” or enrolling the homeless or addicts via subcontracted temp agencies (Peck & Theodore, 1998)—and have raised the specter of immiserizing growth. From the perspective of aggregate accounts of economic change and globalization, it’s easy to be pessimistic: low-road employment that relies on vulnerable workers seems the inevitable result of the changing structure of the global economy, and workers “appear as passive victims as capital seeks cheap labor” (Smith et al., 2002: p. 47). Yet viewed from below, the “welds” referenced in the epigraph begin to emerge. Worker outcomes result from the decisions of employers as they adapt to changes in industrial structure, the supply of labor, and regulatory forms and practices—in short, from the rules governing local labor markets. Examining the production and reproduction of economic systems from below offers planners and advocates the

possibility to alter those rules.

In order to ground globalization and conceptualize the relationships between supply chain nodes and labor markets, I make use of the global production network (GPN) framework. The GPN heuristic, which has roots in the global commodity chain and value chain approaches, operationalizes global capitalism by framing transnational flows of goods, knowledge, and information as an interconnected network, replete with power asymmetries. Theories of the functioning of local labor markets identify finer-grained dynamics of labor supply and demand that shape the kinds of strategies pursued by firms, and the resulting outcomes for workers. This realm has largely been absent from work on GPNs, and my goal is to bring these two frameworks into productive tension.

In the rest of this chapter, I lay out the conceptual framework for this research, beginning with a discussion of the changes in labor markets in the U.S. over the last 40 years, which provides the economic and political context for low-wage work in warehousing. I then review the literature on global production networks (GPNs), including both the antecedents of GPN and critical analysis of a recent re-working of the framework. This leads into a broader discussion of analytical approaches that are equipped to understand and theorize the relationship between local labor markets and economic restructuring. Because of its centrality to the literature on production networks, I then turn to the concept of upgrading and discuss its promises and shortcomings, which are closely related to the ways

that workers and labor markets are (not) accounted for in analyses of supply chains. This is followed by a review of GPN attention to the logistics function of supply chains. In the last section of the chapter, I build out GPNs “from below” by integrating social theories of labor markets with the dynamics of supply chain development.

### **The Changing Nature of Work**

A central reference point for the “old” economy of the United States is Fordism, a term that encompasses both the postwar mode of mass production pioneered by Ford Motors and the employment compact forged between capital and labor. The emblematic form of labor process organization in large firms under Fordism was the manufacturing assembly line, with its fixed machines creating stockpiles of goods, just in case. This was accompanied by a corporate-labor agreement characterized by long-term employment, worker protections, internal hiring systems, correlation between productivity and wages, and benefits like pensions and paid vacation. Built on the back of policies like the National Labor Relations Act, these institutional arrangements meant that even relatively low-skill occupations were decently compensated (Capelli et al., 1997; Vidal, 2013).

In 1954, unionization rates reached 35 percent, the highest in the history of the U.S, particularly concentrated in the manufacturing and construction sectors. Widespread unionization across these sectors bolstered the middle class and, crucially, helped to temper the impacts of business cycles on core workers

(Sayer & Walker, 1992). Unionization also had spillover effects into non-unionized workplaces as well, raising wages and improving workplace norms.

It is clear, however, that the benefits of Fordism and union density were not spread evenly throughout the working population, and workers on the margins have always experienced more precariousness—the origins of contemporary disadvantage in the labor market have a long and sordid history with roots in slavery. The relatively stable core workers that symbolize Fordism were made possible by a secondary, peripheral set of workers who shouldered more of the volatility and risk (Gordon, Edwards, & Reich, 1982; Reich, Gordon, & Edwards, 1973), and labor laws were designed to protect permanent workers in formal workplaces. The occupational status of peripheral workers, who were largely immigrants, African Americans, and women, has long been viewed negatively by dominant white Protestant culture in the U.S. (Morse, 1998). In addition, beyond the North American context, the relative good fortune for parts of the working class in so-called developed countries was predicated on underdevelopment in other regions.

Yet even as workers in the U.S. were, on balance, finding more opportunity in the labor market, the cracks were already showing, and Henry Ford's famous quote foreshadowed the shifts to come: "Why is it that I always get the whole person when all I want is a good pair of hands?" (Hoekstra, 2006). In the 1970s, the Fordist employment contract began to unravel as forces of globalization,

technology, and financialization came to bear on workers and firms (Rubery, 2005). The internationalization of production opened up new competitive logics and cost calculations, and firms scrambled to restructure their operations in order to take advantage of new, cheaper production opportunities. Advances in technology allowed for better long-distance coordination, allowing lead firms to monitor the performance of subcontractors and ensure adherence to standards. A struggle ensued between employers and workers (as well as economic development professionals) as “footloose capital” uprooted and increased pressure on U.S. workers—and the unions that represented them—to take concessions in order to keep their jobs.

The result is that since the 1980s, job growth has taken a V-shape: the number of high-wage, high-skilled jobs and low-wage, more precarious jobs has grown, but the number of mid-wage jobs has fallen—a trend whose velocity has increased since the Great Recession (National Employment Law Project, 2012). The expansion at the bottom of the employment structure has been driven by both the growth in the number of service-sector jobs and by deteriorating working conditions that move middle-wage jobs to low-wage (Appelbaum, Bernhardt, & Murnane, 2003; Doussard, Peck, & Theodore, 2009; Wright & Dwyer, 2003). Jobs at the low end of the bifurcated labor market are more likely to be degraded in ways other than just wages—these jobs are characterized by lack of benefits and security, health and safety problems, wage theft, and unstable schedules. The promise of full-time, regular work that sat squarely in the center of American



expectations of the economy has been fundamentally challenged by rising precariousness and underemployment.

### **Explanations of the Shift to Post-Fordism**

Demand-side explanations of this shift tend to assign “globalization” the weight of explaining the changing nature of jobs and labor markets, and by extension, the increasing level of income inequality. Perhaps the most prominent hypothesis posits that structural changes in the economy lead to the reorganization of production, urban deindustrialization, and a shifting social and spatial division of labor. In Sassen’s (2006) view, extensive geographic disintegration has increased the importance of the coordination function, and these command and control activities agglomerated in urban cores, creating high-wage, high-skill jobs in finance, insurance, and law. The concentration of high-income knowledge workers in cities, in turn, created demand for workers to service these lifestyles in industries like hospitality, tourism, and restaurants. Former manufacturing workers, who on the whole did not possess the skill set necessary for more knowledge-intensive jobs, moved into jobs at the low-skill end of the labor market, while middle-skill occupations were subject to extensive restructuring due to technological change (Autor, Katz, & Kearney, 2006; Autor, Levy, & Murnane, 2003; Harrison & Bluestone, 1988).

Other leading explanations of industrial restructuring suggest that it was supply-side shifts that changed the cost calculus for firms. In particular, these scholars

argue that the influx of immigrant labor from Mexico drove down wages for low-skill U.S. workers both through their sheer numbers and through their exploitability (Borjas, 2003; Card, 1997; Massey, Durand, & Malone, 2003).

Demand and supply side explanations do partial justice to the complex problem of work in 21<sup>st</sup> century United States. Weil (2014) highlights the role of changes to finance capital that led to the fracturing of vertical integration, one central characteristic of large Fordist firms. Institutional investors holding massive amounts of assets are impatient with poor stock performance, and have a plethora of other investment options. These investors have forced an increase in turnover in firm ownership and made managers keenly aware of stock valuations. Similarly, private equity financing models have increased the power of stock owners to demand restructuring in order to improve company values, and executive compensation structures based on the performance of stock prices further incentivized a myopic profit outlook (Appelbaum & Berg, 1996). In short, capital markets that demanded short-term profits put immense pressure on firms to restructure. Firms have shifted their competitive strategies, focusing on reducing cost and increasing flexibility, and one central result is higher levels of subcontracting and outsourcing.

All of these changes were fundamentally related to, and bolstered by, changing political tides. The dismantling of the institutional infrastructure and social contract that had protected (some) workers was accelerated by a new ideological

tradition that took hold in the 1970s: President Reagan and his U.K. counterpart, Margaret Thatcher, became emblematic figureheads of the neoliberal economic program. In what would become a legendary moment in union struggles in the U.S., Reagan offered workers an enormous middle finger when, during the air traffic controller strike in 1981, he fired more than 11,000 workers who did not return to work as he had demanded (McCartin, 2013). The loathsome attack on unions, while striking, was only one piece of the larger project to “free” society from forms of regulation, whether they originated in government, union institutions, or social norms. In a sweeping set of policy changes over 30-plus years, actors implementing a process of neoliberalization sought to address the declining fortunes of mass production by extending market principles into every realm of society and at multiple scales, private and public alike. As Brenner and Theodore (2003) note, this resulted in concrete policies of industrial deregulation and the reduction of corporate burdens including taxes, wages, and working conditions.

Neoliberalization also entailed an overhaul of the way the federal government viewed and regulated the urban poor, restructuring the welfare system around work requirements, increasing the penalties of the criminal justice system, and scaling back public services. The federal government’s failure to increase the minimum wage resulted in a decline in the real wage of almost 30 percent between the mid-70s and early 2000s (Appelbaum et al., 2003). Funding for regulatory agencies enforcing labor law was steadily reduced, leaving OSHA, the

Department of Labor, and the National Labor Relations Board on skeleton budgets. This opened the door for noncompliance as a firm strategy to gain a foothold, particularly in low-wage industries (Bernhardt, Spiller, & Theodore, 2013; Weil, 2012).

### **Flexibility, Non-Standard Work, and the Temp Staffing Industry**

As much of the institutional arrangements forged in the postwar labor-capital settlement have broken down, workers are no longer sheltered from fluctuations in the market by the promise of continuous employment or wages that keep pace with productivity. Alternative, or non-standard, work arrangements became increasingly prevalent, including work that is temporary, part-time, and done via independent contracting. “Flexibility” emerged as a popular buzzword, standing in for a range of tactics that would come to constitute both a corporate competitive strategy and an expectation of worker compliance. The terms contingent, flexible, precarious, degraded and casual work describe jobs that are insecure, fragmented, and low-wage, and have come to signal a range of characteristics, mostly negative, of contemporary work. Beyond basic measures of quality like wages, hours, schedule, benefits, and security, other measures of job quality are implied, though not necessarily always present in contingent jobs: work intensification, discrimination, lack of health and safety protections, and low levels of autonomy (Findlay et al., 2013; Kalleberg, 2000).

In the terms of dual labor market theory, the secondary labor market was viewed as residual, a place where there were "outmoded employment practices, suboptimal business strategies, and rigid balkanization from the 'mainstream' labor market, in accordance with the sharp lines of racial, ethnic, and gender discrimination" (Peck & Theodore, 1998, p. 748). The current forms of contingent work retain and recast these characteristics, though they have emerged under different structural conditions. Contingent work is inherently provisional, conditioned upon something, and orthodox economists would suggest these conditions are the nature of labor market supply and demand. Harrison and Bluestone (1988) disagree, and insist that instead of being purely economic decisions, the growth of non-standard work arrangements were political moves at their core, meant to destabilize the social contract that unions had sought to institutionalize. Businesses aggressively pursued policies that would support the fragmentation and deskilling of work, lobbying government to implement rules and laws that favored their interests—and argued that the success of the economy depended upon these shifts. Their efforts have resulted in an unprecedented shift in employment growth: the most recent data available on contingent work suggests that all net employment growth since 2005 has been in non-standard employment (Katz & Krueger, 2016).

There is significant variation among the categories subsumed by the umbrella term "alternative worker arrangements"—both in terms of worker outcomes and firms' use of nonstandard work classifications. Because of its prevalence in the

warehousing industry, it's worth taking a moment to discuss the dynamics of one category in particular. Temporary staffing agencies are a particular breed of labor market intermediary that has capitalized on the trends explicated above to become a driving force in processes of restructuring. These intermediaries have been in the business of producing flexibility since the early 1900s, skillfully maneuvering around the changing landscape of labor law by developing new recruitment and management strategies (Hatton, 2011; Vosko, 2006). In the 1990s, the temp industry grew very quickly: between 1990-2000, the employment in temporary help services (a subset of the employment services industry) grew by nearly 130% percent. Since then, the industry has grown and contracted alongside business cycles, but the growth trajectory since the Great Recession has been explosive, and employment in temp agency jobs reach a record high in December 2015, at nearly three million workers (see Figure 1).

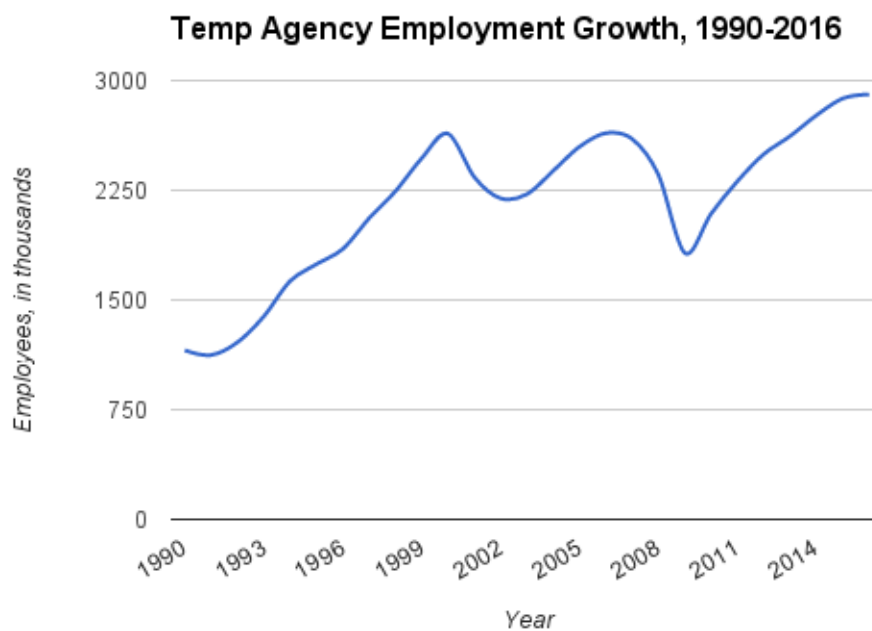


Figure 1. Temp Agency Employment Growth, 1990-2016. Source: BLS CES, 2016

The industry's growth took a highly uneven form, both geographically and occupationally. For example, in the Midwest, the temp industry mushroomed by 117 percent between 1990-2008 (Luo, Mann, & Holden, 2010). And while the industry still represents a small fraction of overall U.S. employment, its industrial and occupational penetration is concentrated in manufacturing, transportation and warehousing, and service industries (Bernhardt, 2014). Analysis of this occupational clustering has revealed that its growth is due to shifts in the human resource management strategies of firms, not to employment growth in these occupations (Estevao & Lach, 1999).

The literature on the temporary staffing industry suggests myriad reasons for its growth, both on the demand and supply side. Demand-side explanations fall into one or more of the following categories: procuring numerical or functional flexibility; reducing the direct cost of workers' wages and benefits; providing a mechanism with which to screen workers before hiring them directly; and offering a method of triangulating employment by creating arms-length subcontracting arrangements to transfer risk (Abraham & Taylor, 1993; Davis-Blake & Uzzi, 1993; Smith, 1997; Theodore & Peck, 2002). The increased use of temporary staffing is also an overt attempt to avoid the possibility of collective bargaining (Gonos, 1997). On the other hand, some argue that the driver of temporary jobs lies on the supply side, with the set of workers for whom being a temp is better

suited, or more desirable, particularly women (Laird & Williams, 1996). Still others offer evidence that temping is a valuable way to shorten unemployment spells for those with weak labor force attachment (Graaf-Zijl, Berg, & Heyma, 2009).

Yet the diagnoses of the origins of temping on the supply or demand side don't capture the complexity of the relationship between the two. As Theodore and Peck (2002) stress, the temporary staffing industry plays a vigorous, entrepreneurial role in shaping the market for on-call workers and is not, as some suggest, simply stepping in to fill firm's changing demands for labor. In the light industrial segment of the market characterized by extreme cost-sensitivity and commodification, temporary agency operators fight for scraps, attempting to create specialization by under-cutting, exploiting loopholes, "creaming" the better workers, and violating labor law (Ofstead, 1999; Peck & Theodore, 2007).

Through policy change that encourages temporary work, the state has had a normative effect on the restructuring of employment relations, and the temporary staffing industry has produced a narrative of temp work as suitable, even preferable, for a subset of workers (Hatton, 2011; Peck & Theodore, 2012; Smith & Neuwirth, 2008).

The possibility for a firm to involuntarily terminate workers has always existed, and the advent of temporary staffing agencies has simplified and routinized this process of adjustment. Yet as Kalleberg (2009) notes, layoffs are now part and



parcel of firms' restructuring strategies, and in the U.S., the industry has played a prominent role in the provision of low-cost flexible labor for firms and industries that are restructuring (Peck & Theodore, 2007). For firms that rely on temporary labor, this enables ongoing processes of experimentation and adjustment.

Labor subcontracting through temporary staffing agencies plays a prominent role in intermediating the coupling of supply chains to local labor markets. More broadly, business-to-business outsourcing has become a growing trend across industries as the organization of production continues apace (Weil, 2014). Firms are increasingly contracting out, even those activities considered core competencies, if they offer low value-added proposition (Bernhardt, Batt, Houseman, & Appelbaum, 2016). Weil (2014) suggests that this dynamic leads, in turn, to worsened working conditions—smaller contractor firms are more likely to violate labor laws out of ignorance, lack of staff capacity, or in order to pad thin margins.

A vast literature on the offshore contracting dynamics of global supply chains has emerged from three related analytical approaches: global commodity chains, global value chains, and global production networks. These frameworks help to ground globalization in the particular form taken by the modern supply chain and examine the competitive dynamics of firms. Until recently, domestic contracting has received considerably less attention than international contracting arrangements, the latter of which I'll turn to now.

## **Approaches to Analyzing Economic Globalization**

Globalization is often cited as a main culprit of the changing nature of work in the U.S., and economic inequality more broadly, yet the term itself often obscures more than it illuminates. In order to understand uneven development, processes of globalization must be brought to a less abstract level, one that can be sensitive to the distribution of benefits across space. Today, the supply chains of multinational corporations do much to structure the organization of production and division of labor in the global economy. As production processes have grown more dispersed—one major force constituting globalization—the need for control and coordination of fragmented economic activities has also increased. Three concepts in particular offer approaches to understanding the political and economic composition of relationships in supply chains: global commodity chains, global value chains, and global production networks.

The roots of the commodity chain construct lie in world systems theory, originally developed by Hopkins and Wallerstein (1986). The world systems approach posited that spatial and social configurations of a commodity chain change in relation to the world economy, and produce a global division of labor. There was a long-term, macro-historical view of development that led them to divide regions according to a threefold typology—core, semi-periphery, and periphery—possessing varying levels of access to the benefits and value that accrue along the chain. The state was the central unit of analysis, since states were seen to exert significant power over the organization of capital. In this approach to

analyzing the territoriality of global production, labor was seen as a critical part of the production process, a focus that was lost in the chain analytical frameworks constructed through subsequent reimaginings.

In the early 1990s, analysis of global commodity chains (GCCs) emerged from organizational sociology and development studies, with a focus on the industry and firm-level actors and practices that shape power relations and organizational drivers of development (Bair, 2009; Gereffi, 1993). The major points of divergence from world-systems commodity chains were that global commodity chains are an emergent form of organization, as opposed to an historical reconstruction, and there is greater emphasis placed on the role of firms as the principal organizing agents of capitalism (Bair, 2009). The state loses its central role in GCCs, as economic activities that span national borders curb states' power to shape the organization of capitalism. The global commodity chain approach seeks to identify patterns of organizational governance, defined as the exercise of power by firms, which were initially characterized as either buyer- or producer-driven chains (Gereffi, 2001). The former are those chains in which retailers or brands play the central role in setting up and driving the decentralized supply network, where most production occurs in developing nations. Production nodes in these chains are characterized by low barriers to entry because production capacity is not particularly specialized; the retailers and brands themselves retain the design and marketing activities that offer the highest value-added.

Producer-driven chains, on the contrary, consist of tiered networks of suppliers coordinated by large manufacturers, which possess high levels of firm-specific knowledge, capital-intensive capabilities, and technological sophistication. As buyer-driven chains became a more prevalent form of organization in the global economy, firms in the far reaches of supply chains were seen to have little independent economic power relative to the buyers that lead these chains and dictate the terms of production. The central hypothesis that followed was that economic development, or upgrading, was possible by linking to the most significant firms in the chain, who control access to key resources. The approach marked a turn toward informing policy, as scholars sought to analyze and harness the dynamics of commodity chains in order to allow firms, nations, and regions to capture more value through processes of economic upgrading.

The buyer- and producer-driven binary proposed by GCCs function as ideal types, and aren't intended to predict inter-firm exchanges at a particular link, but rather the form of coordination of the chain as a whole. Some scholars saw this analysis as too blunt an instrument for understanding changes in internationalized production and sought to rework the initial binary. The global value chain (GVC) framework was developed a decade later to focus on the links between firms. Developers of the GVC approach proposed that development outcomes vary based on a range of relationship characteristics and the nature of information in the supply chain, and focused on the application of transaction

cost economics to the coordination of chain activities (Gereffi, Humphrey, & Sturgeon, 2005). Gereffi et al. (ibid.) operationalized a theory of chain governance, identifying a set of independent variables (industry level characteristics in a chain) that interact with dependent variables (a typology of governance structures) to produce varying development outcomes.

Taken as a whole, the GCC and GVC frameworks have offered valuable contributions toward understanding the exercise of firms' power. Indeed, labor advocates have engaged directly with these frameworks to inform organizing campaigns. Juravich (2007) points to the increased use of chain concepts in strategic corporate research by unions and other workers rights groups, a process that maps power in order to identify potential leverage points. Forms of network cartography like this, Quan (2008) argues, have been used to educate workers and develop organizing strategies informed by particular vulnerabilities within nodes of production and distribution. Outside of power mapping, research within the GVC framework provided important insights for those concerned with working conditions in supply chains by examining, for example, the relationship between the ways firms exercise power, or firm governance, the ability of workers to regulate the terms of employment (Riisgaard & Hammer, 2011).

Yet the explanatory power of these frameworks has been limited by the narrow definition of power in economic terms, such as the creation and protection of higher-value nodes within chains, at the expense of other realms of power,

including geopolitical formations, patriarchy, and institutional racism. Bair (2005) notes that GVC analysis has focused on the ways that inter-firm relationships are shaped by sector-specific characteristics at the expense of the external factors affecting chains and the distribution of value-added along the chain. Upgrading remained a central focus, where gaining access to lead firms is a necessary precondition for successful participation in the global economy, a notion I'll unpack further below.

The global commodity and value chain frameworks are inherently territorialized, given that they are concerned with *where* the chains locate and the creation of value in these places. Yet economic geographers sought a better understanding of the mutually constitutive relations between places and flows (Dicken, Kelly, Olds, & Yeung, 2001; Hess & Yeung, 2006; Smith et al., 2002). The resulting global production network (GPN) approach addresses what critics saw as two major limitations of GVC/GCC approaches: under-theorized geography and the over-emphasis on inter-firm governance, which obscured the impact of institutional forms (Hess & Yeung, 2006). The GPN approach is attentive to ways actors are anchored in place and at multiple scales, and was developed to remedy the narrow focus on industry- or sector-specific governance structure of the GCC and GVC frameworks by placing more analytical weight on the multi-scalar institutions and structures that also shape outcomes (Dicken et al., 2001; Hess & Yeung, 2006).

The GPN framework grew from economic geographers' perspective of globalization as a relational process, one that is mutually constituted and path dependent (Dicken, 2007). This body of work acknowledges the inherent tension "between the way that capital seeks to produce spaces of profitable production on the one hand, and the way people shape places in order to find meaning and reproduce themselves on a daily basis" (Hudson, 2001, p. 282). Space and place are socially produced phenomena, a product of physical assets and attributes, social relations and narratives, institutional forms and logics, and their historical legacy. The relative impermanence of a particular form of capital in a place signals the potential for economic restructuring, in or over space, and highlights the dynamism of industrial change as tensions continue to evolve.

Following Henderson et al. (2002), the global production network approach is rooted in three conceptual realms: value, power and embeddedness (see Figure 2).

The concept of **value** in GPNs consist of three categories: creation, enhancement, and capture. Value *creation* centrally concerns the production of economic rents, which consist of opportunities to create rents related to technology organization, relationships, brand, or trade policy; and labor process, including job composition, working conditions, technology and the social and institutional conditions that shape them. The former category has received far more attention in the ensuing literature.

Value *enhancement* refers to the conditions under which a firm might increase the value they produce, which oftentimes requires relationships with lead firms, in the areas of economic rent listed above. Value enhancement bears close similarities to the concept of upgrading in the GCC and GVC frameworks.

The final dimension is a firm's ability to *capture* value. This can depend on a number of factors, including the variety of capitalism, ownership structures, and corporate governance. It's important to note that value capture in the GPN framework is distinct from value enhancement. This is an important analytical distinction particularly in light of questions of labor process and local institutional forms, which also shape the possibilities for value capture.

**Power** is viewed as the multidirectional sites and practices of power within the GPN, including corporate, institutional, and collective power. By *corporate* power, the authors mean the asymmetrically distributed ability to influence resources and value among participant firms. There is no a priori location of power in this conception, allowing for multiple sites and practices depending on firm- and location-specific factors.

*Institutional* power derives from an array of scales and sites: national and subnational, international, regional trade blocs, credit agencies, the UN, IMF, World Bank, and World Trade Organization. The economic and social policies of



these institutions have varying levels of direct and indirect influence over the inner workings of firms. Written today, the authors would likely have included the effects of financialization within the remit of institutions wielding power over firms.

The authors specifically call out the *collective* power of workers' organizations, NGOs concerned with environmental and human rights, and business associations to shape development. In many but not all cases of collective power, the organizations involved are interested in providing a counterweight to the forces of corporate and institutional power. This sets the stage, then, for conflict and tension to be present at the very heart of supply chain development, though, as I'll discuss further, its inclusion in the conceptual underpinnings of the framework has not fully transferred to empirical work.

The final conceptual category is **embeddedness**. While all of the above dimensions are in some way rooted in place, the embeddedness of GPNs is multi-dimensional: firms are shaped by the social and cultural context from which they emerge, and by existing frameworks of policy and law. *Territorial* embeddedness references more than simply a location decision on the part of firms. It refers to the range of relationships firms have or form with regional clusters, and the economic development that stems from inclusion in global markets. It can also capture the inverse processes of disinvestment when footloose firms pull up stakes. *Network* embeddedness refers to the extent of a firm's relationships with other production network actors and institutional forms,

including government.

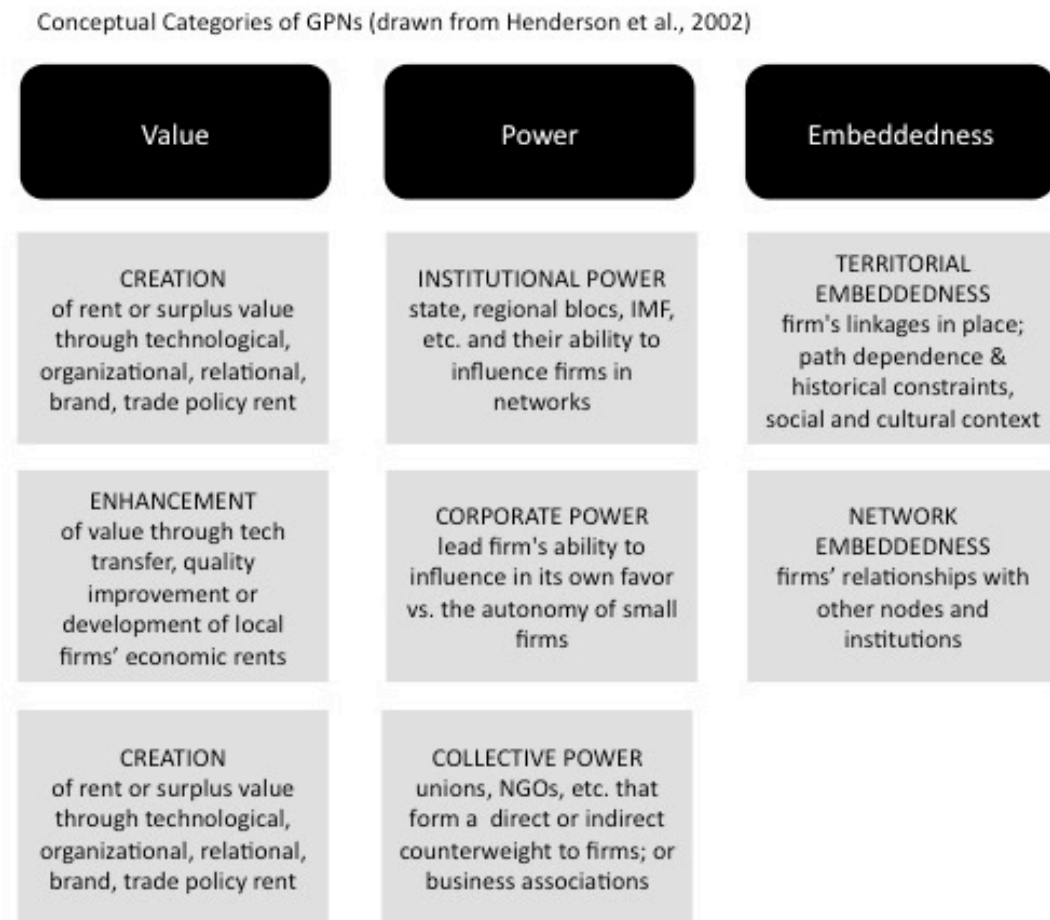


Figure 2. Conceptual categories of GPNs

Embeddedness sets GPNs significantly apart from the other chain approaches. Whereas GCC and GVC approaches embraced transaction cost economics as fundamental to their models, GPN scholars sought alternative conceptions of firm decision-making. The conceptual dimension of embeddedness has its roots in Granovetter's (1985) work on embedded networks, which he developed as a corrective to market-based transaction cost economics. For him, transaction cost

economics relied on models of action that were divorced from the social world, artificially creating a closed system. Instead, he argued, economic agents should be understood as rational actors operating within social contexts, which condition the behavior of the former. Applied to the organization of global production, embeddedness allows researchers to interrogate the ways in which capital is not endlessly mobile, suggesting that linkages and relationships are a form of sunk cost that would hinder relocation. Embeddedness is an antidote to the disembodied processes of globalization and development with which Markusen (2003) expressed frustration, but some have argued it goes too far in the other direction, oversocializing economic dynamics at the expense of multiscalar dimensions of global production. Bair (2008), for one, takes issue with the focus on individual human interaction that shapes economic decision-making—the horizontal relations of trust and cooperation—that supplants capital relations rooted in power and competition and causes the latter to fade in terms of causal prominence.

There is also a great deal of nuance to the ways in which firms articulate in a given place, revealing a hard edge to embeddedness that some analyses of global production have tended to soften (Dicken et al., 2001; Peck, 2005). For example, McGrath (2012) subverts the assumption of embeddedness as a favorable factor, showing that the concept can include the ways in which production networks are embedded in and serve to reproduce structures of racial inequality. In this case, networks are embedded in power asymmetries of

domination and oppression, not trust and cooperation. As Hess (2008, p. 455) suggested, the conception of power in GPNs as networked is important, and distinct from other 'chain' approaches, because it "opens up ways of thinking about embedding and dis-embedding processes in global value chains and networks as a matter for (temporal) coalitions between actors, without neglecting the power asymmetries between actors involved, whether they are firms, states, or any other non-firm institutions."

### **"GPN 2.0"**

Despite critique of the GCC and GVC frameworks' perceived lack of territoriality, the GPN framework has always struggled to theorize place: the task of holding together macroeconomic processes and microsociological scales is a difficult one. The earlier discussion of embeddedness—the explicit attempt within GPN at a theory of globalization in place—suggests that this was the weak link of the three fundamental conceptual categories. Recently, a new theory of global production networks, dubbed GPN 2.0, claims to provide a sufficiently robust way to understand the construction of economic systems in place.

The GPN approach offers a methodology through which to examine global supply chains, but has lacked theoretical power to explain development outcomes (Dussel Peters, 2008). Yeung and Coe (2014) attempt to build the outlines of a second-generation theoretical framework, laying out a set of independent variables in the form of causal conditions under which firms operate

in global production networks. The structural dynamics the authors identify are cost-capability ratios, market reach, and financial discipline, and are set within a broader framework of the risk environment faced by firms. This set of variables, in turn, lead to mechanisms through which firm-specific strategy is implemented, which Yeung and Coe (2014) categorize as four types of relationships between firms in a production network (intra-firm coordination, inter-firm control, inter-firm partnership, and extra-firm bargaining) and which are dependent on the mix of causal dynamics in play. Together, these interactions determine the territorially-specific outcomes that economic geographers have been keen to understand.

Yeung and Coe's reconceptualization of the production of uneven outcomes offers an important focus on causal forces across networks. Yet it constitutes a step away from understanding the how the properties of places shape chains. The relevant actors in their model are firms, operating within the constraints of extra-local conditions—markets, financial apparatuses, firm structures, and risk environments. Workers and labor markets never appear in the article, except vaguely as the cost of “labor wages” that firms have sought to minimize in attempts to optimize production processes. The strengths of the GPN approach, namely an appreciation of multiple sites of power and influence and attention to the ways in which place, including the local labor market, matters, get lost in what the authors call “GPN 2.0.” The texture of value, power, and embeddedness, as I lay out earlier, are seemingly absent in this conception: value is conceived of as value-added processes and upgrading; power is reduced to the relationships between firms, shareholders, and markets; and embeddedness appears to play a

bit part. Processes of upgrading persist as a central focal point, wherein changes to production activities, technologies, or other innovations lead linearly to "progress," in the form of greater market share, profits, efficiencies, and ultimately value—though the authors are silent on the distribution of these benefits.

Some scholars never saw much of a distinction between GVC and GPN approaches (Bair, 2009; Levy, 2008), and Yeung and Coe's recent intervention would seem to bolster this assertion. In both frameworks, competitive dynamics are the independent variables, firm strategies the dependent variables, and contingent relations between these produce variegated, uneven development. This assumption is fundamental to the premise of my research project: a large body of industry studies have revealed the importance of understanding the structure and competitive dynamics of industries and its effects on economic development. But my intent is to also be attentive to viewing GPNs "from below," with a keen interest in the political economy of the production of workers and labor markets. My hypothesis is that inter-firm relationships only tell a partial story about outcomes at the local level, particularly the labor strategies used by firms and the resulting outcomes for workers. Given the recent development of "GPN 2.0," I should clarify that the GPN framework from which I draw in this research is based on earlier expositions of the approach outlined above—GPN 1.0, I suppose. The original focus on three interrelated conceptual dimensions—power, value, and embeddedness—possess greater potential to illuminate the relationships, economic and otherwise, under study in this research.

The chain and network approaches tend to overlook front-line workers as either a constitutive part of supply chains or an appropriate scale at which to measure “development.” As Bair (2009, p. 30) notes, a major debate amongst researchers within global chain frameworks is “the extent to which participation in GCCs can promote positive development outcomes.” The underlying cause of this tension reflects, in part, a unit of analysis problem: at what level should we measure development? GPNs thus far have largely been focused on regional development, measured by the ability of firms to create and capture value in the form of economic rents (Coe & Hess, 2013b), and the value and commodity chain focused similarly on the ability of firms in industrializing nations to improve their economic footing. A fundamental departure from the GPN and other chain approaches comes in the form of my unit of analysis for development. I am interested in explaining worker outcomes, which have been sorely neglected, and in light of contemporary debate about the prospects for work and workers in the 21<sup>st</sup> century, constitute an urgent analytical focus.

Given that workers, their organizations, and the communities in which they live are present and accounted for in the initial writing on the GPN framework, why were they mostly neglected in the research programs that followed? One explanation is that the disciplinary silos in which economic and labor geographers exist have distinct objects of inquiry: the former with the geography of production and the latter with the social world of work and labor reproduction.

While these topics are theoretically intertwined, they have until recently existed in separate domains, in conversation with their own sub discipline. Yet some of the most visionary and influential work in the field stands at the intersection of the political economy of capitalism and the social production of labor (Hanson & Pratt, 1992; Hudson, 2001; D. Massey, 1985; McDowell, 1999; Peck, 1996).

For their part, however, leading architects of the GPN framework have been inconsistent in their conceptualization of workers and labor markets as constitutive elements of supply chains—as explored earlier, Henderson and his colleagues (2002) were clear that workers were an important part of the story. On this point Neil Coe is a particularly confounding character. For example, in Coe and Hess (2013b, p. 5), the authors rightly assert that the “GPN approach has been explicit from the outset that workers, their collective organizations, and their civil society partners are an integral part of GPNs, not simply a production input or part of the background context.” Yet writing with Yeung more recently (Yeung & Coe, 2015), Coe proposes what is meant to be the definitive new theorization of GPNs, and it fails to account for workers except as an input, contradicting Coe’s other writing.

Coe et al. (2008) suggest that labor has been omitted because of the tendency of GPN research to regard the firm as a “black box,” such that intra-firm dynamics are rarely explored. The authors call for an engagement between work on GPNs and that of labor geographies, and make the assertion that labor market



segmentation is the basis of place-based differentiation; though they go on to focus on understanding labor agency and how it shapes production geographies.

A third explanation is the lingering effects of transaction cost economics on analysis in the global chain and network lineage. In the absence of an explicit theory of the social regulation of labor markets, one might be tempted to assume that labor markets are modeled on rational agents. My assertion here is that this would be to misunderstand the nature of labor markets, despite the persuasive efforts of neoclassical economists (Wilkinson, 1981). What can be gleaned from this discussion is that labor is an important actor and analytical category—GPNs are, after all, “networks of embodied labor” (Cumbers, Nativel, & Routledge, 2008, p. 372). Yet the framework requires a theory of the constitution of labor markets as they interact with global production networks, and this research takes up this task.

### **Workers and Workplaces in GPNs**

In surveying the scholarship that critiques the weak accounting of labor, the assessments largely fall into two categories. A number of scholars argue that the chain approaches lack adequate appreciation of labor agency and labor power in influencing economic development and shop floor working conditions (Coe & Jordhus-Lier, 2011; Cumbers et al., 2008; Selwyn, 2011). Others assert that the technomanagerial fixes and transaction cost models so common in commodity chain analyses effectively disguise the social relationship between capital and

labor (Werner, 2012; Rainnie, Herod, and McGrath-Champ, 2011). That is to say, as sites of global production and distribution are identified and targeted by firms, the existence of a desired labor pool and the terms of inclusion for workers have been taken for granted. Taylor (2007, p. 535) characterizes the oversight as an “implicit assumption of the availability of cheap and/or disciplined labour-power without consideration of the social processes that socially construct and reproduce labour-power in the form of a commodity with particular attributes in specific locations.”

For their part, Riisgaard and Hammer (2011) offer a particularly nuanced examination of the embeddedness of labor in institutional and geographic forms as they study the relationship between supply chain governance, international framework agreements (a tool for inserting social or environmental responsibility standards into supply chains), and labor. The authors conclude that “different modes of GVC governance provide different rooms for maneuvering for labor to regulate employment conditions along value chains” (ibid., p. 175). In short, the more power a lead firm exerts over supplier firms, the more likely they are to be able to impose and enforce standards on the rest of the chain. The authors acknowledge that “production and labour control regimes differ tremendously between the strands and locations discussed,” (ibid., p. 185) and that this, in turn, shapes the possibility for labor to secure and maintain improvements. But the content of this difference is limited to the histories of workplace organizing, an important if partial dimension of the local constitution of labor. While the research

offers analytical purchase on the question of improving worker outcomes outside of traditional notions of upgrading, it lacks a model of the labor market in which to embed the regulatory forces of framework agreements. The danger of this is that as these common frameworks come to ground in different supplier locations, they meet with a variable set of forces including but not limited to labor militancy, that shape the implementation of the agreement.

Rainnie et al. (2013, p. 192) argue that in order to understand the working conditions in firms in the far reaches of production networks, we must examine “the organization and control of labor process itself “ in those firms, instead of relying on the governance structures to predict those conditions. The authors review three separate proposals for conceptualizing workers in production networks from Coe and Jordhus-Lier (2011), Strangleman (2001), and Selwyn (2011). Each specifies a set of networks and institutions that shape workers’ manner of inclusion in GPNs, which are summarized in Table 1. Rainnie et al. (2013, p. 183) praise the attempts to bring explicit models of the spatial differentiation of labor into GPNs, and suggest that bringing these dimensions together offers a “framework for understanding how the ongoing and ever-changing interrelationship and overlapping of these networks significantly affects the particularities of place and, thus, how any place is experienced by the individuals and organisations located within it.”

Author(s)	Dimensions Affecting Labor Relations			
Coe & Jordhus-Lier (2007)	GPNs	The state	Community and associational life	Labor market intermediaries
Stangleman (2001)	Occupation/work	Linkages between places	Class relations	Family and kinship ties
Selwyn (2011)	Requirements of production	Firms' restructuring of labor regime	Class formation	Labor action

Table 1. Conceptualizations of Labor in GPNs

This marks a step toward the accounting for the complex conjuncture of multiple forces that shape labor relations. As Holtgrewe et al. (2009, p. 1) suggest, the relationship between value chain restructuring and labor “are contingent upon the competition on the respective sector’s product or service markets, on customers’ or client companies’ demands, on power relations in the value chain, demands by shareholders to increase return on investment, or on public policies.” But while the dimensions delineated in Table 1 are central to understanding workers in GPNs, they lack a robust method of theorizing the relationship between each dimension.

### Disarticulations and the Divisions of Labor

In stark contrast to the global chain literature, the division of labor approach was unabashedly focused on labor and work. Developed in the 1970s and 80s, it was a political and analytical response to the drastic turn in the spatial configuration of

industrial manufacturing and attendant job loss in the UK and North America. Researchers sought to make sense of whether the causes of firms' restructuring strategies were endogenous or exogenous to regions—that is, was it a causal process *in situ* that was driving deindustrialization, or factors beyond the region that were coming to bear. Doreen Massey, whose analysis of spatial divisions of labor would become widely employed in these analyses, took a middle way, saying that it was both/and: local economic development change had to be analyzed in relation to the reorganization of global production.

Massey (1985) argued that firms, in a relentless pursuit of profit, restructure their production processes, which creates new kinds of demand for labor and thus new imperatives for industrial location. This process of the production of uneven development, in turn, lays the groundwork of both possibility and constraint as firms continue to restructure and reshuffle economic activity. Her analysis is focused on how particular jobs are produced in a particular geographically dispersed form, and what reproduces this dispersion, through both social mechanisms and recursive spatial processes.

The search on the part of firms for an appropriate labor pool for a new range of production activities is not a neutral process of matching requirements to worker attributes. In her descriptions of job creation and allocation, it is evident that Massey (*ibid.*) saw differentiation in labor markets as produced socially, for example, through the social production of gendered bodies. The skill level of

restructured jobs are defined by a constellation of factors, including technology, whether the work requires manual labor, the work tasks themselves, and the existence of gatekeeping mechanisms, be they unions or educational requirements. But there is a mutual relationship between the status of a job, its ascribed skill level, and the kind of worker that occupies that job: “Labor demand for a labor process is determined not by the process itself but by a whole host of wider social and ideological traditions” (p. 25). In other words, employers not only happen upon existing social difference within the workforce, but create and reinforce new forms of differentiation amongst workers.

Other recent critiques of the global chain literature are similarly concerned with the role of differentiation in supply chains. Kelly (2013) argues that the tendency for GPN researchers to focus on the opportunities of involvement in GPNs has obscured questions of the distribution of those potential benefits. Bair and Werner (2011) agree, noting that the emphasis on moments of incorporation is a partial reality, and that inclusion is predicated on ever-evolving exclusions, formed through legacies of investment and disinvestment that shape the ways in which places are absorbed. The authors examine the shifting sands of apparel production, in which locales are enrolled in and expelled from the production network over time, and highlight layers of history that shape the present relationship of place to production network. What they term an “inclusionary bias” has the effect of underappreciating the mutual constitution of inclusion and exclusion, which forms the basis for future rounds of capital accumulation and

resulting uneven development. Those working in the nascent disarticulations approach have focused on an array of political struggles, forms of dispossession, institutional arrangements, and labor market structures that create the conditions of possibility for the coupling of supply chains in place (Bair & Werner, 2011; Gutelius, 2015; Havice & Campling, 2013; Hough, 2011; Wilson, 2013).

Another useful intervention is Ramamurthy (2004, p. 764), who proposes a “feminist commodity chain analysis” attentive to the “contradictory, contingent, and recursive processes of mediation at work as commodity chains are constituted materially and culturally.” Processes of mediation are the result of relationships between locales that are linked to one another, and operate in contingent, nonlinear ways. These critiques give space to the messiness of struggle and experimentation in global supply chains as they “develop” in place, with analysis beyond power dynamics between firms, and recognize various sites and phases of value production and distribution.

The relationship between wider economic forces and firms’ restructuring strategies are rooted in the drive for profitable production, and processes of value creation and extraction may exhibit general tendencies vis-à-vis labor strategy, geographic dispersion, and worker outcomes. Yet the form this takes on the ground is contingent upon a number of complex factors located in the structuring of the local labor market. The ways in which private sector actors and decision-makers navigate the tension between capital and labor, including decisions about

labor strategy and wage-setting, “are made within a set of constraints and opportunities, which derive not just from product markets but also from surrounding institutional arrangements” (Bernhardt, Dresser, & Hatton, 2003, p. 33).

Production networks have the capacity to absorb the places in which they touch down, but are also subject to the constraints of the existing landscape of social and economic institutions which serve to embed or, equally important, to help expel production and distribution processes. This makes the explication of how actors in firms forge employment relationships within particular organizational, occupational, and industrial contexts the central task for researchers.

### **Local Labor Markets**

The existence of more or less vulnerable workers is predicated on relative disadvantage. Orthodox economic approaches would place the problem largely on the labor supply side, arguing that it is the skill level of workers themselves that determines their employability. Wage rates, it is theorized, reach equilibrium when they reflect the marginal productivity of a worker. In this scenario, any gaps that may exist between races in the extent of employment opportunities are the result of differences in the aggregate skill levels of workers of different races. Even as aggregate educational attainment for minority workers increase, the demand for even higher skills may grow faster, outpacing the skills attainment of these workers. It’s possible for employers to discriminate against workers, but



economists of this vein would see discrimination based on anything other than potential productivity as anti-optimizing behavior, and in the long run a firm practicing discriminatory profiling would lose out to other, non-discriminating firms. Kirschenman and Neckerman (1991) suggest that the theoretical improbability of racism to occur has led to a lack of research into the existence of employment and wage gaps between races.

Other scholars place the problem on the labor demand side of the equation, contending that the legacies of employer racism and discrimination shape hiring practices, and long-held perceptions of the inherent qualities of particular races and ethnicities shape employment decisions. The social construction of a hierarchy of work ethic maps onto the racial categories of workers, affecting their labor market position. Moss & Tilly (2001) describe this process as the cumulative effect of “small decisions” by employers that shape recruitment and evaluation strategies, location decisions, and job content and processes. These decisions have an inherently spatial configuration to them, constituting a “racialized cognitive map” (ibid., p. 207) to which employers refer, consciously or not.

Mapping social stigmatization onto employment practices is a complex undertaking. Labor market segmentation, in particular, offers conceptual clarity on the role of differentiation and inclusion in employers’ labor strategies and provides a theory of how local labor regimes are forged at the intersection of

multiple forces. Instead of a single labor market, as neoclassical economists propose, or even a dual labor market, in which workers are divided into primary and secondary sectors based on group characteristics, labor market segmentation posits the existence of a set of non-competing submarkets, each of which is governed by their own rules (Doeringer & Piore, 1971; Villa, 1986).

The resulting segments treat workers qualitatively differently in terms of wages, working conditions, and stability (Rubery & Wilkinson, 1994). Far from competing on a blank slate in which potential for marginal productivity drives hiring decisions and wage-setting, as neoclassical models assume, the construction of labor markets and submarkets is based on a much finer-grained set of differentiators than skills. Segmentation theory focuses on employers and the ways in which firms adjust to changes in the labor market and industry structure.

Employers adapt to changes in workforce, regulatory regimes, or industry structure through an array of strategies. Here, employers are complex agents whose decisions are based on a variety of constraints—not merely rationality. The segmentation approach delineates three forces to which employers respond as they shape their labor strategies: the firm's own product market and labor processes, including variability and volatility; the stratification of labor supply based on worker characteristics; and the regulatory framework that shapes employers' options (Peck 1996).

Labor demand is segmented via the varying sets of skills and characteristics employers require for a particular production process. It is determined by product market variability and volatility, which, as we'll see, is an important factor in the distribution industry, and by the kinds of labor struggles that have already taken place or are likely to take place. This is related to segmentation within workplaces, where a lack of career ladders and low-skilled jobs constrain workers from moving into other segments. Yet because of a lack of information on each worker, employers resort to other markers of social difference as they pursue particular labor strategies.

Segmentation of labor supply refers to the learned habits and exclusionary structures that create socially produced segments. Employers identify divisions of labor in the workforce based on markers of differentiation like race, gender, dis/ability, criminal background, and immigration status (Bricout & Bentley, 2000; Kirschenman & Neckerman, 1991; Moss & Tilly, 1996; Pager, 2003; Peck & Theodore, 1998). Even physical characteristics, like weight, affect employability (Puhl & Brownell, 2001), and height emerged in this research as a marker of suitability for particular warehouse occupations. In response to these characteristics, employers shift their operations through a range of tactics including pursuing low-cost, low-road employment, deskilling, and increasing the use of contingent and subcontracted workers. Departing from dualist conceptions of the labor market, there is no determinate relationship between those who enter the labor market from a disadvantaged position and their employment trajectory

(Offe & Hinrichs, 1985). As Massey (1995) described, the relationship is more dynamic: the fact that a job is done by a woman or an immigrant, for example, is likely to lower its status and the employment practices of firms do not just reflect inequality that already exists, but rather magnify and transform it (Massey, 1995; Peck, 1996). In this way, the interlocking forces of disadvantage and labor market opportunity reproduce stigma and serve as mutually-legitimizing forces.

Feminist analyses of globalized production have illuminated the ways in which gender is valued and devalued in relation to particular forms of work (Ramamurthy, 2010; Wright, 2006). For example, Salzinger (2003, p. 20) examines the production of appropriate pools of feminized labor in Mexican factories and concludes, “managerial control operates through the constitution of shop-floor subjects... ‘workers’ are formed in dialogue with other shop-floor inhabitants through comparison, contrast, and opposition to both multiple imaginaries and other shop-floor inhabitants.” In other words, managers don’t simply describe the “productive femininity” that they seek; instead, their discourses actively produce the feminine subject they imagine to be present—and thus transform the female body into surplus value. This line of thought highlights the active role of managers, workers, the state, and other institutional forms (such as labor market intermediaries) in producing workers that are of value to globalized production, following Werner (2012).

Finally, the ways in which the state views and acts upon its role as mediator in conflicts that arise between the supply and demand sides of the labor market has impacts on the segmentation of labor markets. This labor market intermediation and regulation occurs at multiple scales, but fundamentally the role of the state is to develop institutions that structure the behavior of firms and workers in order to ensure the continued functioning of the economic system (Jessop, 2001). At the national level, welfare, criminal justice, immigration, and education policy, and employment laws and their (lack of) enforcement all form part of the institutional context for labor markets processes. But these general tendencies do not unfold in the same way across space, nor do they impact population groups identically, in part because regulatory mechanisms also operate at local levels, where they meet different economic conditions, local norms and institutional forms.

Tsing's (2009) assertion that the fundamental operation of supply chain activities is deeply rooted in the identification and exploitation of difference has much in common with labor market segmentation. The segmentation approach assumes that employers seek out differentiation in the labor market in order to reduce the cost of labor. As Peck (1996, p. 96) points out, "[o]ne reason secondary work exists is the *prior* existence of a group of workers who can be exploited in this way." The availability of a labor supply need not take analytical precedence, however, among the three tendencies described above. It is not necessarily a change in the makeup of the labor supply itself that spurs restructuring (e.g., immigrants show up in large numbers), but is sometimes a recasting of social

difference that remakes the boundaries of inclusion and hierarchy of vulnerability in a local labor market (Werner, 2012; Wright, 2006). This process of adjustment relies on markers of social difference that are durable, but at the same time are marshaled opportunistically by firms.

Labor market intermediaries like temp agencies provide one conduit through which employers mobilize difference. Barrientos (2013) explores the broad trend toward the use of labor contractors across supply chains, including the ways local labor markets are organized by intermediaries. Temp agencies help manage competitive pressures by providing three functions: *coordination* of just-in-time labor provision; *information* about job-worker matching and access to niche labor markets; and *efficiency* through reducing the costs of hiring workers on an as-needed basis. Undergirding this ongoing process of adjustment is the production and selective mobilization of particular segments of workers.

The segmenting effects of intermediaries like temp agencies aren't always a silver bullet for cost-conscious clients, though: in cases where low-cost, flexible labor doesn't produce the desired levels of quality or consistency, those contractors (and the workers they employ) may be expelled from the supply chain altogether. In the cases explored by Barrientos (ibid.), firms turned to a core-periphery model of employment, where core workers have more skill, training, and longevity, and peripheral workers provide quantitative flexibility through temporary work assignments (Barrientos, 2008, 2013). Thus the

conditional inclusion into supply chains highlights the complicated relationship between firms' appetites for labor and the kinds of infrastructure necessary to meet these desires.

Segmentation theory accounts for the social regulation of labor markets at different scales, adopting the institutional analysis often deployed at a national level for analytical use at a finer-grained level. This is not to discount institutional forms at the national level, but rather to acknowledge that within a national regulatory environment there exists the possibility for variation at subnational scales. The specific conjuncture of local social regulation has a significant influence over the functioning of the local labor market. The intent here is to examine how labor markets can function in path-dependent, regionally distinct ways, and to hold them in relation to the context of the national model. The empirical questions for researchers to decipher are what particular causal forces are at work in a local labor market, how these interact with firm- and industry-specific dynamics, and what mediating forces exist. In other words, segmentation theory will help answer the questions of why and how employers in warehousing select particular labor strategies.

The ways in which these processes converge in space and time can be thought of in terms of dialectics. What Peck (1996) called the production-reproduction dialectic shapes the demand and supply sides of the labor market, the conjuncture of which is indeterminate and spatially contingent. This does not

mean that generic, causal forces do not exist—widespread racial marginalization and gendered divisions of labor exist alongside national tendencies and trends in industry restructuring. Yet it is the way in which these relatively autonomous processes intersect with each other and with the locally specific context that determines their form. Here, Massey's (1985) work on the uneven historical development of capitalism in particular places helps inform the dialectic: it is the particular layers and rounds of investment in a place that condition future possibilities for development in dynamic ways.

Global supply chains meet local labor markets on contested terrain. These temporal and geographic junctions are sites of conflict, unique to place-specific legacies and histories, and workers must be compelled to enter and remain in the labor market. While local labor regimes exhibit some amount of stability, they are not static. Workers and employers are interdependent and engage in ongoing negotiation and conflict—and neither side can get everything it wants (Castree, Coe, Ward, & Samers, 2003). Instead, as Jonas (1996, p. 329) argued, local labor markets should be understood as “a fluid, dynamic set of social relations and power structures, reproduced through domination, control, repression, and resistance operating at a variety of scales.” The blindness of GPNs to dynamics of local labor markets becomes particularly problematic when paired with endeavors to devise firm upgrading strategies as methods of improving outcomes.



## Upgrading

Industrial upgrading has long been one of the central foci across the global chain literatures. Researchers were not content to merely identify the patterns of economic development in industrializing countries, but also desired to contribute to solving the inequalities created by the global economy. Owing its roots to Porter's (1990) treatise on the creation of national competitive advantage, upgrading is seen as the process through which the economic position of a participant in the global economy is enhanced. In its application to the global chain literature, Gereffi (1999) suggests four distinct types of upgrading, representing different scales in which the upgrading activities occur: within factories, within inter-firm networks, within local or national economies, and within regions.

The concept of upgrading operates under the assumption that profitability is greatest in areas of the supply chain with the highest barriers to entry. For firms in very highly-competitive areas of supply chains, often the most labor-intensive and with relatively low barriers to entry, it is through differentiation of service offerings that firms can improve their position in the chain. In particular, firms upgrade by developing the capability to produce more value within their supply chain activities. By increasing the value-added to the production process, participants can, in theory, capture more of the profit produced in their node, the implication being that this added value capture will improve the firm's economic development prospects, and perhaps that of the region. In addition to profitability,

the potential positive effects of upgrading are more leverage and better positioning in the chain.

The ability to upgrade is related to the governance mechanisms and power structure of the chain itself. Because the source of knowledge for upgrading lies with lead firms in the chain, suppliers are dependent upon the way information about production processes and other opportunities flow through the chain (Humphrey & Schmitz, 2002; Taylor, 2007). Lead firms make use of significant power asymmetries to control access to markets and shape the organization of production processes, and in order to be successful in upgrading, producer firms must establish close relations with lead firms in the chain to participate in organizational learning (Gereffi, 1999). Evaluating the potential for upgrading requires that researchers understand the modes of governance of the chain, the potential for developing the relationships and organizational conditions necessary to inform their upgrading strategies, the activities in the realm of possibility for upgrading.

Despite the fact that upgrading has been central to the commodity chain project, there is substantial debate over whether insertion into supply chains can, indeed, have positive impacts on development trajectories, and at what scale (Bair, 2005, 2009; Kaplinsky, 2000; Rammohan & Sundaresan, 2003). Evidence suggests that upgrading doesn't always yield positive outcomes for those participating in production networks; in particular, processes of firm upgrading that allow firms to

capture additional value don't always result in improving wages, working conditions, human and workplace rights, or economic security (Barrientos, Gereffi, & Rossi, 2011; Milberg & Winkler, 2011). For example, upgrading sometimes involves increasing rates of productivity, and in these cases workers are likely to shoulder the burden of functional upgrading. When upgrading involves technological advancement, levels of employment may contract, and those who keep their jobs have little guarantee of better wages. Werner (2012) found that the reworking of labor processes that so often accompany upgrading were inextricable from the mobilization of social difference on the shop floor. Raworth and Kidder (2009) showed that the implementation of lean production in just-in-time apparel and fresh produce chains, which is considered a value-adding strategy, was predicated on degraded working conditions.

The upgrading literature seems to assume firms are benevolent, without ever saying as much; it amounts to a top-down model of improving firm outcomes that fails to account for workers' livelihoods and bodies. Further, Selwyn (2011) argues that upgrading, in the form of technological or market-based innovation, leads to changes in the makeup of social relations, including the creation of new classes and new factions. Global chains, he contends, have not adequately conceptualized the shifting landscape of labor-capital relations caused by upgrading, and the tensions that result. Critiques of the focus on upgrading call for examination 'through' the firm to workers, and are particularly salient in the U.S. context, where the layers of employment relations between a lead firm and

workers therein are complex and numerous. In contexts where labor and workplace rights are weak, attempts at upgrading may actually erode working conditions.

A central reason that upgrading has not attended to worker outcomes may be a product of the lack of specificity within the GPN framework of the constitution of local labor markets. As noted above, sympathetic critiques of the global commodity and value chain literatures have long pointed to the under-specification of finer-grained geographies and the role of institutional forms in theorizing production networks, and this problem becomes more pronounced in upgrading. In order to understand the conditions in which upgrading strategies are deployed, and the potential for upgrading improvements to flow through to workers, the global chain can benefit from the segmentation approach, grounded in the context of the social production of labor supply and demand. While global lead firms are one important source of knowledge that can lead to new possibilities for value-added activities in contractor firms, upgrading and downgrading can also originate from local sources. For example, consider the role of the temp agencies that do much of the work of helping GPNs absorb warehouse workers. As these labor market intermediaries experiment in their provision of workers, competing against one another in a low-margin market, the value proposition is one of reducing costs. This, in turn, often has negative impacts on workers' livelihoods.

Upgrading, and the distribution of any benefits stemming from it, cannot be understood outside of this intrinsic dynamic. Approaching the question of upgrading from the perspective of outcomes for workers offers analytical purchase on the competitive dynamics that move in GPNs and relationships between firms, labor markets, and institutional practices and forms. In the case of this research, the Chicago region is a nexus of invention, where the complex actions of employers are embedded in industry structures and segmented labor markets.

### **Logistics and Global Production Networks**

Despite early assertions that GPNs encompassed all aspects of the production and distribution of goods, global production network scholarship has largely failed to integrate a critical understanding of logistics into conceptions of supply chain power, though the last decade has seen important interventions from economic geographers (Aoyama, Ratick, & Schwarz, 2006; Coe, 2014; Coe & Hess, 2013a; Cowen, 2014; Dicken, 2007). As Aoyama et al. (2006, p. 328) put it, “the logistics industry is an implicitly accepted yet seriously understudied area of research in contemporary economic geography.” Today, the hard division between production and distribution activities is becoming less distinct, which suggests that there is potential for the emergence of new forms of supply chain governance dynamics (Coe & Hess, 2013a; Hall, Hesse, & Rodrigue, 2006), yet the texture of these shifts remain under-explored.

Coe (2014, p. 2), in one of the most in-depth expositions of the structure of logistics, suggests a dual agenda for research on logistics: viewing logistics as a “GPN in its own right,” and using the GPN framework to understand the relationship between logistics and economic upgrading. I’ll consider these two propositions in turn.

Can we conceptualize logistics as a GPN in its own right, as Coe suggests? Here, I identify three empirical issues particular to logistics as the industry currently exists that complicate this proposal. First, logistics is already integrated within client-sector GPNs. To take a prominent example, WalMart’s logistics strategy is fundamental to its overall retail strategy (Lichtenstein, 2006). The forces shaping choices about logistics operations derive from the role of logistics in the overall strategy of the lead firm, with downstream effects on warehouses and distribution centers. Cleaving logistics from the competitive pressure resulting from supply chain inclusion leaves out a significant causal force in explaining contexts in which employers adapt to change.

Second, GPN research has largely analyzed production functions in which outsourcing strategies are almost always being deployed, given the prominence of offshore manufacturing as a feature of modern supply chains. In logistics, outsourcing has not yet reached the status of a default strategy. Third-party logistics service providers compete both with each other for contracts, but also with distribution functions still integrated vertically within firms, on price, service

offerings, efficiency, and value-added. In this sense, it is not only the contractual relationships between firms that shape development outcomes, but also the competitive dynamics between integrated and outsourced logistics functions. This represents a significant departure from the structure of production activities, and is explored further in Chapters 4 and 5.

Third, viewing logistics as its own GPN is complicated in cases of multi-client third-party logistics sites. Here, a single 3PL warehouse is performing operations for multiple clients in different product markets, staffed with the same workforce. For example, a warehouse manager I interviewed was handling goods for a car-parts supply company, a canned beverage company, and a firm that sells mattresses and box-springs, along with a handful of other smaller clients. Is this a single logistics GPN, or the conjuncture of multiple GPNs, each with its own competitive logic and governance regime? Where multiple GPNs overlap in one physical building, what are the factors that shape labor strategy and working conditions, in light of the variation in goods and governance structures of the individual GPNs themselves?

On the question of upgrading, I've already detailed the over-arching limitations of this approach to understanding outcomes at the local scale. GPN's focus on inter-firm relationships as predictors of economic and social upgrading figures prominently in Coe's (2014) assessment of logistics. Opportunities to capture value-added vary considerably among functional areas of GPNs, and in this

respect logistical functions play a different role than many producer firms in the industrializing world. Warehousing is a supply chain function generally seen as having few options for adding value without making major capital investments in technology and automation systems. In these cases, warehouse operators either pursue relative gain by reducing cost and optimizing current operations, or absolute gain through the creation of new operations and services. Within warehousing practices, the reduction of cost is often realized through lean inventory management strategies, contracting to third-party companies, and the use of temporary labor. It is productivity and the price of workers that creates value, and leads to the work intensification so often referenced on the shop floor. Echoing this, Emmett (2005) penned a book tellingly titled *Excellence in Warehouse Management: How to Minimize Costs and Maximize Value*. Therein, the author shows that the key controllable cost driver in warehousing is labor, and the key controllable productivity driver is the labor picking rate, or the rate at which a worker is able to locate, select, and collate products in the right quantities. This argument creates a strong impetus to “lean” on labor in order to generate profits.

Similarly, trade publications on materials handling and distribution centers focus on cost reduction through labor management systems, engineered labor standards, and automation to reduce labor need (though the latter is extremely uneven across firms in the industry). The rise of third-party logistics firms is indicative of an increasing trend toward vertical disintegration, as companies



shed functions that they perceive to be outside of their core competencies, or those that offer little value. But unlike the production function of supply chains, the process of outsourcing in the distribution function is less mature, as evidenced by the extensive contemporary trade literature on how to determine whether outsourcing logistics is the right move for the firm. Third-party logistics firms offer a range of services to customers, including some value-adding activities like final assembly, store-ready packaging and displays, and labeling (as I explore in Chapter 5, however, these activities represent the minority of those contracted out). The value-creation activities of warehouses and distribution centers vary across firms in relation to whether the activity has been outsourced and what modes of governance are in practice in the chains. Yet materials handling—any movement within the warehouse itself—is associated with added cost in terms of labor and the potential damage to products, as opposed to added value (Murphy & Wood, 2007). Functionally speaking, the goal of distribution activity is keep costs as low as possible while delivering the goods on time.

In light of these industry-specific dynamics, it is especially important to place opportunities for upgrading in the context of labor strategies. Coe rightly asserts, however, the existence of a gaping hole in the understanding of causal processes in logistics labor markets, which would undoubtedly shape the positive impacts of upgrading initiatives on workers themselves. As Coe and Hess (2013a) suggest, in fact, social downgrading appears to be a prevalent strategy

of industrial restructuring in the warehousing and distribution sector. This research addresses oversight—evident both in Coe’s exposition on the logistics sector and the broad literature on the development dynamics of GPNs—by first compiling an empirical basis for understanding local labor markets for GPNs. Because of the paucity of research on the political economy of logistics labor markets, the place to begin is in the labor market itself.

Instead of seeing logistics as its own GPN, I conceptualize it as embedded within other production networks and shaped by particular sector-specific dynamics. If just-in-time production and distribution are central to the competitive strategy of a given GPN, separating out the function that coordinates just-in-time delivery does not provide additional analytical purchase on the problem. But Coe’s suggestion does raise the possibility that there are exigencies particular to a logistics function—warehousing, in this case—that are shaped by the supply chains they serve (and product market they operate in), by the function’s place and role in the GPN, and by the organization of the function itself. In applying the conceptual categories of power, value, and embeddedness to warehousing, general trends emerge: distribution tends toward being a low-value function operating in competitive markets that are constrained but not determined by the power dynamics of lead firms, operating in a U.S. context of widespread financialization, shareholder power, labor market deregulation and declining workers rights, embedded in local labor markets possessing uneven historical topographies. Instead of being a product of forces operating at the global and national scales, I

argue that the form warehousing takes is premised on the conditions of possibility of labor markets. In other words, local labor markets undergird the viability of warehousing's inner logics and mode of functioning.

### **GPNs “from below”**

The only reason goods flow through the supply chain is because they are propelled by the hands of workers—as one worker said in an interview, “Nothing moves without us.” The relative silence of the GPN approach on the topic of labor, which is often seen as simply a presumed input, reifies the “natural” process of capital locating appropriate labor pools and overlooks the ways that labor markets are socially produced. While labor geographers have focused largely on labor agency in networks, analytical focus on labor markets and their production has been under-explored. To address this gap, I begin with structural change in the economy and its relationship to patterns of labor exploitation—the general—and then move into an understanding of what makes logistics labor markets local and variegated. The GPN framework, which has traditionally stopped at the level of firm managers, can be usefully grounded in place via the labor market. In doing so, outcomes for workers are not solely located in the competitive dynamics and inter-firm relationships of the industry, but also in the dynamic, constitutive role of place, via labor markets. In this way, place is not simply a *tabula rasa* onto which different firm strategies are etched, but is fundamental to the form taken by the industry in place.

There are three ways in which this research project contributes to the understanding of “observable patterns in the global economy” (Dicken, 2005) in new ways. First, as mentioned above, the literature on GPNs has been less focused on the relationships between supply chain management and workers, the structure of the local labor market and the provision of labor to firms in GPNs. Instead, labor markets have been treated as extensions of transaction costs models, and in doing so, workers disappear. A central assertion is that power structures labor markets, not only supply and demand equilibrium.

Second, GPN research has examined extensively the economic development process in developing countries, but has largely overlooked the U.S. context, except as a site of consumption. This research turns the analytical gaze back on uneven development within the United States to examine the dynamics of value-production in urban areas. Spatially, much of the literature assumes that the higher value-added functions like research and development and marketing are the main supply chain activities that remain in the U.S. Warehousing and distribution complicates this notion of a north-south binary in the geographical dispersion of high- and low-value added activities.

Lastly, there is a paucity of critical research on distribution and logistics in the GPN framework, relative to the number of studies on production functions. This research adds to the GPN framework by shedding light on the essential circulatory functions of the supply chain. GPNs from below is a viewpoint that can produce new insights into the question of how global supply chains interact with

places. I do not suggest that GPNs from other vantage points should be summarily replaced by the view from below, but instead that it offers a critical and necessary entry point into analysis.

This is particularly true for urban planning applications. Economic development often focuses at the municipal and regional scales, seeking outcomes measured by the quantity of jobs produced. The question of job quantity versus job quality represents a longstanding debate within the field of economic development, and one that is gaining traction among urban residents more broadly, as the changing nature of employment relationships and expectations for work has entered mainstream conversations. Approaching the problem from below, from the conjuncture of the chain with local labor markets, reveals the complexity of factors shaping the division of labor in cities and regions to ideally offer a range of points of intervention.

What is perhaps most useful to draw from the GPN framework is the insistence that local factors must always be “simultaneously viewed in the context of exogenous processes that relate to how a place/region fits into wider network requirements” (Kelly, 2013, p. 84). Yet the internal cohesion of the GPN framework is threatened by its attempt to hold together macro-level supply chain dynamics and micro-level network forms. I noted this earlier in the tension between the GPN’s preferred analytical realm—globalized supply chains—and the microsociological approach of Granovetter’s embedded networks (Hess,

2004). Economic restructuring is a nexus of processes at different scales—global dynamics, national and subnational regulatory frameworks, and place-specific social relations, including the production of labor markets. These processes exert distinct, and sometimes contradictory, forces that come to ground locally and create the analytical challenge of understanding the threads and their relative weight.

Epistemologically, the openness of GPNs offers multiple entry points for making sense of flows in the global economy. Coe's (2008, p. 272) assertion that GPNs encompass all relevant actors is ambitious, and tries to avoid some of the pitfalls of global chain approaches that narrowed the relevant objects of study.

Methodologically, this openness presents somewhat of a liability. GPNs have been accused of being too broad, lacking analytical boundaries because of their inherent interest in multiscalar networks (Sunley, 2008). If everything is 'in,' yet the researcher's funding, for example, doesn't allow her to traipse all over the world riding flows of information or goods, can she undertake the study? If so, how does one draw boundaries around the objects of study and define the unit of analysis in a way that does not threaten the validity of the research?

In order to attend to these potential pitfalls, I employ the original analytical categories of GPN: value, power, and embeddedness. Instead of trying to move at all scales of analysis, from neighborhood to global circuits of value, I develop a meso-level concept in answering my first research question: *What are the driving*

*logics of warehousing and distribution?* In the following chapters, I argue that warehousing possesses its own driving logics—namely flexibility and shifting risk—that are shaped by the nature of power, value and embeddedness in production networks and by the organization of the local labor market. These logics are causal tendencies that shape, but do not determine, the outcomes of logistics-related development in place. However, I expect these logics may shift over time, both because of change in competitive dynamics in logistics and GPNs more broadly, and because of the contingent forms these tendencies take as they come to ground. The latter is the subject of my second research question: *What are the conditions of possibility that allow 21<sup>st</sup> century logistics to function in its current form?* This question holds together the meso-level driving logics of warehousing with the production of labor markets, the latter themselves a product of multiscalar institutional, social, and economic conditions. Operationalizing the meso-level construct entails locating actors and their decisions within both local and extralocal dynamics, the latter of which are distilled in the driving logics of distribution.

My goal is to strike a balance between under- and over-socialized portrayals of economic action in global supply chains. This is an argument for an approach to studying the geography of production that looks beyond transaction cost economics to explain the complex decisions and actions of people, within the opportunities and constraints of structures and institutions. Contingent relations are activated in particular spaces and at particular moments, based on conditions

that are locally mediated. Methodologically, this requires an approach that is attentive to multiple scales of analysis, including the meso-level concept I just described, which I discuss in the following chapter.

Bair (2008) suggests that among the three chain approaches (GCC, GVC, and GPN), explanatory power is best left with the macrosociological realm of GVCs, a parsimonious theory of inter-firm governance that tends to avoid local, national, and international institutional forms and political process. Case studies in the GPN tradition, on the contrary, offer “complexity and richness” (ibid., p. 357). I hope to prove that an examination of GPNs from below, while attending to endogenous and exogenous factors, can demonstrate richness, complexity, *and* explanatory power.



### Chapter Three: Methods

*“Logistics can never be understood from outside the warehouse.”*

Bologna (2014)

*“While employers have often commissioned studies of how to make workers happy with less power and pay, workers have rarely been in a position to undertake of commission studies of [...] how to make employers happy with less power and profit.”*

Harding (1987, p. 8)

My entrée to this research was from the perspective of workers and labor organizers. A new worker center, focused on working conditions in the warehouse industry, was founded following the occupation of the Republic Windows and Doors factory in Chicago in 2008. Warehouse Workers for Justice (WWJ) organizers were seeing and hearing from workers that most jobs in the industry were low-paid, back-breaking positions; workers were churning through temp agencies, unable to find steady jobs; there were significant health and safety hazards; and wages were being stolen. When the organizers described these conditions to local political leaders, the latter would say the information was merely anecdotal and offer assurances that while there might be a “few bad apples” in the industry, the bunch was not spoiled.

Warehouse Workers for Justice approached me to help develop and field a survey of workers to test the theory of the few bad apples. Was it true that a handful of temp agencies and warehouses were treating workers poorly, or was it a widespread phenomenon in a rapidly growing industrial sector? Local policymakers were invested in the storyline of the few bad apples in part because significant economic development incentives had been given to light industrial property developers, without regard to the kinds of jobs they were creating—a classic example of prioritizing job quantity over quality. As this dissertation will describe in detail, the survey of workers showed that jobs in warehousing are largely temporary, and the structure of the industry creates powerful incentives to institute maximum flexibility and displace risk from product markets along the supply chain and into the labor market.

In what proved to be an important methodological start for this research, the vantage point began at the ground level, talking with workers and looking “up” into the supply chain through the labor market intermediaries that employ them. Global production networks “from below” makes workers’ presence explicit in production networks as they touch down in place and impact lives and communities. Yet explanatory power does not rest solely, or even mostly, with workers themselves. Processes of globalization must be studied relationally through the interaction between agents and the political, economic, and social contexts in which they act.

The object of inquiry for this research is the distribution function in the three counties with the highest concentration of logistics activities in the Chicago metropolitan area: Cook, DuPage, and Will (Chicago Metropolitan Agency for Planning, 2012). The selection of data collection methods was guided by a desire to examine warehouse work from below, through the eyes of warehouse workers and advocates; and from above, through the views of warehouse managers and industry analysts. The modes of inquiry were both extensive and intensive, using broad-stroke interview questions about the substance and structure of the industry and the mechanisms through which these conditions come into being. In the course of this research, I used a wide range of techniques and tools to better understand industry dynamics, build relationships with knowledgeable informants, and gather information. The previous chapter laid out the analytical groundwork for this research, and in particular the need for a multi-scalar, multi-actor framework that brings together GPNs and labor market segmentation and can be attentive to various sites of power and causality.

The implication of this for methodology is that research should identify prominent actors and examine their practices of power, including the resources, capabilities, and constraints derived from their location in the production network and the territories in which they are embedded. My intent in undertaking the study is that the research will yield information important for efforts by community groups and economic development planners to improve the quality of jobs in the logistics and warehousing sector.

## Approach

Unlike positivists, qualitative researchers do not perceive the role of the researcher to be one that uncovers an objective truth, arrived at through hypothesis-development and bias-free controlled experiments. On the contrary, the very notion of unbiased, undeniable truth, built with concrete facts about the world is taken to be a fallacy. The Weberian construct *Verstehen* posits truth as a socially embedded phenomenon that is ascertainable only through empathetic understanding. As O'Connell Davidson and Layder (1994, p. 14) write, "Facts do not speak for themselves. They must be interpreted. This can only be done in reference to the researcher's theoretical, moral, and political preconceptions." Every researcher begins their study with assumptions about the world, and thus, the "truths" delivered through social and natural science methods are imbued with their own subjectivities. Truth, or knowledge, is produced—not discovered—through the analytical categories a researcher chooses to use, the questions asked, and the underlying presuppositions that inform the researcher's approach.

Fundamentally, social and economic processes out in the world are open systems, and must be treated as such by methodology (Sayer, 1984). Positivist approaches that purport impartial accounts, predictability, and objectivity discount the social construction of economic activity, and the place of the researcher in it. Throughout this study, I have resisted the "observational distance" of the academic gaze, instead channeling England's (1994, p. 243) admonition that

“those who are researched should be treated like people and not as mere mines of information to be exploited by the researcher as the neutral collector of ‘facts’.” This was not limited to “studying down” in my research, wherein I interviewed workers with less privilege than myself, but also in “studying up” (Nader, 1974, p. 1), as I visited with employers in their offices overlooking shop floors. In all of my interviews, I performed the kindly researcher who nurtures feelings of identification with subjects; and in many cases I did feel genuine empathy for my subjects).

As an alternative to unattainable objectivity, and a way to challenge dominant narratives about the inevitability of processes of globalization, I employed the methodological framework of critical realism. The latter is a philosophy of science that holds true to the openness of the system under study. Instead of searching for regularities, critical realism reveals the “qualitative nature of social objects and the relationships on which causal mechanisms depend” (Sayer, 1984, p. 3). The causal model seeks explanation based on the relationships of objects to one another, and holds that some attributes are necessary, or essential, to the relationships, while others are contingent upon conditions of time and space. The application of these structures of causality to this study is represented in Figure 3. Based on Sayer’s (1984, p. 109) model, and following the lead of researchers of GPNs, I suggest that global production networks possess a structure based on the conceptual dimensions of value, power and embeddedness. This structure has a necessary relationship to the causal powers that I identify as the driving

logics of distribution, flexibility and risk shift which, under particular conditions of possibility (namely, labor market segmentation, comprised of the conjuncture of labor supply, demand, and regulatory frameworks), produces a range of outcomes on the ground.

OBJECT	TENDENCIES	CONDITIONS	OUTCOMES
GPN: <ul style="list-style-type: none"> <li>• Value</li> <li>• Power</li> <li>• Embeddedness</li> </ul>	Driving logics of distribution: <ul style="list-style-type: none"> <li>• Flexibility</li> <li>• Risk-shift</li> </ul>	Local labor market segmentation and the production of workers in place	<i>Contingent outcomes based on general tendencies, shaped by conditions</i>

Figure 3. Causal Model

When scholars engage with meta-theories about large-scale, widespread processes—like globalization—there is a danger of theoretical determinism. Clark (1998) argued that theory-enslaved stylized facts are a barrier to theoretical innovation because they seek coherence of empirical observation and theory. He suggests “close dialogue” as a method of empirical observation that allows researchers to build understandings from the bottom up instead of developing stylized facts from theories and seeking empirical convergence. This advice echoes Markusen’s (2003) warning against erasing the actors in globalized processes, a particular problem for action-oriented planners and organizers. “Often,” writes Markusen (*ibid.*, p. 871), “the use of process language obscure[s] entirely the possibility of and responsibility for change in a given situation.” This research project is situated between inductive and deductive paradigms: in

Sayer's (1992) terminology, theory-laden but not theory-determined or theory neutral.

Burawoy's (1998, 2000) extended case method offers a conceptual tool for close dialogue, relating the multiple scales of analysis in the field, which is critical for the object of inquiry in this study. Much of the research preceding Burawoy's, he argued, lacked history and context. When working in the south side Chicago factory that was also the site of Donald Roy's dissertation research 30 years prior, Burawoy realized he needed to make two extensions to understand the current work within the factory: extending out to the multinational firm that had absorbed the factory (situating the factory in American capitalism) and then extending to the changing shape of industrial relations of the postwar period. In making these extensions, he rejected prior approaches that focused solely on micro or local processes, and instead situated the factory at the conjuncture of current circumstances and their origins.

Reflexive science is based on dialogue between the researcher and spheres of influence, moving between macro- and microsociological scales of understanding. Burawoy (2000, p. 29) sets out four "moments" of the extended case method:

1. Extending from observer to participant, situating the researcher within the field
2. Extending observations over time and place
3. Extending from process to external forces
4. Extending theory

Adopting the multi-scalar approach Burawoy proposes requires caution because of the dialectical relationship between the extensions and the types of power and domination that threaten to make research a handmaiden to existing structures of power. These limitations of method, which include the potential threats of silencing voices and of normalizing external forces, are a reflection of the nature of power and oppression in society. By centering them in each extension of research, Burawoy, suggests, we target them for critique.

The critical approach employed here intervenes in the notion that processes exist outside of human action—for example, that globalization is a nebulous, self-perpetuating force that human agency has little control over or role in. This is made possible through a methodological framework that identifies the realms in which actors are situated, and posits relationships between them. In the GPN approach, power is a practice, not simply a position occupied in a network or hierarchy (Dicken et al., 2001), and thus individuals are the vehicles for socially constituted phenomena (Sayer, 1984).

### **Positionality and Reflexivity**

While surveys and questionnaires can elicit meaningful data that contribute to a broad-stroke portrayal and patterns of a given industry, it is through in-depth and open-ended interview questions that a researcher can more deeply probe and describe the processes underway. Firms respond differently to the same stimuli, and Schoenberger (1991) suggests three distinct reasons to use corporate



interviews in data collection: for enrichment and explanatory power, to gain insights into the complex historical and strategic factors affecting firms' decision-making processes, and that in moments of flux, such as periods of restructuring, corporate interviews can reveal new conceptualizations that fit changing conditions. My own discomfort with the idea of researching "elites" emerged very early on, and was something I struggled with throughout the employer interview process. But it was equally clear that to gain analytical purchase on the dynamics I was interested in, I could not only talk to workers. Both of these points relate to a central paradox of qualitative research: even while many researchers place themselves on the same side as their subjects, doing so sometimes clouds inherent power dynamics at play in shaping working conditions, livelihoods, and forms of resistance. "Rarely is it acknowledged," writes Hunter (1993, p. 55), "that the masses are more likely to be studied simply because they are powerless, and many of their problems may, in fact, stem from this relational position with respect to the elite." This fact required an analytical approach from below and from above.

Fine (1993) examines the "underside" of qualitative methodology: it is a process largely hidden from public view, and deceit is a real possibility. To counteract this possibility, researchers must be cognizant of biases, assumptions, attempts to present ourselves as a particular kind of ethical observer, and our own limitations and failures. In my case, I am a researcher in solidarity with marginalized workers, for whom I have significant compassion as well as a desire to contribute

in some way to improving their livelihoods. Still an outsider, to be sure, my access to workers through labor organizers they trusted shaped our interactions. Workers were willing to talk openly with me about their experiences for a variety of reasons, which were bolstered by my credibility with organizers, including the fact that I offered a \$20 gift card for their time and their own desire to tell their story and be heard. Some also hoped that in telling me about their experiences, something could change—that because of my access and privilege I might convince employers to offer them more dignity. I was careful not to promise this was the case—after all, I was not approaching employers to advise them but to gather data—but spending time with workers clearly shaped my understanding of the industry and the questions I brought to employers.

With employers, I inhabited both a different costume and persona. Wearing a suit and often dressed better than my interviewees, I drew on my own experience growing up with a supply chain software engineer in the house, and tossed out industry and MBA verbiage learned from reading trade press. There was a slight falsity to my identity, and maybe some interviewees saw through me; but based on their openness, for the most part, I think mostly they took me for what I appeared to be. That my performance affected the data I collected I am fairly certain; but I am, like Schoenberger (1992), unsure of exactly *how*.

Just two of the warehouse managers I interviewed were women. In one case, I had an appointment with the woman's supervisor, but he was in a meeting with a

client at the time and asked her to talk with me instead. The woman had recently been promoted to distribution manager, while her boss was the operations manager. She was extremely suspicious of me and dodged the more sensitive questions I asked about pay and workforce demographics—this was one of the least successful interviews I conducted in terms of data on the workplace. Counterintuitively, our shared gender did not inspire any sense of camaraderie; in fact, it may have been a detriment.

I thought of myself interviewing employers—dressing in a business suit, donning pumps, and driving around the Chicago suburbs—as performing research drag. I grew out my normally very short hair in large part to try to adhere more to stereotypical understandings of femininity. I asked a young white woman with a very pleasant voice to help me recruit employers for interviews, and used my own most-sweet voice when calling to recruit potential interviewees. At the beginning of each interview, I gave an explanation about the research I was conducting, sprinkled with technical terms of the trade to signal my familiarity with the topic at hand. This was not, however, always effective in stopping managers from assuming a naïveté on my part, and in those cases, this assumption encouraged employers to over-explain, or mansplain (Solnit, 2008). A first in the history of mansplaining, this was actually a blessing for my goal of gathering data. It sometimes revealed the underlying thought process behind certain decisions or assumptions that might not otherwise have been clear.

I see my performance as having been one of “shallow cover” (Fine 1980), in which a researcher reveals the intent of the study but is unclear about the goals of the research. This, to me, struck an ethical and practical middle ground between explicit cover (complete revealing of research role and study purpose, regardless of whether it changes responses) and deep cover (no revealing of research role). The warehouse managers who agreed to talk with me may represent a more generous subset of employers in the industry, and may also represent employers with less to hide. Yet if this is true of the selection bias of my sample, captured within this research is a range of tactics and strategies for profitability in the industry, including very low-road and higher-road approaches.

The question of the reliability of accounts refers to the accuracy with which the researcher interprets and transforms data—did the researcher understand the informant? How well does the researcher understand her own positionality and bias in regards to the way she processes information? Schoenberger (1991) argues that social science concepts of reliability and validity are addressed differently by corporate interviews. While reliability—or replication—is arguably higher in standardized surveys, carefully conducted corporate interviews offer greater validity and accuracy, since they allow a more detailed explanation of the context of reality, and the opportunity to build or assess the existence of a shared language and meaning.

Reflexivity and triangulation are two methods of addressing concerns about reliability, generalizability, and validity. I drew from a set of questions for researchers laid out by Lofland and Lofland (1995, p. 74) that help one maintain reflexivity, including interpersonal skewing, internal and external consistency, and self-serving error or bias. Throughout my fieldwork, I took the role of reflexive researcher seriously, using a data log to aid in the documentation of the study process. The results of my own field log are interspersed throughout this dissertation, and triangulation was built into the structure of the data collection methods and through Burawoy's extensions.

In qualitative research, random samples can be difficult to achieve, even more so in industry studies like one undertaken here. While this places limits on the generalizability of my sample to the population, the distinct strength of qualitative research is its ability to examine the causal processes at work, and how these relate to theories that inform them (Sayer, 1984). The results of this research are not generalizable wholesale to other situations, but the causal relationships under study contribute to theories of economic restructuring in global supply chains.

### **Fieldwork and Data Collection**

Interviewing (or otherwise collecting data from multiple sources) around the research question—also known as triangulation—is a common method used to corroborate the information a researcher is being given. O'Connell Davidson and

Layder (1994, p. 55) call this “assembling a variety of vantage points” in order to strengthen the full picture of the topic at hand. Through careful, reflexive research and tools like triangulation, qualitative methods can provide powerful contribution to theory. In order to accomplish the triangulation and iterative explanatory method described above, successive phases of interviews included manager and worker informants, as well as a range of other experts on different aspects of the industry, with a continual pivoting back and forth between these groups. Table 1 summarizes the methods employed in this study.

Tool	Quantity	Method	Focus Area(s)	Measuring
Worker Survey	392	Standardized survey, administered by trained interviewer	Sector-wide job quality characteristics in the SW suburbs	Objective job quality along dimensions: Wages, hours, duration and stability, job, temp or direct, raises, benefits, discrimination, injuries
Background interviews with employers	10	In-depth, semi-structured, 60 to 90-minute interviews	Baseline data and developing interview tool	Operational dynamics of food distribution; testing employer outreach methods
Advocate interviews	5	In-depth, semi-structured, 60 to 90-minute interviews	Industry dynamics, worker rights	Legal campaigns, targeting strategy, workplace issues, unionization, industry problems
Worker diaries	5	Weekly question list and follow-up semi-structured interviews	Lived job quality	Subjective lived job quality, comparisons between workplaces, shop floor dynamics, job fit. (2-5 months each diary)
Worker Interviews	12	In-depth, semi-structured, 90-minute interviews	Job quality, shop floor dynamics, career experience	Subjective lived job quality, comparisons between workplaces, shop floor dynamics, job fit
Employer interviews	30	In-depth, semi-structured, 60 to 90-minute interviews	Competitive strategy, workforce challenges, etc.	Competitive strategy, labor strategy (use of contingent workers, deskilling, etc.), technology and automation, work processes
Industry Expert interviews	10	In-depth, semi-structured, 60 to 90-minute interviews	Industry trends and growth	Broad trends in automation, labor strategy, geography, policy goals, competition, M&A activity
Bureau of Labor Statistics	--	Quantitative analysis	Sector-wide occupation characteristics	Analysis of historical trends, geographic change, in top five occupations in distribution (only measures direct-hire workers)
Document analysis of media accounts	5	Coding and analysis of articles; comparison to worker accounts	Portrayals of warehouse work by journalists	Difference and similarity between worker and journalist accounts on dimensions of lived job quality
Participant observation	1	Attend industry conference	Industry professionals in their natural habitat	How distribution professionals talk about challenges, solutions, and goals amongst themselves

Table 2. Methods Used

## Worker Survey

The worker survey I helped Warehouse Workers for Justice design and conduct in 2010 was my entrée into the distribution industry. The survey consisted of 42 questions about workers' current jobs and prior workplaces, if the work occurred in the last year. Survey questions focused on wages, benefits, employment status (temporary or direct hire), and tenure at a warehouse, among other things. Surveys were collected between April and July 2010.

The research project was envisioned to collect data from a broad range of workers, warehouse types, and occupations. The questionnaires were fielded by the research team, which included Warehouse Workers for Justice staff, volunteers, and warehouse workers and interviewers were trained in informant recruiting and surveying techniques. Because constructing a population of warehouse workers from which to sample was not feasible, we chose to rely on a convenience sample. The vast majority of the interviews (84 percent) were conducted in locations that workers suggested to the research team (check cashing stores, malls, grocery stores, community centers, gas stations, and libraries in Romeoville, Joliet, and Bolingbrook, Illinois. Surveyors were instructed to ask each person who passed them if they were working or had worked in a warehouse. The rest of the surveys were gathered via a snowball sample in workers' social networks.

In total, 392 workers were surveyed who were working, or had recently worked, at warehouses in Will, Cook, and DuPage Counties. The dataset includes

information from 150 different warehouse workplaces, representing a significant share of the industry.

### **Worker Diaries and Interviews**

Through diaries and interviews, the workers' perspective tells the story of what happens when relational processes of globalization land in our laps. Unlike other more well-studied industries, distribution remains a sector about which we still do not have a clear picture of shop-floor working conditions. Thus, the first task of this research was documentation and exploration of the experience of work in warehouses. Pertinent data categories began with the basic details of warehouse work, like wages and benefits, the division of labor within the warehouse, extent of temping out and temp churning, and health and safety issues. Additional layers of questions probed the social and psychological world of the job: discrimination, favoritism and threats, autonomy and control.

The data collection methods included diaries kept by workers about their experiences and semi-structured interviews. Worker diaries are a form of participatory ethnography conducted with those who are already immersed in the setting under study, and have effectively been collecting information for as long as they have been working in the industry. The idea for worker diaries is drawn from relief and aid workers who chronicle the difficult conditions they witness in the wake of political and natural disasters. These diaries often find their public outlet in national and international newspapers, providing readers with a unique,



embedded account of daily heartbreak and triumph (Bulling, 2013; Haider, 2010). In applying the concept to warehouses, a diary captures daily processes of restructuring and experimentation at close range with what Geertz (1994) famously called “thick description.” I received a grant from the National Institutes of Occupational Safety and Health for \$18,000 to fund the diary data collection effort.

The workers’ stories ground patterns of labor market outcomes that emerged in the worker survey, including the social and personal effects of long-term temporary work. My intent with this descriptive research was to draw out the hidden conditions of warehouse work to illustrate a baseline for variation and sameness, to explore the lived experiences of workers in the industry, and to set the groundwork for an exploration of how these jobs are produced. This explanatory task is more complex, and requires linking the conditions themselves to the configuration of institutions and actors.

The worker diaries, which were kept over the course of three months, allowed a prolonged dialogue with workers about their experiences the warehouse. . The churning of workers through multiple warehouses, while a detriment to their own economic security, does offer the side-effect of a methodological advantage: a worker diarist or interviewee can compare and contrast the conditions of multiple different workplaces and help identify patterns of similarity and difference. Worker interviews and diaries also suggest potential pathways for improving the

overall efficiency of distribution centers—temporary workers who have churned through multiple warehouses over the course of years often have an expansive and comparative view on better and worse approaches to the organization of warehouse work processes.

### **Employer Interviews**

I conducted semi-structured interviews with 30 high-level warehouse managers about the relationship between the distribution center and the supply chain as a whole, focusing on factors that may help explain choices in labor strategy and the quality of jobs in the warehouse. Interviews included questions about competitive strategy, sources of external and internal pressure to control costs and the range of possible responses, labor process, and labor strategy choices. Access to the right informants, and their willingness to be forthcoming with information, was a critical issue in the success of this research.

In order to develop interview instruments that meet the needs of the central research questions, and thus help establish validity, I conducted 10 preliminary interviews with employers in food distribution when I worked on a research project for the Food Chain Workers Alliance. This project allowed me hone outreach and recruitment methods, the framing of the research project, interview topics and language. Together with extensive and ongoing reviews of trade literature, this experience proved critical when I later sought interview subjects for

my dissertation, though the data collected as part of the Food Chain Workers Alliance project is not included in this research.

I used two sources to develop an initial population of warehouses to draw from RefUSA and a database developed by Warehouse Workers for Justice. RefUSA is a prominent business database that includes firm-level characteristics such as management structure, contact information, NAICS and SIC codes, ownership, and size. Much of the personnel information, however, was inaccurate, which resulted in very low rates of success in contacting the individual listed in the RefUSA database as the manager. Turnover in warehouse management, not unlike front-line workers, appears to be high.

In addition to database infidelity, problems of industry classification hindered this method significantly (see Appendix 1, Note on Data Issues), though I was able to compile a list of 111 distribution centers in the three county-area using RefUSA. I then mapped the addresses and, using Google Maps, manually checked the profile of the building at the listed address to ensure that it was, indeed, a warehouse. Fortunately, modern warehouses are easy to identify from satellite images, particular the newer buildings, which tend to be very large and clustered in parks.

The second source was a database of warehouses developed by Warehouse Workers for Justice. This database was created in the opposite order as mine:

organizers used Google Maps to identify large agglomerations of warehouses in Will County (the focus of their organizing), then drove manually to each site and collected information.

I combined the list of employers from RefUSA and WWJ by matching addresses, where possible. This resulted in a universe of 218 warehouses in the Chicago metro area that: (a) I knew to actually be warehouses and (b) had phone numbers associated with them. In this final list of 218 warehouses, the database contained 88 entries that had known SIC and NAICS codes associated with the facility. Here, the proliferation of codes became clear: there were 23 different 6-digit NAICS codes (16 different 3-digit NAICS codes) associated with these 88 warehouses, and 31 SIC codes. The most common NAICS code was 423990 (Other Miscellaneous Durable Goods Merchant Wholesalers), a group of 27 warehouses that comprised 3PLs, major retailers, and food distributors. The second most common NAICS code was 493110 (General Warehousing and Storage), made up of 18 mostly 3PL contractors. Some of these 18 were multiple facilities of the same 3PL.

I contacted these employers initially via letter, which did not yield successful results. Then, using the database of phone numbers, I cold-called warehouses and tried to access the manager. While this was a highly time-intensive method, it did yield a significant number of the interviews conducted.

The third source of contact information for warehouses was WERC, the Warehouse Education and Research Council, a professional organization for warehouse managers of which I became a member. WERC provides membership information to all current members, and I culled 16 warehouse managers from this list, which yielded five interviews.

The warehouse managers with whom I spoke represent a cross-section of the industry in the Chicago region. Only two of the sites supported manufacturing plants, and both of these were food ingredient distributors. All of the other sites supported consumer or industrial markets, so that goods were bound either for final markets or other distribution centers. This is important to note because plant-supporting warehouses play a different role in the supply chain, largely stockpiling raw materials for manufacturing. Demand fluctuation in the final market impacts these warehouses differently, since they are shielded somewhat by the production process. Most of the sites I interviewed were warehouses that deal in final goods or near-final goods (the latter referring to cases where goods are held in generic form before store-level labeling or kitting occurs).

For the most part, interviews were conducted in the office of the warehouse manager. In eleven cases, the managers also gave me a tour of their warehouse facility. This allowed me to collect participant observation data, in some cases triangulating a manager's assertions about the makeup of the workforce and work activities. It was through warehouse tours that the gendered division of

labor was revealed, as I was able to identify a pattern of women segregated in particular parts of the warehouse working on tasks together.

### **Other interviews and methods**

Attending a major three-day industry conference afforded unprecedented access to warehouse managers and industry experts. The only guardedness I encountered was when people thought I was trying to sell them something, though I wore a name badge with my university affiliation and title—Researcher—high around my neck. According to one distribution center manager I spoke with on the first day, he suspected I was trying to sell him a staffing solution, based on my barrage of questions about his labor strategy. Being mistaken for a temp dealer was certainly a first. Later that same day, a temp agency employee offered me a commission if I would go back to the managers I'd sat with during lunch and suggest they visit the agency's trade booth for help with their staffing problems. Was I a new form of labor market intermediary, called the researcher, who inadvertently spreads (bad) new ideas about labor strategy through provocative questions?

The lunch sessions offered a great context in which to sit and have longer conversations with a range of industry agents. The half-hour networking sessions between every panel were more difficult. Small groups of middle-aged white men mostly stood and chatted loudly, looking over each others' shoulders for the next conversation, while the few women and people of color tended to hover next to

the large pillars in the hallway, checking their phones alone. I knew every single bathroom in the conference hotel. As if I were on an important mission, I sought them out in order to avoid situations, like the networking sessions, that felt too daunting. On the other hand, the people staffing trade show booths seemed incredibly bored for the most part, particularly if they didn't have any good swag to give away, and were happy to have long conversations with those who did stop at their post.

Because I was not recording the conversations at the conference, I would, after each one, find a quiet place to sit and take notes on the conversations. Thus, direct quotes are generally not used from these interviews.

Additionally, I conducted 15 interviews with informants familiar with the industry: workers' rights advocates, lawyers, economic development planners, and industry analysts. Industry analysts provided a broader view of trends and the velocity of change underway in logistics, and interviews with economic development and workforce development staff, as well as worker advocates, helped to flesh out and triangulate the role of local institutions. These interviews were largely broader in scope than the interviews with workers and employers.

A range of supporting activities filled out my fieldwork, which lasted four years.

- A day-long tour of logistics infrastructure in Chicago
- A day spent driving around the Joliet area, stopping in at different temp agencies, asking for applications, and talking to whoever was behind the desk about the kinds of jobs available and the application process. I did

- not identify myself as a researcher in these situations. I did this because I wanted to get a sense of the application process and how it felt for job-seekers to walk into an agency
- A town hall meeting hosted by a workers' center on the temp industry with a state representative, workers' rights advocates, and a temp agency owner
  - Participant observation at various presentations by and meetings of workers through a relationship with Warehouse Workers for Justice

Lastly, I regularly read trade publications from the Warehouse Education and Research Council, Supply Chain Digest, Logistics Viewpoints, and other industry-related list serves and blogs. This kept the current trends in mind as I spoke with subjects about their perceptions of the industry.

Through these methods, I gained a tremendous amount of insight into the restructuring processes underway, the upgrading and downgrading techniques being tested and deployed, and the ways in which these processes are contradictory. I aimed to link these processes to the material and ephemeral outcomes for workers, understanding their own coping and resistance mechanisms, and the ways in which these interact with the shifting competitive strategies of firms. In this way, the research takes seriously calls to include labor actively in understanding processes of globalization, not solely focusing on how integration into the global economy impacts on labor but also how labor co-constitutes processes of local development (Ofstead, 1999).



## Chapter Four: The “Logistics Revolution” and the Distribution Function

As U.S. firms have fragmented their production processes across national borders, the series of activities and range of organizations involved in bringing goods to consumer markets has grown increasingly complex. The shift in the geography of manufacturing has produced a ripple effect in the supply chain, creating new challenges for procurement, transportation, warehousing and distribution, inventory management, information and communications, and regulatory compliance. These globally dispersed supply chains rely on logistics for the planning, management and coordination of materials movement through the supply chain from initial suppliers to final customers (and often reverse movement as well, in the form of returns or recycling). The ability of firms to excel in logistics has become critical to competitive strategy. As Christopher (2011, p. 20) suggests, “the real competition is not company against company but rather supply chain against supply chain.”

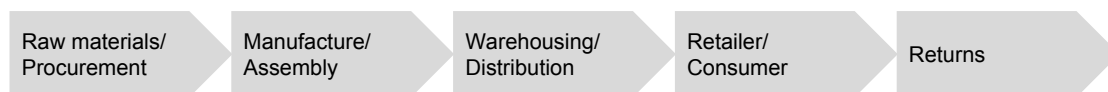


Figure 4. Simplified supply chain

A few definitions will be useful at the outset of this discussion. The **supply chain** is the set of activities involved with the production of materials, and the organizations through which the materials move (see Figure 4). **Logistics** has a narrower purview. According to an oft-cited definition from the Council of Supply

Chain Management Professionals (2013), logistics management is “that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements.” In Figure 4, logistics is represented by the Warehousing/Distribution box, but also at the interface of each of the other nodes in the supply chain. For example, the transportation of raw materials to manufacturing plants requires logistical coordination.

Logistics can be seen as the planning framework that unifies the production and distribution network, generally organized around principles of superior customer service at the lowest possible cost. The activities of logistics include transportation management, demand forecasting, warehousing, reverse logistics and returns, order processing, and inventory management. **Third-party logistics companies**, or **3PLs**, contract with client firms to provide outsourced logistics activities.

The present research focuses principally on **warehousing**, the industry involved in the storage, flow, or re-routing of inventory through physical buildings. There is significant debate over the interchangeability of the terms warehouse and **distribution center**. Warehouses imply a stockpiling function, often associated with an outmoded approach to logistics, and some argue that modern warehouses should be called distribution centers to align with the goal of

constant goods movement in modern logistics. Consider Hesse's (2004, p. 163) description: "Logistics companies demand a new type of facility, different from the old warehouse: the distribution centre (DC). [...] It is no longer needed for storage but for the efficient consolidation of the materials flow"; or that of Cidell (2011, p. 835): "Warehouses are of minimal use; logistics management and distribution centers determine the spatial nature of the distribution sector." Yet distribution centers are often still holding goods awaiting delivery either to customers or retail. I turn again to the glossary of terms from the Council of Supply Chain Management Professionals (2013):

Distribution Center (DC): The warehouse facility which holds inventory from manufacturing pending distribution to the appropriate stores.

Warehouse: Storage place for products. Principal warehouse activities include receipt of product, storage, shipment, and order picking.

Those who advocate a distinction between the terms do not propose a typology, but instead suggest vague descriptions of shorter versus longer storage periods. On his website, *The Geography of Transport Systems*, Rodrigue (2015) offers this distinction: "Although warehouses and distribution centers appear to be interchangeable terms, they do have different characteristics. A warehouse is a facility where goods are stored for periods of time, while a distribution center tends to store goods for short periods of time as orders are fulfilled, commonly on a daily basis. "

The desire to jettison the word warehouse from descriptions of the distribution function is emblematic of a yawning gap between idealized logistics and its

actual state of being. The word implies a storage function for which aspirational logistics has little use, the latter being a project often described in sleek, futuristic terms that make reference to an ideal state: aided by technology, goods are in constant motion, transactions are transparent, visibility is 100 percent, and the flow is never interrupted. But on par, most facilities are still storing goods until the moment they are needed, and managers I spoke with generally used the term warehouse for their facility.

As this dissertation will show, however, the distribution function is highly uneven, in many cases beset with inefficiencies and interruptions, and it seems the clean break from warehouse to distribution center is actually a muddled realm of desire. I believe the aversion to the use of “warehousing” reflects a desire to dissociate from what some see as an outdated notion of the role of distribution, and that a meaningful distinction between warehouse and distribution center has not been articulated (see also Bonacich and Wilson, 2008, p. 124-125). Therefore, I use both terms interchangeably throughout this dissertation.

### **Making Modern Logistics**

Modern logistics is the result of a suite of changes in the economic, technological, and political realms. The shipping container was developed in the mid-1950s, though it took close to forty years for it to prove its real value (Levinson, 2008). During the 1990s, growth in container usage skyrocketed as firms began to realize the potential for cost reduction. Containers made it

possible to consolidate and transport goods globally via various modes—sea, rail, and truck—without unloading, which fundamentally changed the ability of companies to reduce costs by avoiding breakbulk, the labor-intensive process of handling boxes of cargo individually.

The invention of the container was a revolution in shipping technology, but other determinants have contributed to the transformation of the logistics industry. The 1980s witnessed the federal deregulation of transportation and communications, which allowed new configurations of the distribution industry to emerge (Dicken, 2011; Hall et al., 2006). The rising power of retailers, which shifted supply chain power dynamics from “push” to “pull” systems (or, in global commodity chain parlance, producer- to buyer-driven); just-in-time delivery systems; and a new focus on flexible production methods are all credited with shaping the development of a new logistics archetype (Aoyama et al., 2006; Dicken, 2011; Fernie & Sparks, 2004).

As the geographical complexity of production networks has grown, significant changes in both the perception and implementation of logistics have occurred. Firms’ focus on goods production as the central source of value and competitive differentiation meant that for decades business organizations overlooked logistics as a source of strategic advantage. This despite models of military logistics, which often determined the fate of countries in war (Christopher, 2011), that informed early consumer goods movement. Management guru Peter Drucker

(1962, p. 103) went so far as to call logistics “the economy’s dark continent,” suggesting that, like Africa, it was a final unconquered frontier for business. Beginning in the 1960s and 1970s, multinational corporations began trying to quantify the amount they spent on the “total cost” of logistics, with varying degrees of success (Waters, 2007). This shift marked the beginning of what Cowen (2014) identifies as the most profound change in logistics since World War II: the integrated approach to distribution management. The ability to calculate the total costs of logistics functions with the help of computers, in turn, lead to an increasing focus on cost and cost suppression.

One of the central ways that firms sought to lower costs was to reduce the amount of inventory being held or moved through the supply chain at any given time, an outgrowth of the “lean logistics” approach (Jones, 2002). Inventory carrying cost is a critical measure of logistics, but also the economy at large, and is calculated as the value of the inventory itself and the interest rate for holding the inventory (the cost of carrying inventory, then, is closely related to macroeconomic conditions as well as the policies of the Federal Reserve Bank). The focus on reducing inventory levels, as part of the move toward determining the total cost of logistics, has meant that the both the role and number of warehouses has shifted (Higginson & Bookbinder, 2005). Reducing stock in the supply chain allowed firms to close storage facilities and consolidate their operations in strategic locations. This freed up capital for use elsewhere, but the amount of “safety stock” available to respond to volatile supply or demand cycles

also introduced new forms of risk. Lower levels of product on hand render the coordination, timing and information in distribution systems of central importance to the success of global supply chains.

Leaning logistics was not only about inventories. The Toyota system of lean production and supply is referenced in many articles on the strategic business role of logistics, where the signal phrases include waste elimination, just-in-time, demand-driven, and inter-firm cooperation (Cox, 1999). The ethos of zero-waste lean logistics was enabled by the broad business trend of focusing on a firm's core competencies. Based on Ronald Coase's (1937) seminal work on transaction cost economics, and expanded on by Prahalad and Hamel (1990), core competencies refer to the particular mix of activities or skills in a firm that provide value-added and competitive advantage. Businesses, the authors argued, should identify the areas in which they could significantly increase access to markets, contribute to customers' perceived value, and be difficult for others to imitate. While the focus was originally on developing core products, the "make or buy" decision became increasingly applied across the functions of business organizations, increasing the likelihood of outsourcing of non-core activities—like logistics—to specialists (Fernie & Sparks, 2004). The combination of lean logistics and transaction cost approaches to core firm activities has led to extensive fragmentation in organization of logistics.

## **Outsourcing in Logistics**

Logistics is structured into multiple segments based on integration of services and asset ownership (Bowersox, Closs, & Cooper, 2010; Ojala, Andersson, & Naula, 2008). Over the last 15 years, third-party logistics companies (3PLs) have grown dramatically as lead firms seek outsourcing options. 3PLs provide a range of services and value-added activities for part or all of their clients' supply chain functions, and also possess various types and amounts of assets, usually in the form of transportation capacity, warehouse buildings, or warehouse management software. In reality, the distinction between integrated and subcontracted logistics often blurs as firms choose a mix of in-house and outsourced operations (Rushton & Walker, 2007; Wulfraat, 2013), but the most commonly cited reason that lead firms choose not to outsource logistics is because the activities are considered a core competency (Langley & Capgemini, 2015).

A lack of systematic, representative data on the growth of the 3PL sector and prevalence of outsourcing makes it difficult to understand longer-term and year-over-year industry trends, a problem that characterizes outsourcing and subcontracting trends more broadly (Bernhardt, 2014; Weil, 2014). Sources do suggest, however, that firms are increasing their use of third party firms for logistics. The four largest 3PL market segments are domestic transportation management, international transportation management, warehousing and distribution, and customs brokerage. Lead firms outsource 67 percent of warehousing in North America and Europe (Langley & Capgemini, 2015). The



extent of outsourcing presumably varies by market segment, though again, representative data is hard to come by. For example, a survey of 100 companies across nine industries found that the high-technology sector was the most likely to fully outsource their distribution center operations, pharmaceutical companies were least likely, and retail fell in the middle (Tompkins Supply Chain Consortium, 2012).

Figure 5 lists the value-added services commonly offered to clients by 3PL companies, and the majority of the large international 3PLs are capable of providing most or all of these services. While third party firms offer a range services and logistics assets, Langley and Capgemini (2015) point out that a long-running annual study of the 3PL sector has consistently found that 3PL-client relationships are not moving into higher value-added areas. On the contrary, the study has found that the most likely logistics activities to be outsourced to a third party continue to be those that are “transactional, operational, and repetitive activities [...] while those that are strategic, IT-intensive, and customer-facing tend to be outsourced to a lesser extent” (Langley & Capgemini, *ibid.*, p. 17). The authors report that transportation and warehousing remain the most common logistics functions to be outsourced, echoing Coyle et al. (2002), who more than a decade ago found that warehousing was usually at the top of the list for outsourced functions. The core service offerings of the 3PL market are characterized by commoditization, not

value. One interviewee, the director of operations for a top global logistics contractor, echoed this:

When you do purely warehouse and transportation services, it is to the point where customers are a lot smarter nowadays. It is highly commoditized. So there is a value curve that we try to climb where you are doing more enhanced services. You have warehouse and transportation at the bottom [...] and then you get more into supply chain transformation. We're a 4PL and through an engineering team, [we] look at the entire supply chain and propose projects that will help reduce the supply chain costs. We do that for a couple of big companies right now. (Manager 7)

The move into so-called 4PL service offerings, or fourth-party logistics, represents an effort to distinguish service offerings in a crowded field. Instead of just offering basic warehousing, this firm's strategy was to capture a client and move them up the value curve. For multinational corporations using many 3PLs, coordination among and between these service providers has emerged as a central challenge to an efficient logistics system. Fourth party logistics companies are intermediaries that help client companies manage and coordinate arms-length logistics relationships. 4PLs, also sometimes referred to as Lead Logistics Providers, are usually extremely light in assets and can be thought of as infomediaries (though some 3PLs also perform the activities of 4PLs, as in the case of Manager 7 above, making distinctions imperfect). A recent addition to the landscape of logistics intermediaries are so-called 5PLs, or logistics orchestrators whose goal is to aggregate demand and optimize freight flows across supply chains. In using a 5PL, lead firms can reduce shipping costs by negotiating better rates for bulk shipping volumes (Vasiliauskas & Jakubauskas, 2007).

The central difference between a 4PL and a 5PL is that the former usually has a contract with an individual client to provide logistics systems maximization; whereas a 5PL works with a network of clients—sometimes those that are direct competitors—in a horizontal collaboration. The goal is to capitalize on synergistic relationships between the transportation needs of the different companies in the cluster by optimizing overlapping freight flows in real time using the Internet.

	<u>Domestic and International Transportation Mgmt.</u>
	Cargo Insurance
	Carrier Contracting/Brokering/Freight Payment
	Customs Brokerage
<u>Both – 3PL/4PL</u>	Duty Drawback Processing
4PL/Lead Logistics Provider	Freight Forwarding/NVOCC
Call Centers	Incoterms Management – EXW to DDP
Consolidation/Deconsolidation	Letters of Credit/Negotiable BOLs
Consulting/Process Reengineering	Merge-In Transit
EDI Handling	Multimodal Transportation
Exception Handling	Project Logistics
Financial Services	Transportation Execution
Food Grade/Temperature Controlled	Transportation Network Planning/Optimization
Hazmat Skills	<u>Value-Added Warehousing &amp; Distribution</u>
ISO Certification	Bonded Facilities
Inventory/Vendor Management	Easily Deployable IT and Work Processes
Lean Management Skills	Installation/Removal
Order Management	JIT/Kanban
Pool Distribution/Cross-docking	Kitting/Pick & Pack
Radio Frequency/RFID	Light Manufacturing/Assembly
Security Processes	Order Fulfillment
Sourcing/Procurement Skills	Reverse Logistics
Supply Chain Systems	Subassembly

Figure 5. Third-Party Logistics Value-Added Services and Capabilities (Armstrong & Associates, 2013)

Horizontal inter-firm collaboration coordinated by 5PLs still appears to be a practice in its infancy, and there remains debate over the existence of stand-alone 4PL and 5PL companies, in large part because large multinational 3PLs often provide all of the logistics orchestration activities. One industry report

asserts that a handful of 3PL providers have developed the capacity to provide “single-source solutions to large multinational companies. These Global Supply Chain Managers (GSCMs) can be expected to become increasingly dominate [sic] over the next few years” (Armstrong & Associates, 2013, p. 4). At this stage of maturity, observers stress, value-added services, niche, and relationship management skills are becoming more important differentiators (Diment, 2013; Rajesh, Pugazhendhi, Ganesh, Muralidharan, & Sathiamoorthy, 2011). And Coe and Hess (2013a) identify three areas of contemporary competitive strategies that have emerged among 3PLs: expansion into new geographic areas, diversifying service offerings, and adding new capabilities via mergers and acquisitions.

These assertions, echoing Armstrong & Associates, suggest increasing sophistication and consolidation in the 3PL sector. Yet, as Manager 7 notes in the quote above, his company had only a handful of clients who had moved into these higher value areas—for a leading 3PL, this accounts for a minority of their business. Manager 7’s higher value-added strategy was accompanied by low-hanging fruit strategy: “We chase what we call a slow, fat rabbit that doesn’t know better and you can make a lot of margin, and they get smarter over time, and that’s why you replace them with more slow fat rabbits.” By his own account, though, the existence of “slow, fat rabbits” is becoming increasingly rare, resembling more of a purple unicorn.

There are some signs of movement toward full service outsourced logistics solutions, yet the most commonly outsourced logistics functions have been, and remain, less technology- or knowledge-intensive activities, including warehousing. The different foregoing assessments of the strategic role of contemporary 3PL services highlight the reality that distribution methods and mechanisms are in flux, and significant experimentation is occurring in competitive strategy. The velocity of movement toward the higher value-added, so-called 4PL or 5PL models may be increasing, particularly as e-commerce drives new distribution strategies and cost calculations, but there does not appear to be convergence at this point.

In this stage of product lifecycle for logistics services, Dicken (2011) suggests that process technology—the ability to minimize production costs—becomes increasingly important to competitive strategy. Where might service providers look for cost reduction? Emmett (2005) estimates that in a typical distribution center, 60 percent of the overall cost is labor cost—a striking mandate to warehouse operators to seek creative methods of labor cost suppression. As I'll show, the volatility of demand in consumer product markets, coupled with the competitive pressures of the distribution function of supply chains, has spurred many firms to develop nimble and transitional human resource strategies.

What Bonacich and Wilson (2008, p. 15) termed the logistics revolution is essentially the desire that goods never stop moving, since, following Marx,

“capital not in motion ceases to be capital.” This stylized, and idealized, version of logistics appears both in trade literature and in characterizations of the logistics project from critics. The vision of a smoothly functioning, meticulously timed and coordinated undertaking, though, meets a very uneven and unpredictable landscape of potential disruption. For example, cross-docking is seen as the ultimate form of inventory management, as close as distribution centers can get to goods being in constant motion. In these facilities, goods are unloaded from a container and moved directly to an outbound container without storage. They represent an experiment in workforce deskilling, since they create conditions under which the labor requirement is almost exclusively loading and unloading—among the most labor-intensive and least skilled of warehouse jobs, and very likely to be temp workers.

Commentators point to the “rise of cross-docks” as evidence that the traditional warehouse function is dead. Yet in one of the few available assessments of active facilities, Heaver and Chow (2003) found that because the amount of planning and coordination required to achieve true cross-docking operations, and because of unpredictable fluctuations in the supply chain, most of these facilities fall far short of the aspirational goal. Cross-docks are as close as possible to making warehousing redundant, yet workers at cross-docks interviewed in the course of this research characterized these facilities as “fucking chaos” (Worker 5) and “so chaotic” (Worker 1).

The reality of logistics—actually existing logistics—is a lurching and experimental affair. As logistics consultant Sergio Bologna (2014, p. 2) has said, “Logistics can never be understood from outside the warehouse,” and once you enter the world of the shop floor, the cracks in the veneer become evident.

### **Warehousing and Distribution**

Warehousing forms one component of the “logistics mix,” alongside and linked to transportation, communication, inventory management, and packaging (Ferne & Sparks, 2004). The central function of warehouses and distribution centers is the calibration of production and consumption patterns through an array of different operations. The basic categories of warehouse activities include:

- *Receiving*: unloading goods and preparing them either for storage or transshipment, in the case of cross-docks. This can also include returns.
- *Put-away*: moving goods to their next location within the warehouse
- *Storage*: holding goods until they are needed by the customer
- *Picking*: selecting and assembling orders per item, case, or pallet. This may also include final assembly, labeling, or packaging.
- *Shipping*: preparing orders for shipment and loading goods

Warehousing has been conceptualized largely as a tertiary sector, the demand for which is derived from other nodes in the production network (Hesse & Rodrigue, 2006). Most research on this critical supply chain function has centered on location factors for distribution networks (Bowen Jr., 2008; Bruns, 2010; Cidell, 2010; Melo, Nickel, & Saldanha-da-Gama, 2009); warehousing and distribution as elements of transport geography (Hesse, 2008; Notteboom & Rodrigue, 2008); work process efficiency in warehouses (Van den Berg, 1999);

and ergonomics and health and safety (Garg & Saxena, 1985; Gue, 2009). In the context of supply chain management, warehousing was traditionally treated as a necessary evil that adds a layer of cost into the supply chain without adding value—“transportation at zero miles per hour” (Murphy & Wood, 2007, p. 242). Some argue that the role of warehousing is different today, and that attention to logistics as a strategic competitive tool for supply chains has positioned warehouses as a vital component of the system (Bonacich & Wilson, 2008; Keller & Keller, 2013). This assertion will be explored further in the following chapters, but suffice it to say here that the evidence on the broad acceptance of the value-added role of warehousing is mixed.

Beyond the basic categories of activities that are fairly common across warehouses, the sector can be divided into three subsectors: private, contract, and public warehousing. Private warehouses are those operated by the manufacturer or lead firm itself, and can be thought of as vertically integrated into the supply chain. In contrast, both contract and public warehouses are operated by third parties. The central distinction between contract and public warehouses is the length of the contract between the logistics provider and client company: public warehousing refers to short-term warehousing, usually less than 30 days, and contract warehousing describes agreements lasting more than 30 days (Ackerman, 2009). All of the 3PLs included in this research were contract warehouses.



Bonacich and Wilson (2008) helpfully draw out the connections between the logistics revolution discussed earlier and its manifestations in the warehousing industry, which can be grouped under the headings of product, time, and financial changes:

- Product changes: More items, more customization for clients, shorter product life cycle
- Time changes: Higher inventory turnover, shorter lead times, more frequent store replenishment
- Financial changes: Shortened order-to-cash cycles, which pressures warehouses to streamline data and inventory control

Taken together, broader shifts in supply chain management have ripple effects that come to bear on the warehouse function, changing the pace of work and the fundamental activities on the shop floor. The total cost approach to logistics management increased attention on warehousing's role in reducing costs while maintaining customer service. At the same time, the growth of the 3PL market and outsourcing has accelerated competitive dynamics in warehousing. These forces come together to shape employers' choices and philosophies on shop floors, which center on labor provision and cost. Two strategies in particular bear discussion here: scientific workforce management and flexible labor.

### **The Ghost of Taylorism**

Scientific workforce management was a method of labor process control first developed in the late nineteenth century by pioneering management consultant Frederick Taylor. Under scientific management, the organization of labor in factories was subject to a rigid structure of hierarchy and functional area

classification. The thinking jobs of management were distinct from the doing jobs of nonexempt, largely manual laborers, and the work of the latter were broken into subtasks via a process of scientific time-and-motion studies. These studies sought to rationalize and standardize work processes and eliminate waste.

Dicken (2011, p. 99) sets scientific management within five distinct phases of the development of production processes that can be matched to long-run Kondratiev waves in the global economy: manufacture, machinofacture, scientific management, Fordism, and flexible/lean production. In the current stage of flexible and lean production, communication technologies play an essential role in controlling production processes, but this does not mean that the older processes have been replaced entirely. On many warehouse shop floors, flexibility and leanness are cherished ideals, and new technologies like warehouse management software help coordinate and track the efficiency of inbound and outbound processes with the help of bar-code scanners. But I also found Taylor's spirit lurking in the shadows of many warehouses and in trade literature on warehouse optimization. Manager 3, who operated an in-house pharmaceutical warehouse, put the impetus for scientific workforce management this way:

When you're looking at yourself as a cost center and you have no profitability really whatsoever, [...] it's a never-ending battle, a never-ending continuous improvement focus, all the time you think about it. Whenever I walk out on the warehouse floor, I'm always looking [...] to see, 'Hey what happens if we could do this? Will this save us a step?' [...] They call it leaning out the process. [...] You develop KPIs, or Key Performance Indicators. We would benchmark our productivity for every

one of our employees per hour, for order fulfillment, [...] not only individually but as a crew, as a shift and ultimately as an operation.

In its most basic form, scientific management involves the close monitoring of individual performance on a given task. But once managers have this information, they often desire benchmarks against which to compare workers, teams, or shifts, and an engineer is enlisted to study the labor process individual tasks. Manager 1, who ran a cold storage 3PL, had only recently begun to target productivity:

We've really started looking at [productivity] and picking that apart and with our warehouse management system we can see, we can track what everybody does throughout the day. Based on those scans, we know they went from this point and they did a scan and went from this point and did a scan. But then there is 20 minutes that you didn't scan anything. What were you doing for 20 minutes?

Figure 6 shows general productivity standards in warehousing, though work processes differ depending on the client and their specifications. The large leading 3PLs have industrial engineers on staff to assess warehouse work processes and develop custom standards, and some keep engineers on site full-time to perform continuous review of productivity standards and work processes.

Table 1: Various Productivity Rates		
1	Unloading floor-stacked trailer and sort to pallet	120 / cartons / mhr
2	Unloading floor-stacked trailer onto takeaway conveyor	640 / cartons / mhr
3	Put-away a full pallet into a pallet rack location	32 pallets / mhr
4	Piece picking from carton flow rack into totes using paper pick tickets	184 lines / mhr
5	Piece picking from pick-to-light carton flow rack into totes	260 lines / mhr
6	Piece picking from pod of 3 horizontal carousels with light tree into totes	300 lines / mhr
7	Full case picking using pallet truck and picking from pallet rack floor level onto pallet	29 cases / mhr
8	Full case picking using man-up order picker truck and picking from all pallet rack level onto pallet	134 cases / mhr
9	Full case picking from pallet flow rack onto takeaway powered conveyor using paper pick tickets	600 lines / mhr
10	Full case picking from pallet flow rack onto takeaway powered conveyor using voice technology	600 lines / mhr
11	Full pallet picking using counterbalance truck from bulk floor storage	50 pallets / mhr
12	Full pallet picking using counterbalance truck from pallet rack	65 pallets / mhr

Figure 6. Engineered Labor Standards (Carter & Burgess, 2006)

Manager 26 proudly describes the use of KPIs in his operation:

We really have kind of a tight grip on what goes on, how much everyone's handling, who is performing, who is not. There is nothing, no transaction that happens in the warehouse that we can't tell how long these guys have been between transactions, who touched it last, where was it at last.

In cases where warehouses are tracking productivity, managers I interviewed usually post rankings of employees in public areas, saying that workers like to compare themselves against each other. Managers implement incentive programs for the rankings, alongside punitive processes for those workers whose productivity falls short of the minimum.

Warehouses with lower levels of sophistication do not track productivity closely, though that doesn't necessarily mean they don't lean on workers. Manager 10, in charge of a low-technology 3PL site with multiple customers, said, "We do have a productivity software program in our (warehouse management system) but it doesn't work." Instead, managers in the facility were tracking monthly activity sheets, self-reported on paper by each worker. In cases where managers were unable to monitor productivity with the help of technology, they wished they could—but the lack of "big data" does not seem to interfere with managers' pressure on workers to work faster. At a leading big-box retailer's warehouse, the Team Lead's technology consisted of a clipboard and walking route, with which the Team Lead recorded containers per hour. From a workers' perspective, the harder one works, the more work one is given, so there is a delicate balance between hitting minimum expectations and conserving energy. Worker 1 describes the dynamic in the large retailer's warehouse:

At the beginning of the day you and your partner are assigned a trailer and it's your responsibility to unload that whole trailer and load it into the various different trailers that are going to different distribution centers. [...] If you want to work super fast and knock it out, get it done by lunchtime or one, then you're probably going to get another trailer to do, so its like, ok, or you could take your time, unload it slower, maybe take some little sit-downs in the back of the trailer, behind the cart of boxes so nobody can see you.

The use of extensive, sophisticated labor management systems in this research was more likely in warehouses that rely on direct-hire labor. This evidence reveals that there are two central labor strategies in warehousing: direct-hire workers with high productivity expectations accompanied by monitoring systems,

and fragmented strategies that employ temporary workers and have less monitoring capability. My research suggests, too, that in-house distribution facilities are more likely to have advanced technological capacities. Given the competitive dynamics in the logistics outsourcing market that I presented above, 3PLs have little incentive to invest in innovative technologies.

Instead, employers are reaching back in time to revive scientific workforce management. Indeed, scholars have shown that flexible or lean approaches to supply chain management hearken back, in many ways, to Taylorism (Boje & Winsor, 1993), and that other forms of outsourcing, like call centers, rely on strict productivity standards as the central management tool (Bain et al., 2002). Twenty-first century management on warehouse shop floor looks brings together highly engineered and surveilled standards of labor productivity with the fragmentation of jobs. The infrastructure for this merger is provided through temporary staffing arrangements, where workers may be hired on an hourly basis to perform mere shards of jobs.

### **Flexible Labor in Warehousing**

A growing body of research on working conditions in distribution suggests that the use of temporary labor is common and bound up with employers' targeting of particular marginalized segments of the workforce to create a highly stratified, gendered and racialized shop floor (Bonacich & De Lara, 2009; Ciscel, Smith, & Mendoza, 2003; Gutelius, 2015; Jaffee, 2010; Rowe, 2012). Goods movement

can be highly cyclical, both annually and quarterly, and the extent of variability depends on the market sector served. Managers say it is for this reason that they require the ability to quickly and easily increase staffing levels during peak seasons and reduce them again afterwards, but this does not fully explain the extensive use of temporary workers in the industry. Sheffi (2012, p. 242) paints an optimistic picture of these surges in goods volumes and employment, suggesting that they offer social mobility to low-income temporary workers who “might then be hired full-time if they prove themselves.” Sheffi (*ibid.*) provides the example of UPS, where the internal job markets associated with Fordism continue to function, and job ladders at the company offer long-term, stable, well-paying careers. What the author does not mention, however, is that UPS is covered by a collective bargaining agreement with the International Brotherhood of Teamsters union, who have struggled to hold on to the relatively good opportunities their contract with UPS has provided.

As Murphy and Wood (2007, p. 246) note, “Warehousing is one of two major sources of labor in logistics (the other is transportation), and warehouse employees are often unionized.” In reality, the union membership rate in warehousing and storage has been on a steady decline, falling from 26 percent in 1983 to 6.4 percent in 2014 (Current Population Survey). While the number of unionized workers in warehousing and storage has grown during that period, this relatively small increase has been dwarfed by overall employment growth in the industry (see Figure 7). Industry employment has grown significantly, but unions

were not able to expand their membership nearly as quickly.

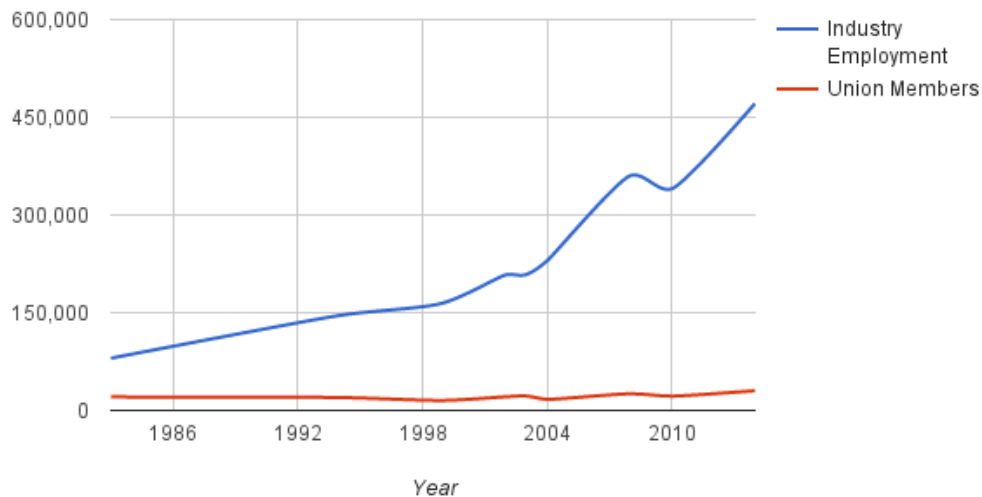


Figure 7. Warehouse and Storage Industry Employment and Union Member Growth, 1983-2014. Source: Current Population Survey.

The collective bargaining agreement that exists between the Teamsters and UPS is rare, and the context of a sector-specific and broader decline in the power of workers' organizations helps set the stage for flexibilization of the workforce. In Chapter 2, I reviewed the particular set of advantages to subcontracted employment, beyond being able to increase and decrease staff size depending on fluctuating volumes, including the ability to lower wages, avoid unionization, and off-load legal and regulatory liabilities. These motivations are unrelated to seasonal fluctuations and reveal a more complex picture of the increasing reliance on temporary staffing arrangements.



Temporary employment is still a small percentage of overall employment nationally, but it is highly concentrated in particular industries—one of which is warehousing and storage. Some of the largest occupations in goods movement are also some of the most likely jobs to be temporary (Bernhardt, 2014; Kilcoyne, 2004): according to the Bureau of Labor Statistics, in 2014 laborers and freight, stock, and material movers accounted for 14 percent of temporary employment nationally. Another four percent of overall temporary employees were hand packers and packagers. Indeed, each of the five most prominent warehousing occupations are included in the top 30 occupations in temporary services, evidence of the extensive use of subcontracted labor across tasks and activities.

Subcontracting has real impacts on outcomes for workers, given the well-documented wage differentials between temporary and direct employees in the same occupation (GAO, 2015; Kilcoyne, 2004; Peck & Theodore, 2007; Segal & Sullivan, 1997). The negative effects of temping can be both immediate and enduring. Kilcoyne (2004, p. 8) concludes that workers in temporary jobs suffer a wage penalty compared to their direct-hire counterparts performing the same work, with clear short-term effects on income, and that “temporary workers typically do not gain any seniority or experience at their jobs,” calling into question the theory of temping as a stepping stone to better employment options. The production and provision of flexibility in warehouse workforces and the implications for workers will be explored in depth below, in the results of a worker survey, and in the following chapters.

## Distribution in Chicago

Distribution is a vital, if often unseen, share of the economy in the Chicago region: the Bureau of Labor Statistics (2015) reports that the Chicago-Naperville-Joliet Metropolitan division is home to more than 238,000 workers in the top five warehousing occupations,<sup>1</sup> making it a significant driver of employment. In Illinois, 3.5 percent of all employment is related directly to freight and logistics activities (Lindsey, LaBelle, Freve, & Beal, 2011).

Occupation (SOC code)	Employment	Hourly mean wage	Annual mean wage	Hourly median wage	Annual median wage
Laborers and Freight, Stock and Material Movers Hand (537062)	108,440	\$13.07	27,180	\$11.29	23,490
Stock Clerks and Order Fillers (435081)	53,810	\$12.54	26,080	\$11.14	23,170
Packers and Packagers Hand (537064)	32,570	\$11.25	23,410	\$9.66	20,100
Industrial Truck and Tractor Operators (537051)	22,320	\$15.27	31,770	\$14.24	29,620
Shipping, Receiving, and Traffic Clerks (435071)	20,360	\$15.77	32,810	\$14.88	30,940

Table 3. Employment in Top Five Warehousing Occupations in Chicago-Joliet-Naperville, IL Metropolitan Division, 2014. Source: BLS OES.

Chicago was originally populated and developed as a 19<sup>th</sup> century logistics hub, owing to its strategic location in the heart of the U.S. continent. Waterways,

<sup>1</sup> The industry classification for NAICS 493, Warehousing and Storage, is imperfect, since warehouse establishments sometimes self-classify in other categories, such as Wholesale or Retail Trade. The occupations listed are the five largest within the Warehousing and Storage NAICS code, though because of the nature of the occupations, not all workers are

railroads, highways and airports clustered in the region over two centuries of development. Today, much of that infrastructure still exists, though some critics might say that it seems as though it hasn't been updated since the 1800s.

Chicago's strategic transportation node, sometimes called the Midwest Empire after California's massive logistics hub, the Inland Empire, remains a critical link in the intermodal system of goods movement, wherein a container can be packed in China and moved from ship to train to truck.

The Chicago Metropolitan Agency for Planning (2012) estimates that "between a quarter and a third of all freight tonnage in the U.S. originates, terminates, or passes through the region," and the Organization for Economic Cooperation and Development (2012) named the Chicago metropolitan area the "continent's premier logistics hub." Across modes of transportation, Chicago's infrastructure stands out:

- Six of seven of the largest railroads in North America, called Class 1 railroads, meet in the Chicago area
- Seven major U.S. interstates intersect
- O'Hare is the nation's busiest cargo airport
- Regional waterways connect both to the Atlantic (via the Great Lakes to the St. Lawrence Seaway) and the Gulf Coast (via the Desplaines River to the Mississippi)

Despite extensive infrastructure assets and a strategic position vis-à-vis the East, West, and Gulf Coasts, deferred maintenance and congestion have threatened Chicago's standing as an inland port. Decrepit rail infrastructure and a legendary bottleneck in the central city and inner suburbs have drawn particular ire, with some estimating that a container travels for 48 hours from California to Chicago,

only to take another 30 hours just to move through the city itself, due to a high number of grade crossings and the shared freight and commuter rail infrastructure (Schwartz, 2012).

Intermodal shipping has gained prominence as a preferred method of goods movement, growing 35 percent nationally from 2000-2013 (CMAP, 2015). This growth is driven by cost-conscious shippers who strive to maximize the use of long-distance rail shipping, which is more reliable, fuel efficient, and cheaper than trucking. Freight movement by truck, in turn, remains the best option for last-mile delivery from the warehouse to a customer or store (CMAP, 2014). The combination of rail congestion, space constraints, and the growing use of intermodal shipping has spurred the development of large intermodal terminals outside of the city, and the geography of warehousing and distribution in the Chicago metropolitan area is changing decisively.

Most of the Chicago region's intermodal rail terminals are on the south side of the city and near-south suburbs, but are hemmed in by other residential and industrial land uses. Expansion of the terminal facilities in these city-proximate locales would be difficult, let alone the ability to build new co-located warehouses as well. Intermodal development has thus moved further south and west, largely to Will County, where two intermodal facilities have been built in the last decade. The developer claims that one of these, CenterPoint Intermodal Center-Elwood,

is the largest inland port in the U.S. (by TEU, or twenty-foot equivalent unit, a unit used to estimate shipping capacity) (CenterPoint Intermodal Center, 2015).

The development of intermodal facilities outside of the city allows shippers to avoid the rail congestion of the central city, and co-located warehouse facilities reduce the cost of drayage, or moving the goods from rail cars to distribution centers. Increasingly, rail traffic is being routed to these new suburban intermodal terminals.

If the state of central city transportation infrastructure is pushing new logistics development further into the suburbs and exurbs, the industry's changing facility profile is an accelerating factor. The space requirements for modern warehouses have outgrown the central city industrial stock and parcel size.<sup>2</sup> First, modern warehouses require higher ceiling heights than older warehouses: in the 1990s, the industry average was 24 foot ceilings, whereas today the standard is 32 feet, and e-commerce is driving ceiling heights even higher (Whelan, 2015).

Warehouse operators often build racking systems, which allow pallets to be stacked to the ceiling in order to take advantage of vertical height and optimize square footage. Second, recent distribution centers also have a much larger footprint, many over 500,000 square feet, reversing the trend toward smaller buildings to accommodate reduced inventories. Most of the existing warehouse stock within the city consists of buildings with low ceilings and small square footage. According to economic development professionals in Will County, it was

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<sup>2</sup> The emergence of same-day delivery of e-commerce goods may well disrupt this model in the near future. Already, as of December 2015, Amazon has leased three central-city warehouses to handle short-turnaround deliveries in densely populated neighborhoods.

only a matter of time before Will County was able to capitalize on the challenges of infrastructure and facilities, undercut Chicago's high price for land and tax rate, and draw development away from the city (Cidell, 2010).

But it is not just a "natural" attraction to infrastructure that has driven the reshuffling of logistics-related activities in the Chicago area. While neoliberal employment regimes like precarious work have been embraced across the United States, Chicago has been a particularly acute case. Chicago witnessed the birth of the temporary staffing industry, and helped shape this organizational form into a major force in labor market restructuring, as I discussed earlier.

Decades later, the temp agency infrastructure pioneered here is advantageous for new configurations of logistics development. Cidell (2010) found that proximity to a low-wage, low-skill labor pool is one central location factor for distribution center operators, and advertisements for logistics parks across the U.S. highlight access to abundant labor as a key selling point. In academic and trade literature, as well as in my interviews, the question of accessing the appropriate labor force is a prominent persistent thread.

The shifting geography of warehousing in Chicago is evident in aggregate employment numbers. Between 2003-2013, employment in Warehousing and Storage (NAICS 493) in Cook County shrank by 23 percent (see Figure 8; employment only includes direct hire workers and the survey is conducted in March, which is typically a season of low warehouse employment, particularly for

retail). DuPage County saw little change over the same period, growing by a modest 3 percent. In Will County, on the other hand, employment in the industry has mushroomed, growing 234 percent and overtaking DuPage County as the second-largest concentration of warehousing employment. During an employment spike in 2012, Will County also outstripped Cook County in overall employment, though the level dropped to just below that of Cook County in 2013.

This trend of logistics development at the geographical margins is projected to continue. Most of the growth in warehousing and distribution in the Chicago region will be concentrated in south and southwest suburban areas (Cambridge Systematics, 2010). The Illinois Department of Economic Security (IDES) projects that the Will County warehousing and storage industry will grow by 5.6 percent between 2010-2020, substantially more than the growth rate of 1.84 percent for the total of all industries in the county (Illinois Department of Employment Security, 2015).

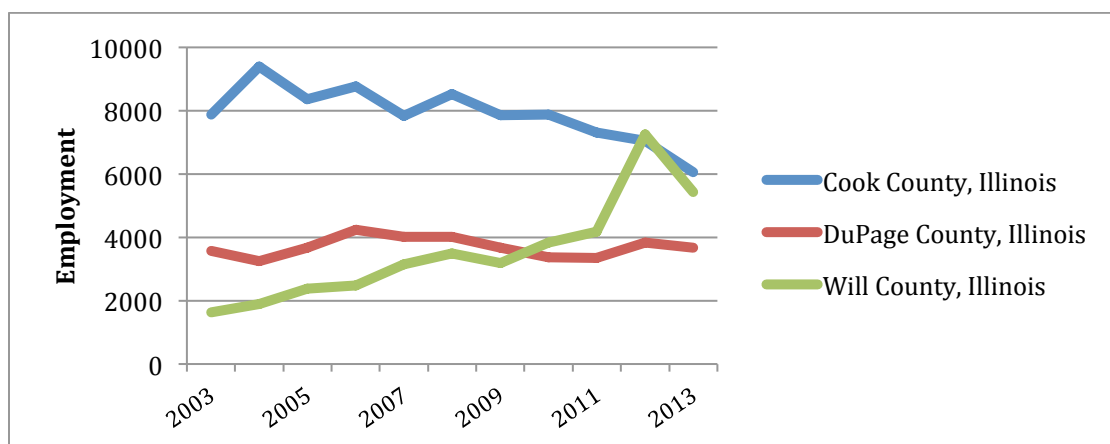


Figure 8. Change in Employment in NAICS 493, Warehousing and Storage, 2003-2013. Source: County Business Patterns.

The Will County logistics cluster is far newer than those of DuPage and Cook Counties, and evidence suggests some significant differences between Will County and older, more established warehousing hubs. For one, analysis of County Business Patterns data shows that Will County warehouses employ significantly more workers per establishment: in 2013, 95 warehouse establishments employed 5,400 workers (an average of 57 workers per facility), while 194 Cook County warehouse establishments employed 6,100 workers (an average of 31 workers per facility). One possible explanation for this is that Will County establishments tend to be larger facilities, a plausible assumption given the motivation for new logistics development in the suburbs has been driven, in part, by the need for larger parcels to accommodate the increasing footprint of retail warehouses. A related explanation is that development in Will County is “a big-box market” (Mongelluzzo, 2010), meaning that large brick-and-mortar stores with a wide array of SKUs, or items, are serviced by these facilities, and this necessitates both a large facility and a greater number of workers to handle those goods.

There is also a significant difference in pay among the three counties. As Table 4 shows, in 2013, the average worker in NAICS 493 (Warehousing and Storage) in Cook and DuPage Counties made roughly the same amount in the first quarter (\$12,665 and \$12,290 respectively—these are gross wages according to County Business Patterns data). In Will County, however, workers earned just \$8,747 in the same period, thousands less than their counterparts in other counties. This



could be the product of more part-time work, a different occupational or industry sub-sector mix within warehouses, and lower wages—but it is a clear indication that the industry takes on characteristics peculiar to the county.

County	Employment	Q1 Pay	Pay Per Worker
Cook	6051	\$76,633,000	\$12,664.52
DuPage	3668	\$45,081,000	\$12,290.35
Will	5434	\$47,532,000	\$8,747.15

Table 4. Employment and First Quarter Gross Pay in Warehousing and Storage (NAICS 493), 2013. Source: County Business Patterns.

The growth of warehousing in Will County, driven by collaborations between real estate developers, rail operators, and a public-private economic development agency, is qualitatively different than DuPage and Cook. The Will County Center for Economic Development has aggressively marketed the area to logistics networks, drawing high profile development projects with large industrial developers. CenterPoint Properties, the premier developer of logistics parks in the U.S., has built intermodal hubs near major U.S. end markets like Chicago, Memphis, and Kansas City. These intermodal hubs are designed for retail and third party logistics, as import and distribution activities are brought together under one roof. Whereas other warehousing hubs might have a mix of co-located firms, Will County's sector is dominated by large retailers—WalMart, Amazon, Target, Home Depot among them—their suppliers, and 3PL service providers.

Joliet, Illinois has been home to successive rounds of industrial development, beginning with the extraction of limestone, first for building local canals and then

for export. By the late 1800s, limestone quarrying was overtaken by the steel industry, and the railroads that serviced the steel mills, coke plants, and foundries employed thousands of workers, especially European immigrants. But the onset of deindustrialization hit Joliet hard as it moved across the Rust Belt. In 1981 the unemployment rate stood at 26 percent, and the city and county foundered for more than a decade. Since the 1990s, Joliet and Will County have experimented with many economic development tactics *du jour*, building a NASCAR speedway, a jail, and two casinos. A planned immigrant detention center was abandoned after fierce local resistance. U.S. Census data show that in the last decade, Will County has experienced explosive population growth, increasing 35 percent between 2000-2010. This made it one of the fastest growing counties in the country.

The new developments in warehousing and distribution have not taken place outside of history, of course, yet new facilities are being built largely on greenfields, displacing the corn and soybean crops that grew there. As Cidell (2010) notes, suburban logistics development is at the forefront both of the shifting geography of global logistics networks and new land use planning for suburban counties. The shift of distribution-related development to the suburbs has brought with it concerns about mono-industry economic reliance, transportation access for workers, and environmental degradation (Bowen & Leinbach, 2010). The isolated nature of the development parks that house massive distribution centers is often attributed to the parcel size needs of modern

distribution centers. Yet as Massey (1985) found, isolation may also be part and parcel of an explicit location strategy that disperses workers, separates them from their communities of residence, and offers a relative lack of alternative employment options. As I will discuss in the following chapters, the spatial configuration of the distribution industry shapes the workforce and its relation to work in the industry.

### **Working Conditions: Results of the First Survey of Workers in Distribution**

Armed with stories from the shop floors, staff of Warehouse Workers for Justice approached local political leaders about the disturbing practices of temp agencies and warehouse employers in Will County. Policymakers were dubious, and suggested that the anecdotes were only evidence of a “few bad apples.” I undertook the survey with Warehouse Workers for Justice in order to test the bad apples theory. Was it true that a handful of employers were treating workers poorly, or were the anecdotes indicative of a widespread phenomenon of low-road employment?

The survey, developed in collaboration with workers and organizers from WWJ, consisted of 42 questions about workers’ current jobs and prior workplaces, if the work occurred in the last year. Survey questions focused on wages, benefits, employment status (temporary or direct hire), and tenure at a warehouse, among other things. Surveys were collected between April and July 2010. In total, 392 workers were surveyed who were working, or had recently worked, at

warehouses in Will, Cook, and DuPage Counties. The dataset includes information from 150 different warehouse workplaces, representing a significant share of the industry.

While they survey successfully captured many dynamics of warehouse work, we were not able to determine whether the distribution center was operated by a 3PL. It is sometimes difficult for workers to identify their employers, given the complicated layers of employment relationships between lead firms, 3PLs, and staffing agencies—a problem common in surveys in which subcontracted workers are the informants (Houseman, 2008). Respondents were asked what name appeared on their warehouse workplace, and we discovered that this is neither a consistent predictor of who owns the goods nor who manages the operations. The survey included questions about the kinds of goods workers were moving inside the building, which revealed that the vast majority of workers surveyed were working in retail and food distribution.

As Table 5 shows, warehouse occupations are staffed by a predominantly male workforce, and just less than one quarter (24 percent) of warehouse workers in the sample were women. The gendered division of labor was revealed in the data, where men are more likely to be loading and unloading containers and driving forklifts, and women are more likely to be clerical workers or quality controllers.

<b>Gender</b>	<b>Percent of Sample</b>
Male	76%
Female	24%
<b>Race/Ethnicity</b>	
African American or Black	50%
Latino or Hispanic	34%
White (Non-Hispanic or Latino)	11%
Mixed race/ethnicity	3%
Arab, Asian, or Native American	2%

Table 5. Demographic Characteristics of Survey Sample

Workers in warehouses are largely minority, despite the racial makeup of the area. Census data on Will County reports that just 11 percent of the population is Black, and 16 percent is Hispanic or Latino, but a full half of the workers in the sample were African American, and 34 percent identified as Hispanic or Latino. Eleven percent identified a white or Caucasian.

Data from the survey documented, for the first time, the extent of flexibility in the distribution center workforce. Temporary agencies play a central role in providing warehouse labor, and the vast majority of warehouse workers in the southwest suburbs of Chicago—79 percent—find employment through temporary agencies. Figure 9 shows the change in temporary staffing employment in the three counties; temping exploded in Will County between 2003-2013, growing a staggering 351 percent, while employment in temporary staffing shrank in both Cook and DuPage Counties (County Business Patterns, 2014).

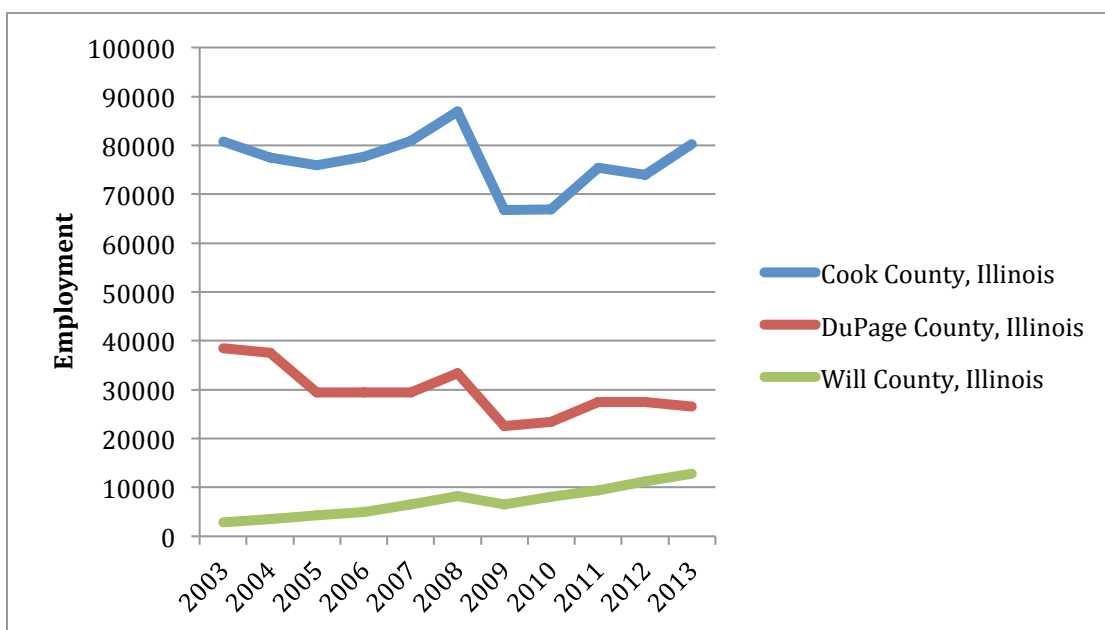


Figure 9. Change in Employment in Employment Services (NAICS 5613), 2003-2013. Source: County Business Patterns.

Distribution center operators pursue a mix of strategies when it comes to temporary workers. In addition to the argument that temporary workers are necessary in order to adjust to seasonal volume fluctuations, temp agencies are reported to be effective in screening employees before they are hired on directly by a company—a process known as “Try it before you buy it,” in the words of Manager 26. A minority of firms appears to rely on the temporary staffing industry for this role, reflected in the fact that just 23 percent of temporary workers were later hired directly by the warehouse operator. A three-month probationary period is typical, though not guaranteed.

Not only were a small number of workers initially hired on directly, but workers stayed on as temps. Sixty-one percent of workers remained at their job through

an agency, and over half of these workers (57 percent) had been at the same job for more than three months at the time of the survey. Of those that remained on the job through a temp agency, almost a quarter (22 percent) had been working as a temp for over a year at the same warehouse. At the same time, the data suggested churning and high rates of turnover—30 percent of workers surveyed reported having worked in two or more distribution centers in the last year. The warehouse employee turnover rate tends to be significantly higher than averages across other industries: Min (2004) estimates that warehouse and distribution turnover rates at the entry level often exceed 20 percent, compared to a median of 8.4 percent across other industries. Other sources suggest that turnover rates are far higher in the industry, closer to 75 percent (Autry & Daugherty, 2003; Cullen et al., 2010).

These statistics point to two different types of “perma-temp” employment relationships. In the first, typical explanations for the need for temporary workers in warehousing and distribution—seasonal fluctuation and a way to screen potential employees—do not account for the high number of long-term temp workers. The long tenure of these contingent workers in the same warehouse (though not always remaining with the same temporary agency) suggests that temporary staffing services are replacing direct hire workers, not for functional or temporal flexibility but to realize labor cost savings and regulatory flexibility. Other scholars have documented the phenomenon of workers who end up in a perma-temp position, where the responsibilities of their position are similar to

other coworkers who may be permanent employees but their wages and benefits reflect the a well-documented gap between temps and direct hire employees (GAO, 2015; Henson, 1996; Peck & Theodore, 2007).

On the other hand, high rates of turnover, combined with the prevalence of temporary jobs leads to a different type of long-term contingent employment relationship. Instead of being a temporary employee in one warehouse for an extended assignment, these workers move from warehouse to warehouse, churning through an array of workplaces one short-term contracts, unable to find direct-hire jobs. The combination of a string of fleeting temporary jobs and the challenges to securing direct hire employment lead to the second type of perma-temp condition, where the career trajectory entails a succession of precarious jobs, punctuated by periods of unemployment and underemployment.

Overwhelmingly, warehouse workers desire a direct hire job: when asked in the survey, a full 96 percent of workers said they would prefer a direct-hire, permanent job over a temp job. Just 4 percent of workers said they prefer temp jobs. This stands in stark contrast to the theory of the temporary labor market that suggests it is workers choosing to be temps that creates a pool of flexible labor.

Bringing this information together, we know that this is a predominantly African American and Latino workforce, a significant number of whom are women,



employed in unstable jobs in the far reaches of global supply chains. Insecurity is inscribed into the DNA of the distribution function. It is where so much volatility in product demand resides. Yet the problems in working conditions are not just instability or contingency. This is also a story about wages and labor cost.

	<b>Percent</b>
Below IL Minimum Wage (< \$8.00)	1%
Below Poverty Line (\$8.00-10.59)	60%
Low Wage (\$10.60-15.86)	30%
Living Wage (\$15.87+)	8%

Table 6. Hourly Wages Earned by Warehouse Workers

The bulk of workers (60 percent) earned less than the federal poverty line for a family of four, of \$10.60 per hour (Table 6). The majority of warehouse workers were paid low wages, but a substantial pay gap exists between temps and direct hires, even while the survey found no significant differences in job tasks between temporary and direct employees. Temps in the survey earned a full \$3.54 less per hour than their direct-hire counterparts (Table 7). This figure tracks with differentials between temps and direct hires at the national level (Peck & Theodore, 2007). The wages reported in the survey were significantly lower than wages reported by official data, which can be explained by the exclusion of temps from these data sets. The median direct-hire hourly wage in the survey was \$12.54, which tracks the BLS estimate of \$12.46 and reflects the earnings of only direct-hire workers.

	<b>All Workers</b>	<b>Temp Workers</b>	<b>Direct Hires</b>
Median Hourly Wage	\$10.00	\$9.00	\$12.54

Table 7. Hourly Wage Description of Warehouse Workers

In addition to a significant wage gap between direct hire and temporary workers, there is also a benefits penalty. Paid sick days, vacation time, and health insurance were far more likely to be offered to direct hire workers: 57 percent of direct hires had access to paid sick time and 75 percent had paid vacation, while just 4 percent of temps could call in sick and still be paid, and only 7 percent could take paid vacation. Health insurance was almost universally offered for direct hires (92 percent), but just 37 percent of temps had company-sponsored health insurance (the survey was fielded prior to the enactment of the Affordable Care Act). Furthermore, most temps did not actually use the health insurance offered through the temp agency because they found it too expensive.

The results of the first survey of warehouse workers revealed the extent of low-road labor strategies in Chicago's logistics sector. What local industry boosters suggested was an isolated dynamic turned out to be, in reality, a common labor strategy of temp work, low wages, and insecurity. These patterns across the industry beg for a deeper dive into the forces converging on Chicago and the conditions of possibility that are necessary for the industry's operation, tasks I turn to in Chapters 5 and 6.

## Conclusion

Major shifts in supply chain management and logistics competitive strategies come to ground on warehouse shop floors. The aspirational goals of lean logistics are operationalized in various ways, but questions of labor figure prominently in the logistical chokepoint of the distribution center. Flexible labor and scientific workforce management are two components of labor strategy central to the creation of working conditions in warehouses, and the conditions described here are evidence of intense pressure to implement effective labor control and to constrain costs.

The goal of this chapter was to begin to describe the landscape of change within logistics as a supply chain strategy as well as in the competitive dynamics of the warehousing industry in the Chicago region. These dynamics, set amidst profound changes in the nature of work in the United States, are critical to understanding the structural forces shaping economic development at the local scale. Coe (2014, p. 11) points out that “many logistics workers find themselves caught in a ‘perfect storm’ of globalisation, the fragmentation of production, new logistics technologies and neoliberal deregulation of both labour markets in general and the transport industry in particular.” In the center of this “perfect storm,” as I’ll explore in the next chapter, are two central driving logics of the warehouse function that serve as causal tendencies in the development process.

## Chapter Five: The Driving Logics of Distribution

### New Spatial Logic?

The geography of distribution is changing, pushing further away from metropolitan cores toward their fringes (Bowen, 2008; Cidell, 2010). Location decisions must balance proximity to metropolitan areas with their relative advantages of skilled labor, infrastructure and technology (Hall & Hesse, 2012), and real estate costs and land use planning provisions (Dablanc, Ogilvie, & Goodchild, 2014). Many scholars are trying to make sense of the geographical shifts in distribution, and some evidence suggests that the locational logic is no longer derivative of the production function, where warehouses were located based on suppliers or customers (Rodrigue, 2006). Hesse (2007, p.8) goes further, suggesting there is a “new spatial logic” of freight, the source of which is not place-based at all but derives from the firm’s place in the overall network:

Logistics increasingly functions as a driver of spatial economic development by freeing itself from traditional local and regional integration structures or by dynamically transforming them... The growing choice of locations in former border regions or peripheral vacant spaces reflects a decline in the locational ties of enterprises and a new spatial logic.

Restructuring across space, though, as Massey (1985) argued, does not represent decreasing linkages to place. Many commentators point out that the congestion of central cities is antithetical to the continuous flow ambitions of modern logistics—the friction of urbanity fundamentally disrupts the utopian logistics project. Yet as Cidell (2010) notes, warehouses still need to be within a reasonable distance from end markets, and proximity to transportation

infrastructure speeds the delivery window. Access to appropriate real estate for the desired characteristics of facilities has always been a central concern, and labor factors heavily into the siting process.

Hesse (2007, p. 9) muses that it may be possible that logistics possesses “its own functional logics and spatial relations,” though admits he is unsure to what extent this is true. But the question he poses is appropriate, and this research picks up where Hesse left off: in suggesting that firms do, indeed, contribute to the production of locations, in ways that derive from network position—but there’s more. My research on warehousing and distribution suggests that the warehousing function plays a particular role in the supply chain that represents more than the sum of the activities performed inside of facilities. As the role of logistics as a component of lead firm competitive strategy has shifted, so has warehousing as a constituent part. I argue that the driving logics for warehousing are twofold: to *maintain flexibility* and to *shift risk*, from lead firms and from the product market to the labor market. These logics are produced by a confluence of pressures: the changing strategic role of logistics as a whole, increased trends to outsource and the crowding of the 3PL market, competitive dynamics, and the nature of modern supply chain volatility and risk; and they are shaped by the key factors of success in logistics: speed, reliability, and flexibility (Dicken, 2011). The present chapter focuses on the nature of these trends, but the other piece of this equation lies in the conditions of possibility created in place—this is the subject of the next chapter.

For clarity, defining the key terms employed here is useful. *Flexibility* refers to the organizational capacity for adaptation in the context of fluctuating market conditions, the sources of which I discuss below. Organizational flexibility is most often located in human resource strategies and consists either of functional or numerical flexibility, or internal and external strategies, respectively. As discussed in Chapter 2, internal flexibility relies on cross-trained employees and overtime to meet volatility; whereas external strategies enlist workers outside of the organization, often via labor market intermediaries.

Supply chain *risk* comes in many shapes. Yeung and Coe (2015, p. 13) specify five forms of risk that affect the competitive dynamics of firms:

Economic (e.g., shifting market or technological conditions); product (e.g., brand damage associated with quality and other issues); regulatory (e.g., shifting rule regimes); labor (e.g., struggles over wages and conditions); and environmental (e.g., pollution or natural disaster).

Risk also includes forms of regulation within the supply chain, including compliance with responsible contracting agreements, corporate social responsibility mandates, health and safety, human rights and animal welfare, and labor. Both endogenous and exogenous forms of risk are unevenly distributed across any given supply chain, and lead firms use various methods to shift risk away from their own sphere of responsibility. As Holtgrewe et al. (2009, p. 1) suggest, there is a symbiotic relationship *between* flexibility and risk-shifting: “Through value chain restructuring that goes beyond the boundaries of individual

work organisations, demands for flexibility are distributed along the chain.

Companies and organisations attempt to externalise it and to pass on risk and cost to others where possible – and not least to workers.” While the authors were mostly referring to suppliers in manufacturing, the same principle appears to hold true for logistics.

### **Dynamics of Distribution**

In interviews with employers, I got a sense of the magnitude of the exacting demands on warehouses and distribution centers—some managers found this dynamic a key part of the thrill of the job, while others expressed frustration. The competitive pressures of supply chains are on the rise, while warehouses are consistently looked to as sites of cost savings. Consider this excerpt from a manual entitled *World Class Warehousing*:

Under the influence of e-commerce, supply chain collaboration, globalization, quick response, and just-in-time, warehouses today are being asked to

- Execute *more*, smaller transactions
- Handle and store *more* items
- Provide *more* product and service customization
- Offer *more* value-added services
- Process *more* returns
- Receive and ship *more* international orders

At the same time, warehouses today have

- *Less* time to process an order
- *Less* margin for error
- *Less* young, skilled, English-speaking personnel
- *Less* WMS capability

I call this “rock and a hard place” scenario the plight of the warehouse manager. Never has the warehouse been asked to do so much and at the same time been so strapped for resources. (Frazelle, 2001, p. 4, emphasis in original)

The author usefully summarizes the “plight of the warehouse manager.”

Expectations of what warehouses should deliver steadily multiply amidst mounting resource constraints. Despite the insistence of some trade literature, there is evidence that warehousing remains a relatively low-value supply chain activity, one that is considered a necessary evil. This depends, of course, on the actual activities taking place inside of a facility, but in a perfect logistics world, distribution centers wouldn’t exist—if multinational corporations could figure out flawless just-in-time execution, warehouses would be unnecessary. As Manager 17 puts it, “[3PLs] are the third leg that nobody wants... we are the cost center.” The very existence of warehouses is premised on an unrealizable dream of perfect just-in-time, prompting the drive to squeeze out as much inefficiency and cost as possible. Just as value-added is distributed unevenly along the supply chain, so too are flexibility and the drive to shift risk. In large part, this is due to asymmetries of power. Concentrated in the hands of big retail chains, shippers or freight forwarders, the dynamics are strongly hierarchical (Hesse, 2007).

Building on the industry landscape I began to lay out in Chapter 4, here I want to flesh out two dynamics of distribution in particular that contribute to the creation of the driving logics. I’ll first explore variability, or what *Supply Chain Digest* (2007, p. 10) called “the Achilles heel of long supply chains,” before diving deeper into the competitive dynamics of outsourcing in this sector, including procurement practices.



### **Variability: Forecasting, Demand, Weather**

The amount of variability in supply chains presents major obstacles for warehouse operators, whose facilities must absorb a tremendous amount of fluctuation while keeping costs low. This volatility takes various forms: for example, mistakes in forecasting or production, fluctuation in consumer demand, or the impacts of weather on goods movement. Consider Manager 16's description of the variability that he responds to:

BG: It fluctuates that much day-to-day?

Manager 16: Yes. My business does. It hinges on what's coming at me. We do a lot of import container business, so it really depends on the weather. This past winter played a huge role. Things come into the east coast mostly, some west coast, some down through Canada, and but depending on the railroads, all these containers come off, get loaded on trains, and shipped out. So if there's any delay or breaks... the Chinese New Year, we know when it hits, we're gonna have a little break in the action, because they take off for that time. Nothing moves. This past year, with the weather and the winter we had, it's really affected cargo movement. The railyards were inundated, it was a mess. It was very difficult to predict what's going to come at you, but when it does, it's hitting you hard. It's a kink in a garden hose: nothing's coming out and then all of a sudden someone frees it up and it comes flowing out [...] suddenly you have 20, 30, 40, containers looking at you and you've got 24-48 hours to get them unloaded.

Manager 16 runs a multi-client 3PL facility, largely dealing with food and grocery items. For warehouses involved in food or retail distribution, inbound goods often arrive in import containers coming directly from China. A container travelling more than 7,000 miles to a distribution center outside of Chicago encounters many potential disruptions, some manmade and some natural. The so-called "polar vortex" in 2014, to which Manager 16 refers in the quote above, caused

major delays in goods movement. According to the Journal of Commerce (2014), that weather event created “some of the worst congestion customers have seen,” as electronic rail switches froze and the engines of semi trucks refused to turn over. I interviewed Manager 26, who runs an in-house furniture distribution operation, while a labor stoppage in the Los Angeles/Long Beach port was looming. He said they were very concerned about the impact of the potential of a longshoremen’s strike on their inventory levels, particularly just before Memorial Day, when furniture sales see a spike. The ripple effects of disruptions near and far take their toll on warehouses.

Variability can also be present in the form of mistakes or lack of sophisticated planning tools. Manager 27, who runs a dedicated 3PL warehouse (meaning the entire facility served one client) for a leading industrial equipment manufacturer, described their client’s forecasting capacities: “Each month we get a forecast from our customer that says you’re going to receive X amount of weight. Sometimes that forecast is right on the money, other times it can be off by 40 percent.” Particularly for 3PL warehouse operators who rely on their clients’ forecasting capability, predictable scheduling of inbound and outbound shipments is only as accurate as the client’s system. In cases where warehouse work processes require some training and skill, the problems of inaccurate forecasting and labor planning become even more pronounced. Manager 27 lamented that because of facility-specific labor processes that require employee training, “it’s not as though we can just say give us 20 more bodies today.” The

3PL's ability to meet customer service levels is severely constrained by their own customer's planning capacity on the one hand, and supply chain specifications on the other.

There is an immense amount of trade literature concerning technologies that allow for more accurate forecasting and "visibility" of goods in the supply chain—a central dimension of the aspirational visions of logistics. Reading it, one might be tempted to think firms have well-developed predictive capacities, and that perhaps in the case of 3PLs, forecasting failures are a matter of communication between the lead firm and logistics provider. This is certainly true in some cases. But the example of Manager 19, who runs a large in-house distribution center for a leading U.S. retailer, suggests other dynamics at work. When she started at the company in 2012, the forecasts she was provided for the amount of goods the facility would receive were regularly off the mark. Operationally, this meant Manager 19 had to "just see what's next, what the appointments are for the next day and staff to that. [It was] very, very cumbersome." The company had so little ability to predict inbound shipments that the warehouse could only staff for the following day. She continued:

So we started [...] asking questions. We have containers coming from abroad. At least we know 20 days in advance what's coming. So somebody in this organization should have [that] information, [and] we need to make it [visible] to the DCs. Now we have a report that gave us all that visibility. How many containers are leaving, how many are in transit, in the port. We have seven different statuses. So that will help us very much.

Recall that this was in 2012, many years into what has been a revolution in technology, and at a leading retailer whose revenue that year was more than \$13 billion. The state of technological adoption is very uneven across the warehousing industry, and forecasting software continues to be a neglected area of innovation. This has direct impact on warehouse managers' ability to plan for staffing levels, and may well increase the use of temporary staff on shop floors. The manager of a 3PL e-commerce distribution center for a top U.S. retailer reports:

The thing that we have a real difficult time with now that we try to get better and better with is labor planning. A lot of it is driven by inaccurate forecasting. We are trying to work very closely with [our client] to see that they don't use a little bit more scientific manner to come up with forecasts. (Manager 9)

It appears in Manager 9's case that the subcontractor is attempting to help the client firm upgrade—a reverse dynamic than what is typically accounted for in global chain literature. But given how much this capacity affects the success of Manager 9's operations, and thus directly impacts the odds for retaining the 3PL contract, it is in the 3PL's best interest to do so. The dynamics of this relationship proved to be an anomaly: Manager 9's 3PL was a relatively small player in the field and the client firm is a large U.S. retailer, with over \$15 billion in sales. The 3PL had managed to retain the logistics contract with this client for more than 10 years, despite regular RFQ competitions. This suggests a higher level of integration between the two companies, even though the client firm continued to judge the 3PL against its competitors by making it re-bid for the contract, and may explain the 3PL's efforts to help their client improve business processes.

Another dimension of variability is the result of major consumption seasons.

Retail firms experience dramatic peaks in the fourth quarter, leading up to the November and December holiday season in the U.S. Manager 9 describes the annual cycle in his 3PL e-commerce site:

The real challenge for us is because this is a retail model, the order cycles are about the same as they would be for a store, so we're fairly level for the first three quarters of the year and then all the sudden [in the fourth quarter] we are almost hundred times what we would do volume wise. We flex in a tremendous amount of labor, which creates its own set of problems. The system is built for less than that capacity. So we do things that circumvent the system and do things manually as much as possible to continue to get as much out the door as we can. We have about eighty dedicated employees and probably around another hundred temporaries right now, and that can blow up to about nine hundred people in the fourth quarter.

In this quote, Manager 9 indicates a shocking level of fluctuation to meet year-end consumer demand, but this is not a rare case for retailers. Manager 11 echoes this, saying that “we can run our [...] packing department with 80 associates [for most of the year]. During fourth quarter we go up to almost 500.” Even though the fourth quarter peak is predictable variability, it presents major challenges for staffing.

Many retail distribution centers see their volumes grow substantially in the fourth quarter, but other peaks and troughs occur throughout the year depending on the market segment served. In theory, 3PLs can reduce the amount of volatility they experience by mixing clients with different peak seasons in a single multi-client facility. Manager 1 manages a cold storage 3PL facility:

When we're running right, we're pretty much steady, because we have a mix of about 20 customers and they all have their ups and downs that very rarely line up. So we stay pretty level. About 18 months ago, we got into a bind and we had a hellish amount of overtime. We were working 16-hour days, six days a week. And the reason for that is because we were too full. If you get more than 90 percent [of space in the warehouse] occupied, you get gummed up. That's the danger when that volatility just explodes: the place will gridlock up and there's trucks everywhere and people can't move and people are quitting and you can't hire people fast enough."

The warehouse that Manager 1 describes is fairly rare in its ability to smooth out peaks over client, a point I'll return to below. But first, it's worth looking briefly at the cause of the predicament the manager described. The facility was forced by offsite corporate management to take on a new client when the 3PL company won a contract to migrate multiple sites from another provider into their own. Manager 1's facility, however, was running low on space capacity. Worse still, the new client's projections for the amount of goods they would store at the facility were wildly off, another example of unsophisticated tracking systems in distribution companies. This site is one of the few in my sample that is staffed almost entirely by direct hire workers, though the manager was forced to hire temps during the high volume time he described. Under normal circumstances, he uses overtime instead of temps.

While a handful of other multi-client 3PL facilities are able, to some extent, to spread out peaks and troughs over different clients, in reality, it's very difficult for 3PLs to build sites with multiple clients whose peak times occur at different points of the year. Clients' desires for particular locations, size and space constraints at facilities, and the types of goods being moved all limit the ability to plan multi-

client warehouse sites around maintaining steady volumes. As Manager 29, who runs a multi-client 3PL site, says of volatility matching among clients:

I think it's more of the second or third thing we look at, rather than first... The first thing is space... Afterwards you go, okay here is where we want to put it, but they've got [...] a huge fourth quarter peak, and we've got this customer and this customer already in this building that have huge fourth quarter peaks, it might be more advantageous to move this one over here where this building has a third quarter peak or a second quarter peak.

These managers' discussions of the relationship between forecasting, volatility and facility-level planning highlight the disjuncture between the vision of smoothly running, technologically advanced logistics strategies and on-the-ground operations. Across the distribution sector, facility managers struggle to be responsive to variability and uncertainty—some of it avoidable and some not. Warehouses absorb the lion's share of variability and volatility of the supply chain—and in some cases, corporate dysfunction and lack of sophistication.

A high level of flexibility, then, becomes paramount to warehouse operation—as Frazelle (2001, p. 1) advises, “Flexibility is the key to success in warehousing.” Flexibility here, though, must not be taken to mean only a normative description of employers' needs, as dictated by the market. What firms desire in flexibility often amounts to a great to of *in*flexibility for workers. Sayer and Walker (1992, p. 198) warn against “ideological slippage between description, prediction, and prescription which masks the vital political issue of the different interests at stake—whose flexibility, and in whose interest?” As Chapter 6 explores in detail, the motivations for flexibility do not lie solely in the market, and as we've seen

already, in many cases volatility is the result of inefficient, unsophisticated approaches to logistical organization. Moreover, the achievement of flexibility requires extensive institutional and social infrastructure. Flexibility describes an operational desire, fundamentally connected to cost, and thus becomes a desire for labor market flexibility. This flexibility, in turn, is a central mechanism for shifting risk out into labor markets (Peck & Theodore, 1998).

### **Competitive Dynamics of Outsourcing**

Fragmentation is a key feature of transnational production, both in terms of geography and organizational structure (Coe & Hess, 2013b; Gereffi et al., 2005). Across many industries, subcontracting or “fissuring” (Weil, 2014) shields lead firms from legal and moral responsibility for conditions in their supply chain. The organizational structure of the distribution industry is built to shift risk away from lead firms: the sector is highly fragmented, and the rise of 3<sup>rd</sup> party logistics companies have introduced multiple layers of subcontracting. Weil (ibid., p. 17) underscores that in fissured business networks, “Lower-level businesses typically operate in far more competitive markets than those of the firms that shifted employment to them, often with negative consequences on employment conditions.” While Bernhardt (2014) cautions that we should not assume subcontracting will produce negative impacts on working conditions, the warehouse shop floor is shaped by a range of factors that do, indeed, tend to produce suboptimal outcomes for workers.



As the last chapter detailed, the competitive dynamics of warehousing have shifted with the growth of 3PLs that are, as one industry analyst put it, “known for their expertise in doing more with less” (Fowler, 2013, p. 1). The decision to outsource warehouse functions to a 3PL, a frequent topic in trade literature, is framed as one based on perceived core competencies, desire to capitalize on external expertise and resources (including automation and technology, value-added activities, and customer service), and as a strategy to cut costs and avoid labor problems, regulatory costs, and capital expenditure (Craig, 2000; Selviaridis & Spring, 2007). But as discussed in the previous chapter, 3PLs are mostly being contracted to perform transactional processes, and while they offer higher value-added services, client companies tend not to make use of these services. On the contrary, as Vitasek et al. (2015) argue, the industry has reached a state of over-commodification, despite the fact that 3PLs provide services that are not commodities but require customization, to varying degrees, based on firm-specific needs. The authors point out a paradox: users of 3PLs say that they seek innovation and value-added services, yet believe that warehousing and transportation are commodities differentiated only on price. Manager 4, echoing this, expresses the intensity of competition in the 3PL market:

I mean in today's day and age and our third party logistics market, the only way to stay competitive is to continuously evolve and continuously challenge [...] our clients' operations. If we can't deliver something new and innovative on a continuous basis [that will] save our client money, we're going to be replaced. There's 3,000-plus of our types out there.

The over-commodification of the 3PL industry results in cost assuming a central role in firm differentiation; indeed, becoming the main competitive driver. In

interviews with both 3PL warehouse operators and users of 3PL distribution services, respondents emphasize the importance of cost savings when moving to a third party provider. Manager 29 describes the importance of cost in vying for contracts: “When we're competing for RFPs [...] nine times out of ten if we lose it's because someone else outbid us. So pricing is probably the key factor everywhere because it drives all the businesses.” With pricing such an important predictor of winning 3PL contracts, it's not surprising that underbidding is one common aspect of the competitive landscape. Manager 29 continues:

Companies underbid all the time. No company, no 3PL is going to be able to eat the cost for very long. But they will [...] underbid so that they can get that business, and then about a year into it they come back [to their client] and go, “Here is your rate increase,” and then that customer is going “Whoa, what?” We used to have a big electronics customer and they went out for an [RFQ when the contract was up]. We quoted on it, thought we were going to get the business back and we got undercut big time. That customer is now with somebody else because the 3PL [that won the contract from us] went back and raised their rates completely and [the customer was] like, “Nope, see you.” And they paid the check to get out of the contract and went with somebody else. I find it very shady but then again you get what you pay for. If it's too good to be true, and they promise you the moon, you've got to look into it. You've got to understand why they're bidding that low.

Manager 29 asserts that there are some 3PLs that are known for low-balling bids in order to get contracts, and then attempt to raise rates with the client companies later on—this is their competitive strategy. These companies, usually large, multi-site 3PLs, use what some call the “Amazon” competitive model of accepting losses at some sites in order gain market share, then later attempting to recoup without losing the contract. This, according to some managers, carries a real risk of backfiring. When I asked Manager 29 if he could tell me which

companies were known for this practice, he hesitated, then said:

The main one I can think of right now is [Company A] Logistics. As a matter of fact, they're the ones that underbid for that [electronics] business of ours big time and they [came in] with 100 percent temporary staff. Then came back in a year later and started to raise the rates.

While the analysis of whether to outsource is often framed as a multifaceted process weighing many factors, this discussion suggests that in many cases the question is more straightforward: cost is the central driver of contracting out in warehousing. Manager 29 highlights one method of cost suppression in the quote above: the use of temporary staffing agencies to supply low-cost labor. This indicates that in the context of extreme cost sensitivity and the predominance of labor outlays in the cost of warehousing, labor becomes the object of intense attention. Manager 9 told me, "When you look at warehousing and distribution, you got two buckets, really: you got the space bucket and you got the labor bucket. And the bigger of those two by far is the labor. So, that's what is going to drive it." Manager 9 delivers a stark dichotomy about competitive strategy, one that echoes industry analysts who suggest that 3PL outsourcing is almost solely about reducing labor cost. Mark Wulfraat (2015), a logistics and supply chain consultant, puts it this way, using the example of food distribution:

Quite simply, many grocery retailers view the 3PL management fee as an incremental expense that can only be justified if there is an offsetting warehouse labor expense savings. In order for this to be the case, the 3PL must either run a more efficient distribution operation than the retailer, or the 3PL offers its workers substantially lower wages and benefits than the retailer. It is the latter scenario that is driving the outsourcing trend and today we have a very different management mindset that is being driven to a great extent by labor strategy... The fundamental driver causing grocery retailers to outsource distribution center operations is unquestionably labor strategy.

Wulfraat characterizes the decision to outsource in two simple options: 3PLs must either operate a facility more efficiently or find ways to cut labor cost. Grocery retailers, he suggests, embrace 3PLs that opt for the latter; and in my own sample, this dynamic was pervasive, including but not limited to grocery retailers. Outsourcing allows lead firms to transfer both the cost and risks associated with human resources management, including regulatory compliance with workers compensation, payroll taxes, and health and safety laws, as well as responding to changes in the minimum wage and other employment laws.

Outsourcing warehouse operations to third parties takes two general forms: a dedicated site that serves one major client, or multi-client facilities that distribute products for multiple customers. A particular advantage for multi-client facilities is the ability to use the same workforce for all of the clients. Manager 3 put it clearly: “When you’re a 3PL, that’s how you survive, you [have] a shared workforce. ... You could have sections of your building [for different clients], and you have shared labor resources.”

Manager 4, who operates a 3PL facility for a large chemical manufacturer, details some of the cost savings offered by switching to contract logistics, and one process in particular through which these savings are achieved:

Outsourcing to a 3PL is a cost savings opportunity for pretty much any type of business out there. Plus we deliver a specialized skill set. And usually the labor rates go way down. That's another big one. A lot of [warehouse workers] were working there for the clients and you got forklift

drivers [...] making \$30 an hour and they're still moving a product on a pallet from point A to point B. I really wouldn't rank that as a \$30 an hour job.

BG: What would you rank that as?

I'd say that's probably somewhere between a \$13 to \$15 an hour job, depending on skill set. So we'll come in and bid the business for what we think is right. There's definitely an initial cost savings rate there, big, [in terms of] base labor wages. But usually it's a changing hand from one to another, rebranding process so to speak—most [workers] stay the same, and get a new company: “Hey you used to be [with the client company], now you're with [the 3PL].” Then through that process a lot of times the management is turned over, because that may have been where the problem was, or some of the associates but for the most part [staffing] stays the same.

Third party logistics firms offer the opportunity to reduce workers' wages while retaining the same, or a similar, workforce. When this 3PL provides their quote to the client, they bid for what they “*think is right*.” The suggestion here is that the employer's own choice about the price they can pay workers carries a moral position as well—what is the right versus wrong wage for a worker. This, in turn, shapes the normative effects upon labor markets of the philosophy of outsourcing, driving down average wages to improve a contractor's odds of winning clients. From the workers' perspective, this dynamic represents a bait-and-switch. I asked Worker 11 to tell me about the best warehouse job he'd had, of the roughly ten facilities in which he had worked. He described a 3PL facility where he began as a temp and, after 90 days, was hired on. The job offered benefits, periodic raises, and incentives for productivity (Employee of the Month) and non-absenteeism (giveaways of paper towels, tissue, cups, spoons). At the end of two and a half years there, he was making \$12.85. But the 3PL lost the

contract, and a new provider took over operations of the warehouse with the same employees in place. Worker 11 said the new 3PL was far stingier in terms of wages and benefits than his old employer. He didn't care for the new management—"I wasn't really vibing with everybody"—and left not long after. What had been a relatively good job in the eyes of Worker 11 changed overnight.

Manager 4 explains that the biggest impact in cost savings occurs when a client firm initially hires a 3PL. Subsequently, when the contract with the 3PL is expiring, client firms often open up the contract for re-bidding, and many interviewees noted the churning of 3PL contractors through firms as they underbid one another. The third party logistics sector is characterized by short-term contracts, and some contracts themselves contain exit clauses that allow client companies to terminate their relationships if key performance indicators aren't met (Ackerman, 2009). As one 3PL manager said, "Contracts are only one to three years out. Three years is good" (Manager 4). And, from the other side of the table, a manager at a client firm said, "We had [the 3PL] re-bid the business every couple years or so, just to keep the pencils sharp" (Manager 1). In this second turnover of 3PL firms, the impact on wages is less pronounced, but the dynamic creates mounting pressure to continue to find ways to reduce costs and improve efficiency and productivity. Here, the calculation of value in warehousing is revealed: in how much *less* a 3PL charges to do the same work. It is in this context that labor productivity and scientific management, described in Chapter

4, come to the fore. As Manager 9 said, the on-site labor process engineer can help find “where you can squeeze those extra pennies from.”

Pure cost often a central component of firms’ competitive strategies, but other dimensions emerged in the course my research. When asked about competitive niche, the responses of managers I interviewed included transportation (either their own fleet of trucks or brokerage), information, and innovation. Often, 3PLs combine strategies, like the case of Manager 17’s firm:

We have our own global transportation, the whole nine yards, technology, we can go across the board with your company, anywhere in the world, we can take care of you. We’ve become bigger in Canada, throughout the U.S. That’s the added value we add. The other value: we are non-union.

The value niche of Manager 17’s company is comprised of the ability to provide international warehousing and technology-enabled transportation services by the same firm, buttressed by strong anti-union ethos. In another warehouse, the manager describes their competitive niche as “labor-intensive processes” (Manager 16), and the labor strategy reflects this focus: every frontline worker in the warehouse, even forklift drivers, is a temp. Only the handful of supervisors are employed by the 3PL itself. This is a self-professed union avoidance strategy, with twofold benefits: containing costs and reducing the risk of a labor stoppage. An entire chapter of the *Practical Handbook of Warehousing*, titled Labor Relations, is dedicated to describing how to maintain a union-free warehouse (Ackerman, 1997). One of the central risks highlighted in the chapter is the threat of strikes and other disruptions that unionized warehouses make more likely.

### **Eggs and Baskets: Risk Aversion in Subcontracting**

A popular phrase throughout interviews with managers was to avoid “putting all of your eggs in one basket.” This held throughout layers of subcontracting in the industry: for client companies’ strategies of spreading contracts among more than one 3PL; for 3PLs balancing their own business across multiple clients; for warehouse operators contracting with temporary staffing agencies; and for temp agencies providing light industrial workers to warehouse clients. Similar to the practice of diversifying an investment portfolio, the universal explanation for this phenomenon was spreading risk. But for clients contracting with 3PLs and warehouses contracting labor providers, an additional benefit was to induce competition to keep contractors on their toes. For example, Manager 8 oversees regional operations for a large client firm that used multiple 3PLs in different facilities. He said in response to a question about why his company uses more than 3PL provider, “How do I know you are motivated to do a good job for me? I can benchmark the two competitors to each other.”

Many firms combine in-house and subcontracted logistics across their supply chains. One interviewee, who oversees national distribution operations for a housewares retailer, reported that his firm uses a total of 26 cross-docks, only six of which are owned and operated by the lead firm. When I asked why the company split its business between vertically-integrated and outsourced activities, Manager 12 explained that it is dependent on two factors: governance and the market. He went on:



When I say governance, you'll see Canada being one area [where] a lot of people don't want to run [their own warehouse]. Or if you're truly international, you know if you're, you have a store in Singapore. You don't want to have to mess in that space, because you're not the expert [...] you should rely on the experts, because the amount of time it's going to take you to be an expert versus paying someone that is an expert is usually not cost friendly. And the risk, too because the legal liabilities and the insurance risks and all of those other things, [it's] much more cost friendly to pay someone else to take that risk.

In this scenario, what the manager calls governance—but could also be understood as local variability—is a risk to the viability of the company. This sentiment echoes Aoyama et al. (2006), who suggest that logistics services is an industry that remains reliant on locally-specific knowledge. This holds true not only for knowledge of international distinctions, but also to differences in state and local laws, labor market norms, and other forms of place-contingent knowledge. Manager 12's company uses at least two leading international 3PL companies to run warehouse operations for them in the U.S., but he said it depends on the market, and that they also contract with “mom- and pop-type shops” in some places. If a smaller 3PL presents particular opportunities in a market, he explained, this competitive advantage outweighs the additional risk to the client company for being a small, less-known company.

The ability of firms to adapt to locally-specific laws and norms is one aspect of the outsourcing equation. Manager 12 went on to explain that in locations where the number of brick-and-mortar stores does not create enough volume to justify an in-house warehouse, they contract with a 3PL to manage distribution:

It really depends on how much presence you have in the marketplace, how much need you have to get to the customer, and who is there already [in terms of 3PLs]. Is there someone there that is up to our standard that can do the job for us, [who] we can trust to do it? And it's actually cheaper for us then in the long run.

Manager 12 helps provide nuance to the question of outsourcing, and the multiple factors that firms use to guide subcontracting decision-making. Cost remains the central driver, but geographically-specific expertise and density of the final market for goods are also important factors. At the same time, 3PLs are assumed to provide superior levels of flexibility—yet a counter-dynamic to this was revealed in my research. There are some cases in which 3PL subcontractors might be *less* able to deal with supply chain volatility than an in-house distribution shop. In considering a sudden spike in volatility, Manager 3 says that,

3PLs can't react to because they [...] have limited resources because they're trying to be a profit center, so they don't apply a lot of resources when needed. Where[as] in our [in-house distribution] environment, we would have no problem justifying added resources and getting them if we need it. And we can make that decision locally. 3PLs are a different animal.

This quote suggests that the competitive dynamics of 3PL warehousing introduce perverse incentives: 3PLs might be less able to deal with the very volatility they are meant to absorb because they are focused on creating profits. When there is a spike in inbound freight that requires more workers to unload containers, for example, Manager 3 contends that a 3PL might be hesitant to bring on the necessary labor power for fear of cutting into profits. Understaffing the warehouse can lead, in turn, to customer service failures, evident in inaccurate

shipments, damaged product, or other inventory problems. This represents one of the of major contradictions in the industry: the laser focus on cost actually inhibits flexibility and innovation, the precise things firms purportedly seek through processes of externalizing. Holtgrewe et al (2009, p. 4) found this dynamic to be pervasive in their study of 58 cases in 14 countries, saying, "Responsiveness and innovation thus inevitably require organisational slack [...] in contrast with the business process reengineering view that seeks to reduce or externalise that slack as much as possible." It's a strategy that is contradictory to the underlying logic of efficient supply chain management, but also illustrates the impetus for degrading working conditions in firms.

As I discussed earlier, the effects of the competitive dynamics enumerated above are not limited to the 3PL sector. Through my interviews with warehouse managers who run vertically integrated facilities, it became clear that in many cases the in-house facilities are under pressure to perform distribution activities as well and as cheaply as 3PLs. The threat of outsourcing keeps managers keenly aware of their facility's performance. When asked why her company, a leading children's retailer, keeps all of its distribution in house despite the well-developed 3PL market, Manager 19 replied:

Because financially we still are very competitive. We're still a business that it's better financially to do it ourselves, at the expense that we carry, than if we outsource. And that's one of the challenges that we have, that's what we've been engrained [with]: we need to remain competitive. We need to do constant improvement.

Manager 19 feels the pressure of the possibility to outsource the warehouse

operation, and with it, her own job. Even when distribution is kept in-house, managers perceive that they are competing against a parallel 3PL market. For those lead firms that outsource a share of their distribution activities, the use of 3PLs allows subcontractors to compete directly with the in-house operations. Firms are trying to gauge whether or not to subcontract logistics activities, including but not limited to distribution. Testing multiple strategies of in-house versus subcontracted warehousing is a key indicator of the extent of experimentation occurring in the industry. Manager 8 explains the rationale behind using a mix of in-house and outsourced distribution:

If I stay in the distribution business, I've got a feel for what is going on. I also know [if] there is trouble in the 3PL world, [or] let's say, some new laws come out, [and now] people who are being paid lower need to be paid a lot higher, or the 3PL decides they are going to go belly up. There has been an interesting mix of that lately. I've seen consolidations going on. I've seen some go out of business, I've seen some go out and maybe they tried some innovation that didn't play out the right way. So, if I am going to put all my eggs in the 3PL basket and that doesn't work out, now what do I do? The other thing I've heard is, if I stay in the distribution business, then I've got more touchstones so I can see what my gain does and I know what the key indicators for performance would be, now I can use that as a benchmark against the 3PLs. Conversely, I can use the 3PL's performance as a motivator for my gain.

Manager 8 highlights two central reasons for the dual strategy. One is risk aversion, where a firm avoids putting all of their business with one provider (a pervasive strategy across distribution, which I discuss at length in the following chapter), in the context of a volatile market where mergers and acquisitions are increasingly common and where the risk borne by 3PLs may prove too much. The manager highlights wage increases in particular as an element of risk. The second reason is so that direct comparisons of in-house and subcontracted

logistics can be made. Intensifying competition in the 3PL sector is not contained in the subcontracting market; instead, it has clear spillover effects that serve to shape the entire distribution market.

One final motivation for outsourcing emerged in my interviews. Here, Manager 15 describes his firm's process of deciding whether to subcontract distribution activities to a 3PL:

I know our accounting department, our CFO here, they've studied [the costs and benefits of 3PL outsourcing], and from what they can determine and reported to me, it doesn't cost us really anything more to use the outside facility. Again, a lot of it has to do with the relationship that has been built over the years, service level they provide us, [...] and a lot of the labor they handle. So it is not people, whether it is fulltime employees or temp labor or whatever, in our books, it is just that monthly or weekly fee that we are paying for handling those products.

The manager is suggesting that contracting with a 3PL allows lead firms to abstract the cost of labor. Individual workers no longer appear on the books, but instead are represented by the lump fee paid to the 3PL or staffing agency. Manager 28 told me that “a lot of companies get so focused on head count, so oftentimes if you outsource, even if it costs more, it's not heads, somehow it's easier to justify that cost.” Part of the calculus of outsourcing, then, is to erase what employers see as the liability of workers and to transform headcount into a single, opaque line item. This abstraction plays a crucial role in disciplining 3PLs to deliver high levels of service to the client firm, unloading to a contractor the unpleasant task of leaning on low-paid workers to deliver more. Manager 19, who is now running an in-house retail distribution operation, had worked in the past

for a leading 3PL company. She described to me the impossible position she'd been put in as the manager of a facility whose contract did not adequately cover the cost of labor, and the stress and discomfort she felt at having to treat her employees so poorly. The manager alluded to the fact that it was legally impossible to deliver the services required by the customer for the budget she'd been given.

This dynamic suggests that it is not only that it is cheaper or more efficient to use 3PLs. It is also the case that lead firms know that a certain ruthlessness in distribution is a prerequisite to deliver the flexibility and risk shift that drive this function. The question of whether distribution is part of a firm's core competencies becomes, in part, a question of whether the firm is willing and able to engage in the unpleasantities that accompany extreme cost-conscious warehousing, which present their own reputational risks in the form of brand recognition. Manager 19, for one, isn't cut out for the kind of stress that results from the impossible demands of the client firm on the 3PL, saying, "I experienced [managing a] 3PL. I hope I never have to go back." (Manager 19 was one of two female managers I interviewed, and expressed by far the most compassion for workers in her facility, and those of the 3PL at which she had previously been employed.)

Vitasek and her colleagues (2015), a group of supply chain professors, consultants, and practitioners, paint a grim picture of the trend of unreasonable

risk-shifting from supply chains to 3PLs, and their paper is worth discussing at length. Supply chain organizations, the authors report, often require 3PLs:

to sign unlimited liability clauses as part of standard contracting agreements that legal often views as 'non-negotiable.' These same agreements will also contain unilateral open ended indemnity provisions in favor of the [global supply chain] so that the entire risk associated with handling their product from beginning to end falls only on the 3PL (Vitasek et al, 2015, p. 7).

These provisions are often not revealed until the final phase of the selection process, and represent an unsustainable business approach for 3PLs. The undue absorption of risk by 3PLs constitutes to a race to the bottom, where firms that attempt to operate above board find themselves competing on uneven footing with less scrupulous 3PLs. A dramatic story captures this dynamic:

One cynical 3PL even created a subsidiary to "house" a bad client that had shifted too much risk onto it. The rationale? In the event that risks actually came to fruition, the subsidiary could be shut down, allowing the primary business of the 3PL to remain intact and ensuring the [global supply chain] would not be able to collect damages from the 3PL under the contract (Vitasek et al., 2015, p. 11).

As risk is displaced from lead firms to subcontractors, the latter create new instruments of shedding their exposure. Vitasek and her coauthors argue that the roots of the problem in the industry today lie in a change in the way supply chains procure 3PL services. Instead of users of 3PL services being centrally involved in the purchasing of logistics services, the procurement function in many supply chains is being concentrated in off-site "commodity managers," who leverage the power of their organizations to create a cutthroat environment and negotiate stringent, short-term contracts with service providers. Commodity managers

create hyper-competitive bidding wars among 3PLs for contracts, evident in a story Vitasek et al. (ibid., p. 13) recount in their paper: “One firm’s procurement group got a reputation as the Pit Bulls of Procurement. One of the Pit Bulls openly admitted, ‘I used to know I was doing a good job when I had the vendor naked, bleeding, and crying at the table.’” The result of this is increasingly commoditized 3PL services, where cost comparisons are based on price per transaction (e.g., cost per pallet touched) and the notion of value is confined to expense containment.

On the other side of the table—the ones bleeding and crying—are 3PL sales departments. The relationships between different departments of 3PLs, namely sales and operations, exacerbate this unfortunate dynamic. Manager 19 had previously worked for a 3PL provider and offers this explanation:

The problem is the sales group doesn't make it easy. The sales guys go and to get the account, [they say], “We can do that and we're going to make it. We'll put a bow [on it].” And then they'll go back to you and say, “This is what I promised [the client].” There's no way I can do it at that cost! Figure it out. And that's, in my perception, the problem. To get the customer, sales guys [promise] everything, but then they leave operations to die [without the resources to carry out the work].

This tension between 3PL sales personnel, who are paid on commission for each contract they land, and operations managers, who are bound by the terms of the contract, was echoed by other managers who worked for 3PLs. Clearly, this increases pressure on 3PL managers to deliver under difficult cost constraints. The purchasing practices and expectations for service by lead firms—particularly the expectation of more for less—are driving risk downward through production



networks and ultimately, via labor contracting, out into labor markets (Barrientos, 2013). But based on my research, the competitive dynamics of the 3PL sector are not confined to subcontracted logistics functions. These circumstances increase pressure for managers of vertically-integrated warehousing, since they are competing against unrealistic contracts, not the actual cost of delivering the necessary services.

In applying the tripartite GPN concepts of value, power, and embeddedness to warehousing, multiple asymmetries become apparent. Value creation, capture and enhancement are qualitatively different in logistics services than in production, and tend to be shaped by competitive dynamics that flow down from lead firms. Without demand for value-added services, 3PLs compete in highly competitive and commoditized markets, with lead firms that empower their procurement departments to negotiate devastatingly strict contracts full of offloaded risk. In the low-cost segment of the 3PL industry, the assumption of risk by 3PLs is exerting a gravitational pull downward and this, in turn, has spillover effects in the competitive dynamics in the warehousing sector more broadly. Flexibility and risk shift are dependent upon power dynamics between firms—the amount of power held by an organization determines whether, and how, they will enroll subcontractors and organize the procurement process. Power asymmetries shape contractual agreements, which instead of allocating risk to the organization best equipped to manage it and compensating said organization accordingly, tend to push risk off to the lowest bidder. The desire to reduce costs,

as opposed to create new forms of value, drives contracting decisions, and embedded actors at the local scale are steeped in these extralocal forces.

Undergirding the logics of flexibility and risk shift, regional clusters of distribution activity have a symbiotic relationship with clusters of temp agencies. A firm's territorial embeddedness is shaped by these connections and the extensive infrastructure of temporary staffing agencies so critical to the functioning of the industry. In terms of network embeddedness and inter-firm relations, connections with other nodes of the supply chain vary, but there is a downward gravitational pull exerted by the competitive dynamics of the 3PL market. Echoing Sturgeon's (2002) findings that trust is not the only method of ensuring the performance of subcontractors, it is not necessarily relations of trust that characterize inter-firm connections in logistics, but tightly driven contractual obligations.

## **Conclusion**

A broad characteristic of the 3PL industry is that, due to its position as a provider of what clients see as commoditized services, managers are innovating by looking backward. Drawing on scientific labor management, managers attempt to engineer and enforce labor productivity improvement, alongside labor subcontracting. Instead of investing in technology or capital improvements, companies tend to invest in ways to squeeze ever more work out of the bodies of workers. As Bensman (2008, p. 15) has observed, "The availability of low-cost labor discourages capital investment, reduces the incentive to coordinate links in

the logistics chain, reduces demand for skills and skill development, and raises the burden that freight movement imposes on the public.”

Yet it's not just the availability of low-cost labor that sets conditions of possibility for these dynamics. Commoditized logistics services denote a dehumanized, anti-social input that functions regardless of place. Instead, logistics services provision, densely populated by transportation and warehouse workers' bodies, are inherently socialized phenomena, one where the asymmetrical production of power, value, and embeddedness are processes struggled over, not given. While I've focused in this chapter on the dimensions of competition deriving from the supply chain, this is not to suggest that it is only these dynamics that produce outcomes in place—this chapter cannot stand alone.

In the quote at the beginning of this chapter, Frazelle (2001, p. 4) sketched the plight of the manager: more and more is demanded of the warehouse with fewer resources. But the dilemma might be better termed the plight of the warehouse worker. Through processes of transferring risk and flexibility, it is the front-line workers who feel the pressure of being caught between a “rock and a hard place.” In the next chapter, I'll discuss the mechanisms through which flexibility and risk-shift are deployed: extensive labor subcontracting and fragmentation, competitive hierarchies, and processes of shaping an “appropriate” labor pool. The form taken by each of these dynamics, however, is shaped by the local conditions that warehouse managers encounter, and is neither a smooth nor

uncontested process. The right workforce isn't simply encountered in the world: it must be produced.

## **Chapter Six: Mechanisms of Flexibility and Risk-Shift: Shaping Labor Markets and Workers**

The “fissuring” of the workplace, as described by Weil (2014), consists of an initial fracture of the employment relationship and subsequent layers of fragmentation. The discussion in Chapter Five of the subcontracting dynamics in warehousing introduced the initial fracture of the industry. In the present chapter, we move to the next layer, which is closely bound to 3PL competitive strategy: labor subcontracting. The VP of sales for a temp agency told me in our interview that the demand for temporary workers in warehouses is “way up,” driven by 3PLs that “have to use temp labor.”

Media accounts of labor strategy and working conditions render remarkably flat the landscape of difference in warehousing. A series of exposés of warehouse working conditions have appeared over the last five years, often penned by reporters who go undercover on the shop floor (McClelland, 2012; O’Connor, 2013; Soper, 2011; Thompson, 2013). The story lines are eerily similar each time, even across different national geographies: wages hover around \$9 or \$10 an hour, people take on second jobs to make ends meet; health and safety are risked for productivity; and flexibility, particularly during peak season, is extreme. The toll warehouse work takes on the bodies of these journalists is emphasized.

Reading these revelations, two conclusions can be drawn: that warehouse jobs are, across the board, bad jobs; and that these bad jobs are the same,

regardless of where they are located—even across national borders. Yet labor strategy in warehousing is not a monolith: evidence from the worker survey reviewed in Chapter 4 shows that while most of the jobs are low-wage and temporary staffing agencies play a central role in labor provision, there are direct-hire jobs that pay a living wage, offer benefits, and provide routes for advancement. Interviews with workers and employers, too, have produced evidence of a range of jobs and approaches to work organization. The media exposés have been critical in raising awareness of working conditions in a long-invisible industry, but take for granted the existence of a suitable warehouse workforce—low-cost, compliant, and productive. The following examination reveals new configurations of capital-labor relations, extensive experimentation, and the labor market-making that is the joint work of the warehousing and temporary staffing industries.

In Chapter Four, I introduced some of the broad reasons that the use of temporary staffing solutions is seen as a rational response to the dictates of modern employment. Re-examining this human resource strategy in light of the discussion on the driving logics of warehousing reveals that temp agencies are doing more than simply matching labor supply with warehouse demand. "Temp agencies," write Peck and Theodore (1998, p. 661), "provide a new institutional medium through which to transfer the shocks of fluctuating product demand out into the margins of the labor market." As the central mediators between the local labor market and the supply chain, temp agencies are effectively delivering a

mechanism through which to shift uncertainty from the supply chain out into communities. It is only by shifting this risk that temp agencies are able to deliver the flexibility for which warehousing is so hungry. By utilizing temp agencies, warehouse operators avoid a number of issues tied to being the employer of record, including responsibility for costs like payroll taxes, insurance, and workers comp. In a fast-paced, highly competitive industry with largely manual labor processes, the risk of health and safety issues looms large. Workers are admonished to lift with the legs and to turn instead of twist, but the dictates of productivity often stand in direct opposition to ergonomics. Temporary staffing labor strategies provide a medium for the transfer of this risk, evident in logistics consultant Ken Ackerman's (2015) blunt advice: "Using staffing-service employees is one way to hedge the risk that warehouse employers will be sanctioned for noncompliance with government regulations regarding employment." This chapter explores the mechanisms through which staffing agencies provide the infrastructure for supply chains to touch down in Chicago: Temp Hierarchies, the "Magic Ratio" of direct hire to temps, the so-called "Temp Mentality" that exists among workers, and the Myth of a Job Ladder. The chapter concludes with a deep dive into gender on the warehouse shop floor.

### **Temp Hierarchies: Inter-Agency**

The prevalence of temporary staffing arrangements in Chicago's distribution industry is hard to find in official data sources—a central reason Warehouse Workers for Justice wanted to undertake a survey of workers. The survey

revealed temporary work to be widespread: 79 percent of workers accessed warehouse jobs via a temp agency. But it's not only that a given warehouse manager relies heavily on temp agencies for their labor needs. The arms' length employment relationships grow increasingly complex as *multiple* temp agencies are contracted within a warehouse, a dynamic observed in in subcontracted human resource strategies across many industries (Smith & Neuwirth, 2008). Echoing the finding that firms avoid putting all of their eggs in a single 3PL basket, warehouse managers report the need to spread labor contracts to a number of different temporary staffing agencies, in a process of extensive fragmentation. The dynamics for 3PLs and temporary agencies, though, are different. When multiple 3PLs are hired by a lead firm, they normally operate under different conditions—in distinct locations, buildings, or goods handling. This makes one-to-one comparisons between discrete distribution operations more difficult, given the number of factors of variability between specific sites. Using multiple temp agencies in a single site, however, encounters few of these comparative challenges, and allows client firms to pit contractors against each other in ruthless competition.

As I'll show, firms use more than one agency for three central reasons: inducing competition to improve responsiveness and/or price, expanding the potential labor pool, and reducing the risk of service failure. Inter-agency competitive dynamics are arrived at through processes of iteration and experimentation. The light industrial temp sector, which provides workers to manufacturing and



warehouse workplaces, operates on very thin margins in a highly commoditized and competitive market segment. These temp agencies compete against each other mainly on price, since the demand for workers is largely manual, low-skill labor, and this provides powerful inducements across the temp sector to maintain low wages (Theodore & Peck, 2002).

Depending on the management of the warehouse itself, three contracting scenarios are evident: some temporary agencies are contracted directly by the GPN's lead firm (e.g., a big box retailer); some by the 3PL that manages the warehouse; and others enrolled through layers of subcontracted temp agencies. In most interviews, warehouse managers reported that they contracted with multiple agencies structured in a hierarchy of preference.

BG: How many temp agencies do you have?

Manager 16: I use two. Other companies use several, I've used several over the years, and we've gone through agencies that haven't worked out well. I have a good relationship with the two agencies I use, and everyone's under the understanding that if I'm not provided adequate labor, I'm going to find someone else, and use someone else. So everyone is aware of that, it's not a secret. Don't fill someone else's order—I want my order. I just had the conversation today: I ran into a situation today where [...] they dropped the ball. They didn't fill part of my order, so my response was hey, it's the day before a holiday weekend, short week, I got things that have to happen today, must happen, no excuses whatsoever. But you're dealing with people, and I understand that. So that's when I pick up the phone and call my other agency and say, "Can you fill this order?"

Manager 16 had experimented with many different agencies, sometimes using more than two at a time, until he found the right number and kind of temp agency partner. This sentiment was not uncommon in conversations with employers,

evidence of a process of iteration to arrive current labor strategy. When Manager 16's preferred labor source was unable to fill his order, he simply contacted his second agency—effectively penalizing the provider for not producing the correct amount or type of workers at the right time. Another manager told a similar story:

BG: Why do you use two agencies?

Manager 18: Because you don't want all your eggs in one basket. At our Bolingbrook facility six and a half years ago, the agency got in trouble with the government. We lost 70 percent of our workforce in one day!

In this quote Manager 18 describes how he learned the lesson to not have all—or in this case, most—of your eggs in one basket. The risk of regulatory noncompliance—the agency had been reprimanded by the Illinois Department of Labor—resulted in a massive service failure for his preferred agency. The manager went on to explain the conversation he had with his preferred provider, in which he said he had no choice but to seek the workers from a competitor. This second agency was able to fill his order for 100 workers, and was promptly promoted to premier status. Having multiple agencies with active contracts reduces the risk that the urgent demand for bodies goes unmet.

One temp agency manager suggested that his agency competed not solely on price, but were known for their access to and screening of a higher quality workforce, an attempt to differentiate based on product. In fact, he said their markup rates were slightly higher than other temp agencies, and his pitch to buyers of temp labor usually involved convincing warehouse managers of the longer-term benefits of higher-quality temps. For managers whose only concern

was price, though, he could rarely win the contract—it was impossible to compete in the lowest-cost segment with markup rates just one or two points higher. These extremely cost-conscious clients, he reported, sometimes use RFP processes in which the sales staff's only task is to negotiate the lowest rate, and they are rewarded with bonuses calculated by the variance between bids. But the fact that this agency owner was able to compete in the 3PL market, his main source of business, confirms that there are workforce strategies that do not rely solely on lowest-cost equations.

There is also a delicate balance between splitting your business among subcontractors and concentrating enough business with one provider so that you can take advantage of economies of scale, or in the words of one manager, “leverage your spend.” Manager 8, for example, explained that his 3PL company has, in the past, had contracts with 12 different temp agencies at once. The 3PL went through a process of whittling down until they were dividing their business between five national providers. Similarly, a senior manager at a large national 3PL (Manager 7) said that four years ago, they did business with 131 temp agencies across the country. After an intensive process of rationalization, the 3PL contracted with three national agencies. He describes that each of the three agencies offers a particular niche: one very low-cost, one “middle of the road,” and one higher-cost. The low-cost vendor issued them a price increase one year into their contract, which the 3PL granted, but the provider gets very little of their business. The high-cost vendor doesn't provide any added value for the price,

according to the manager. The middle-cost temp agency is their preferred partner and gets most of their business, which makes Manager 7 nervous, and they retain contracts with the others “just in case.”

Manager 7 also said they keep very strong liability language in their contracts to avoid any question of co-employment with their three national agency providers. Some managers are very careful about the possibility of legal liability arising from co-employment, while others did not express concern in interviews. Manager 11 oversees national distribution operations across many facilities, but also seems like a micromanager, getting involved in day-to-day operations at particular sites (including, incidentally, interviewing warehouse associates who were caught stealing from the site, the latter of whom universally said they felt justified in their theft because of the low quality and wages of the job). In terms of joint employment, Manager 11 is very deliberate in skirting employment law:

Just because you have a temp associated with your name per se, doesn't mean you're any less value added to me. [...] We try to treat our temps like a regular [direct-hire] associate, but there is legal bounds within that [sic]. Like you know you can't, there's certain meetings you can't invite a temp to, there are certain things you can and cannot do. The other thing is legally we can't work our temps more than 1,000 hours because then you start to get into a benefits issue where [...] they really should be a [direct-hire] associate because they're working like a [direct-hire] associate, they've been here enough time. So we keep temps to 1,000 hours and then at that point we either have to convert them to a [direct-hire] associate, or we let them go.

When I asked Manager 11 what happened if a really good temporary worker was reaching their 1,000-hour mark, but they couldn't increase their direct-hire headcount, he reiterated that they would let the temp go. He qualified it by saying

he would recommend to facility managers that they fire current direct hire workers who were underperforming in order to replace them with the “good temp” (Smith & Neuwirth, 2008). The limit on the number of hours a temp can work is part of the company’s strategy to avoid the appearance of co-employment.

A complex web of temporary staffing arrangements is prevalent in distribution, but not solely due to competitive dynamics. State-level regulatory change has also induced tinkering in labor strategy. The Illinois Day and Temporary Labor Services Act (IDTLA), passed in 2011, was the first state law in the country that aimed to curb the abuses of staffing agencies. The law increased the ability to hold client companies responsible for the conduct of their subcontractors, in much the same way that campaigns for ethical supplier agreements have tried to extend accountability through the supply chain. The law includes a requirement that agencies register with the state Department of Labor, and abide by employment standards like providing employment notices that detail the terms of work, pay stubs outlining wages and deductions, and timesheets recording work hours of employees. The law also requires that workers who are dispatched to a worksite but, upon arrival, told there is not work, to be paid a minimum of four hours. The IDTLA created a framework for legal action for workers rights organizations and legal clinic infrastructure to enforce, and indeed those groups were instrumental in passing the law. The IDTLA is a form of re-regulation from below that makes use of lawsuits and organizing to compel compliance with state-level legal intervention. The interaction between the regulatory framework,

firms, subcontractors and workers reveals a shifting landscape of power and employment relations.

The multiple layers of fragmentation among 3PLs and temp agencies induce competition among subcontractors, a critical dynamic for a cost-conscious industry. Figure 10 maps the subcontracting relationships at a major big-box retailer's million square-foot distribution center. In 2011 there were seven different temp agencies utilized by the 3PL operator of the retailer's warehouse; two years later only two of these agencies remained. The high rate of temp agency turnover is evidence of the acute dynamic of competition and reveals the fundamental instability of warehouse labor strategies. Spreading temporary agency contracts among multiple firms is a risk aversion strategy that encourages firms to compete on price and disciplines them when they do not deliver. These dynamics are not confined to relations between agencies, but are also reflected within temp agencies as well.

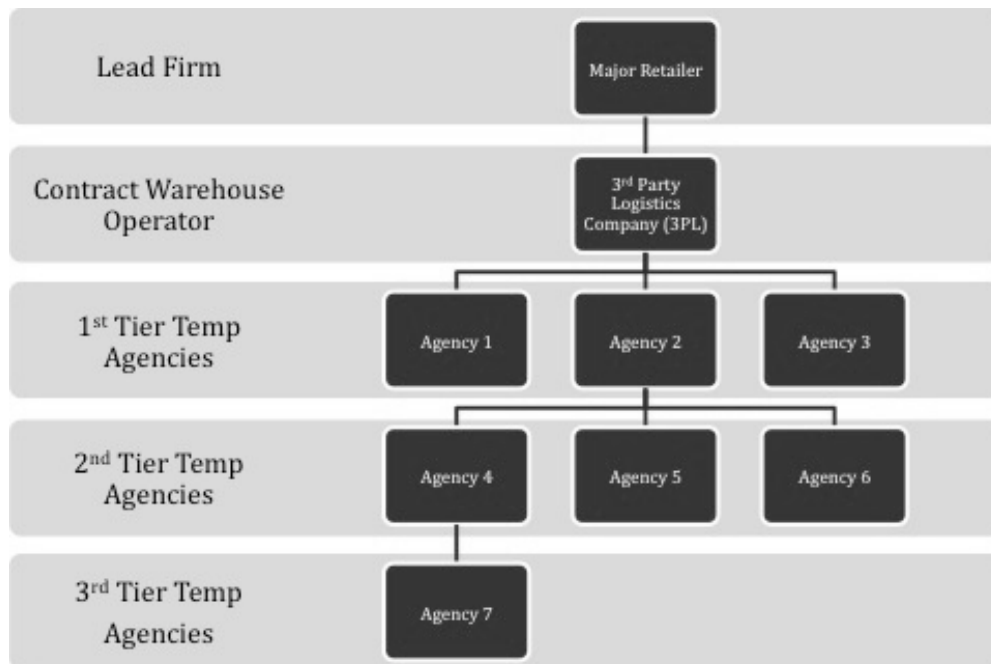


Figure 10. Inter-Agency Hierarchy

### Temp Hierarchies: Intra-Agency

The dialectics of inclusion and exclusion in distribution include both the inter-agency hierarchy described above, as well as a pervasive sorting of workers within temp agencies, what I call the intra-agency hierarchy. This hierarchy refers to the ordering of workers into categories that offers increments of access of access to job stability and basic dignity. Race, ethnicity, gender, immigration status, and disability are markers of difference that shape this process. A criminal record makes it very difficult for workers to secure employment at all (Pager, 2003), and numerous workers report that criminal background checks are used as tools for disciplining workers and discouraging their claim to rights.

Undocumented immigrants also encounter challenges in asserting their rights, and several studies have shown these workers to be particularly vulnerable to

workplace abuses (Hondagneu-Sotelo, 2007; Kalleberg, 2009; Peck & Theodore, 2001). Like criminal background checks, employers sometimes use “no-match” letters to threaten and discipline workers. The Social Security Administration or the Internal Revenue service issue no-match letters when information in their databases does not match the information submitted by an employer.

Discrepancies can be the result of database inaccuracies that aren’t related to an individual’s authorization status, yet employers sometimes use these letters to intimidate or fire workers (Mehta, Theodore, & Hincapie, 2003).

Categories of social difference are durable groupings, but they are not static, and employers marshal difference in opportunistic ways (Sayer & Walker, 1992). The retailer’s warehouse that formed the basis for Figure 10 provides an illustrative case. A 3PL manages the operations and uses both direct-hire and temporary workers. The intricate subcontracting arrangement represented by Figure 10 shows the warehouse during peak season, when staffing levels double to approximately 800 workers. One of the staffing agencies, “Labor Now,” was subcontracted by a first tier labor provider to help meet the dramatic spike in labor demand.

Figure 11 represents the hierarchy of workers on the shop floor and offers a poignant case study of labor strategy in distribution. Differences between positions in the hierarchy may appear small, but they are significant for low-wage workers with little access to security and stability. Managers at the top of the



hierarchy are full-time, salaried positions with the 3PL. Below them are the direct-hire front line workers, also employed by the 3PL, whose jobs are steady, long-term positions with access to benefits and higher wages. Beyond these two categories of 3PL employees are a series of positions in temp agencies that offer decreasing levels of stability and dignity. Team Leads, often promoted from the position of unloader, manage the work of a group of temps doing unloading. These workers get a small bump in pay for a significant increase in responsibility, and remain employees of the temp staffing agency, without benefits or the guarantee of long-term work.

Below Team Leads are three categories that exemplify the warehouse pecking order. There are “perms,” the term workers use for long-term temps; “seasonals” that are hired for peak volume periods; and “super-temps” or the “tempiest” workers who are enrolled via yet another temp agency (“Ray’s Temps”) for fleeting work opportunities. All three categories of workers performed largely the same activities on the shop floor, though the “perms” sometimes worked in shipping and receiving functions whereas others were assigned almost exclusively to the cross-docking operation. While the actual work tasks were comparable, workers experienced contingency in decisively different ways.

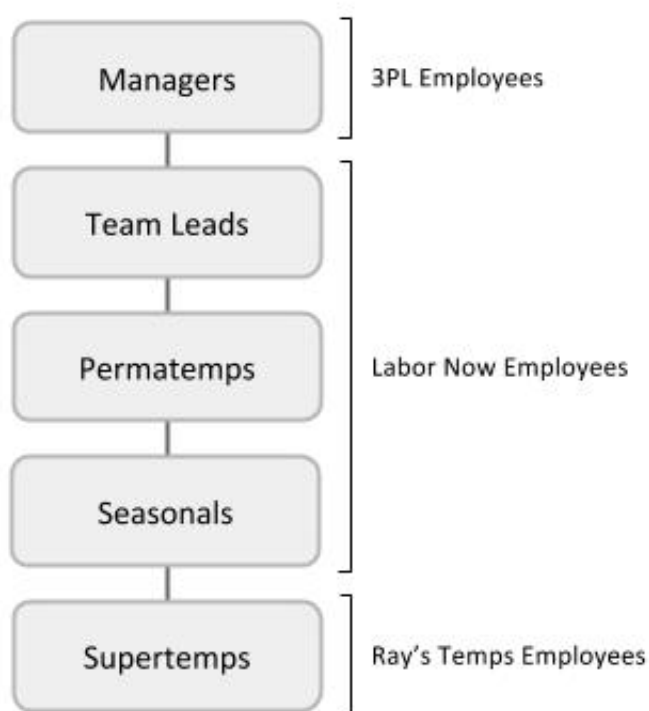


Figure 11. Intra-Agency Hierarchy

There are three major distinctions between categories in the hierarchy: the point system, employment tenure, and wages. Point systems are sometimes offered by temp agencies to their employees to allow for a small amount of flexibility, though workers reported that temp agency managers exercised their own discretion regarding when workers were allowed to use the points. Points work similarly to demerits and are issued when a worker is tardy to work, asks to leave early, or is ill—all time off that is not paid. In one case, a worker I spoke with said she was late for work because of car problems and received half a point; when she had accumulated two points, she received a notification from the temp agency that she was nearing her limit, and thereafter would be fired.

Permatemps employed by Labor Now are allotted ten points, seasonals are allowed four, and super-tempers don't have access to the point system.

Upon being hired on as a temp, workers are sometimes given some expectation of duration of employment, although true to the form of precarious work, this is far from guaranteed. Permatemps are told their employment is open-ended, which means that the temp agency would move them from one warehouse to another if they had work with other clients. Seasonals are told to expect to work during the peak season, which for retailers is September through November. Super-tempers are not offered any hope for work tenure. Workers enrolled into these workplace echelons are offered conditional stability at the whim of the warehouse employer. This dynamic represents one mechanism through which risk and volatility are transferred into the labor market, with some workers bearing more of the weight of uncertainty than others.

Wage differentials between the three categories of temps are the final area of distinction. Permatemps and seasonal both earn \$10.50 per hour, and super-tempers earn \$9.25. But the super-tempers encounter additional barriers to making a decent wage as a temp warehouse worker. Super-tempers are employed by Ray's Temps, an agency that specializes in recruiting workers through a halfway house. Residents of the halfway house are mandated, in order to have access to housing, to work for the temp agency. In addition to having no choice in employment, they are also required to allow the agency to deduct "transportation

fees” from their paychecks, a violation of the Illinois Day and Temporary Labor Services Act. Workers are expected to pay almost two hours worth of their daily earnings—\$15 per day—for the privilege of being transported in a crowded van the 15 miles from the halfway house to the warehouse, and back again.

The outer margin of the labor market in this case, where workers have extremely limited employment options, is absorbing the most violent fluctuations of goods volume in the retail sector. The lead firm is protected by four layers of subcontracting, shielding the global retailer from the formal employment relationship and the moral responsibility for working conditions in their supply chain. As retailers scramble to get goods on shelves for the holiday shopping rush, temp agencies reach deep into the local labor market to find new segments of the workforce. Other temp agencies specialize in different segments of workers: one proudly boasts they can deliver 300 workers on a single day’s notice, by driving a van around to day labor shape-up sites and rounding up workers from these corners. Workers say the social status of these very vulnerable super-temps stands out on the shop floor, and their precarity renders them less likely to be able to contest workplace abuse. The conditional provision of work for these individuals means that they stand to lose both their housing and job if they lay claim to their legal rights.

The intra-agency hierarchy affords permatemp workers increments of security and dignity, in contrast to those most marginalized in low-road temp agencies—

dual labor market theory, pushed to its limits. It is abundantly clear that the hierarchy is a method of disciplining workers, and should not be confused for a job ladder. While some promotions to Team Lead did occur, workers reported that these were based not on skill or seniority but favoritism. The hierarchy also provides an infrastructure for forced downward mobility. This dynamic is evidenced by managers' retaliation against a group of permatemp workers who challenged their working conditions: the group, as a whole, was converted to seasonal status. Workers move through different positions in the hierarchy with relative fluidity, and the terms for moving through it are uneven. A female Team Lead who was a temp at a regional big box distribution center complained about sexual harassment in the workplace, and had a "do not return" assessment sent from the warehouse operator to the temp agency that employed her. She found another warehouse job unloading containers, essentially starting over at the bottom. Lumpers, or container unloaders, are universally seen as the lowest on the occupational hierarchy; Team Leads are one of the most advanced.

The labor market segmentation evident in these hierarchies reveals the nuance of supply chain inclusion. Workers are not simply absorbed as nodes touch down in place—they are produced and enrolled in constant movement and rearticulation with exclusion. Building on the case of the intra-agency hierarchy presented here, I want to move next to an examination of the dynamics between core and peripheral workers across warehouses.

### **The “Magic Ratio”**

Early in my series of interviews with employers, it became clear that most managers are experimenting, or had experimented in the past, with the ratio of temp workers to direct hires on the shop floor. The Magic Ratio is a term I developed in the course of interviews to describe employers' experimentation with this labor strategy; it refers to the balance of direct hire versus temporary staff in a warehouse, which was often communicated as a ratio. I collected approximate ratios from 15 of the warehouse managers I interviewed in this research (other managers said they used both direct-hire and temp workers but did not, or could not, specify a ratio). The ratio itself is highly variable, impossible to characterize broadly except that some mix of temporary and direct hire staff is the overwhelming majority. Five of the 15, all 3PLs, have a clearly delineated trifurcation in their employment structure: direct hire, core temp staff (permatemps), and day labor style temps (hired on for volume spikes). The other facilities did not specify whether these subcategories for temps existed, and thus are divided only into direct and temp. For the few firms that do not use temps, overtime is the preferred method of dealing with fluctuation in volumes. Figure 12 shows the extent of variation amongst the firms.

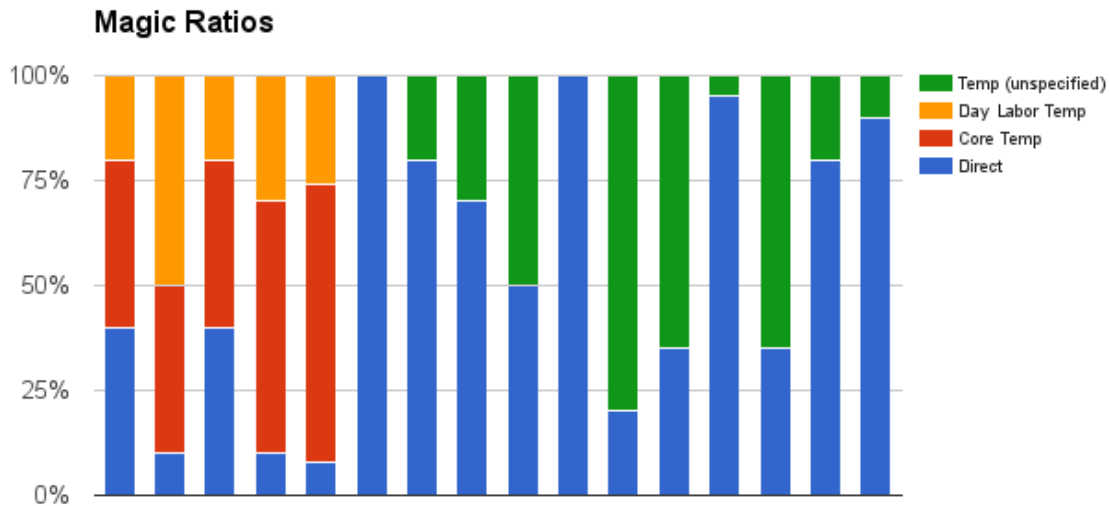


Figure 12. Magic Ratios for 15 Warehouses

The ratios themselves were reportedly arrived at through direct experimentation, scans of “best practice,” and sometimes mandated from above. For Manager 4, a 3PL manager who oversees daily operations at three dedicated manufacturing/warehousing sites for a large chemical manufacturer, it is a dictate from his client that temporary staff not be used in their site. The client firm had previously contracted with a different 3PL that utilized 100 percent temporary labor, and the “client felt that by having this, there was no seasoned understanding when it comes to plant and warehouse safety.” The client firm linked major safety failures in the facility to the 3PL’s extreme reliance on temporary labor. When they hired Manager 4’s 3PL, one of the top 10 in the country, to run the facilities, they consequently ruled out the use of temporary staffing solutions. Manager 4 had tried on two occasions to get the client firm to change their policy on allowing temps, and the third time was a charm. Once he

was able to show a pricing proposal that included seasonal fluctuations and detailed cost savings from reduced overtime, and ensured additional layers of accountability, the client firm finally agreed. “Unless I can show a cost savings opportunity, the client's not going to buy in,” Manager 4 says, and is now in the process of finding a temp agency partner. He is aiming to shift his direct-hire to temp ratio from 100/0 to 70/30.

Manager 27, who works for one of the largest 3PL companies in the U.S., also suggests that the labor strategies he’s encountered in his management career tend to be dictated from above.

BG: Do you have a magic ratio here, in terms of direct and temps?

Manager 27: I wouldn't call it magic. It would be more kind of what the customer likes to see. So we run basically about [...] two thirds temp to one third our own people. The main reason for that is our customer has a belief that allows us to be a little bit more flexible. So when it comes to the temp labor... it's temp labor here by definition. But some of these [temps] have been here two years... so it's not like they're wondering each day if they're going to be called to show up. [Our client] believes that gives us some flexibility to flex up and down. We have other customers that feel the exact opposite. They feel they would like to have the ratio [of direct hires] higher because they feel like they have a better opportunity to retain people and keep people with the longer tenure and that sort of thing so there's advantages to both.

Manager 27's client is looking for flexibility, and sees a temporary staffing solution as the central mechanism to deliver it. Yet he also admits that some temps are long term, showing up to work every day for two years. This group of core long-term temps does not “flex up and down” to match volumes, but replicates a direct-hire, long-term workforce. A similar dynamic exists in another



warehouse, Manager 15's food distribution center, where a group of core temps who have been there for years runs most of the shipping department and serve as forklift drivers. When they require extra hands for special projects, they turn to day labor. In Manager 27's case, the labor strategy choice reveals the simple outsourcing preference of the client firm, a highly unionized manufacturing company:

Obviously [the temporary staffing solution] affords [our client] some flexibility that they don't have at some of their own [unionized] facilities. That just enables them to say, "Well, we've outsourced this to another company so we don't have control over how they decide to run." [My 3PL company] is non-union, [...] that's basically a corporate value, we want to remain that way.

Manager 27 makes clear the value to the client of an arms-length relationship with a 3PL: the unionized client company can claim that they do not control labor strategy in the distribution function of their supply chain, despite the fact that they have dictated exactly the kind of flexibility they desire and the temporary staffing solution to achieve it. The unionized client firm sought a 3PL partner whose core corporate values include being non-union. Unionized warehouses are taboo both because they are perceived as too rigid for the structure of the industry today, and because of risk to a strategy of intensive cost containment.

The relationship between the Magic Ratio and worker organizing arose a few times in interviews with employers. Workers' rights advocates are sometimes derided as conspiracy theorists for suggesting that temp solutions are explicit union avoidance strategies, yet interviews confirmed that organizing is of central

concern. Consider this quote from Manager 16, whose warehouse relies entirely on temporary agencies to provide all labor outside of supervisors:

BG: So why not ensure that [your core, long-term temp staff] are loyal by making them [direct-hire] employees?

Manager 16: Uhhm, because of, uh... labor issues.

BG: Beyond cost?

Manager 16: Yes. I'm not being... my name's off this, right?

BG: Yes.

Manager 16: Organizing. Last thing we want is for a building to be organized. It happens in our industry.

The possibility of union organizing represents an existential threat to the business model pursued by Manager 16's 3PL. While this interview yielded a strikingly clear explanation of temping as a way for employers to avoid collective bargaining, other managers implied a similar logic. Sometimes a 3PL's client firm defines the bounds of the labor strategy, even specifying union avoidance methods. Where labor strategy is directed by client firms, it is far more likely to occur in 3PL facilities dedicated to single clients (and, of course, in facilities operated in-house by lead firms). Manager 16's warehouse is typical of 3PL facilities that contract with multiple clients. I found that in these warehouses, a single client doesn't exert enough pressure to determine labor strategy for the whole building unless they comprise the majority of the site's business. Labor strategy in multi-client 3PL facilities is usually not dictated from client companies, but rather determined by the 3PL itself, and the choice is undoubtedly

circumscribed by the 3PL's competitive strategy and the quality of contracts it negotiates with client companies (discussed in Chapter 5).

A seasoned warehouse manager with 29 years in the industry, Manager 8 oversees a campus of three facilities whose client is a snack food company, and works for a very large 3PL company with numerous sites around the country. He specifies a number of reasons why in the three facilities he oversees, all of which do almost identical work, he uses very few temps:

There is about a 12-week ramp up to learn how to run this place properly as a forklift operator, and that's just on one function [of four]. I really don't have a fully functioning, fully paid forklift operator until about month seven. There's computers on board, nuances—if you look at [the product] it can break, the packaging is not the best. [Some crackers] are in wrapped in paper, so if I take a temp and say, "Hey! Put that on a truck," I'm going to put crumbs on the truck. In other facilities I have done 50/50 [direct-hire] to temps depending on what is going on. I'm allowed the latitude to make the call on how I want to populate the buildings, but for the team here, we find it is probably best to have tenured experienced people.

In the case of these facilities, I spoke both with the client firm (Manager 6, who oversaw regional distribution operations for the snack food company) and the 3PL, and while the 3PL manager says that he made decisions about labor strategy, the client firm manager I spoke with expressed a strong preference for direct-hire workers over temps. Manager 6 had used a number of different 3PL providers, each of which had, in turn, experimented with different levels of temporary staffing, and he summarized his experience by saying, "I would prefer [workers] to be hired on even though I know that a small percentage should be

temp. With a lot of percentage temp [sic], I see a lot of issues with the product being shipped out the door and the productivity levels dropping considerably.”

In Manager 8’s facilities, as in other cases, specialized work tasks and the attendant training necessary for new hires reduce the number of temps in the facility. A related concern is that the product won’t arrive to customers in pristine condition if workers aren’t trained to handle it correctly, particularly if the product is fragile. These factors make turnover more costly and create disincentives for using temp workers. When I asked Manager 8 how, over the course of his career, he has learned to determine what the right labor strategy is, he responded,

“It all depends! I look at every customer with new eyes. What’s the work content? What are the expectations of the accuracy of the work content? If you want it exactly perfect, we are humans here, I have to put layer upon layer of checks to make sure I’m bullet proof. But we aren’t shipping blood here. We’re shipping cookies.”

He went on to say that despite the non life-threatening nature of the work, the expectation of accuracy by the client is very high, and constitutes another reason why his labor strategy consists almost solely of direct-hires.

There is a fair amount of volatility in this snack food distribution facility and in extreme cases where overtime doesn’t cover the workload, they do use temps. In the low season, on the other hand, Manager 8 encourages workers to take vacation, and makes his experienced, direct-hire workers available to other facilities within the 3PL’s network. “I have 12 people at [one site nearby], and eight people in Atlanta right now.” Instead of using and dismissing temporary

labor to match product volume, this manager leveraged the network of his 3PL company to reduce labor costs at his facility—while the workers are in Atlanta, for example, they're paid by the Atlanta facility.

Work content and relationship to final customer emerged as consistent motivators of temping out. Manager 14 had used a ratio of permanent to temporary workers in the past, when the facility “had more physical aspect to the product, to the workload”—in other words, when it required more physical labor. When the facility switched to dealing almost exclusively in full pallet loads (meaning a pallet of shrink-wrapped goods is not broken apart in order to move individual cartons), the labor needs also changed. Now, a handful of direct-hire forklift drivers handle the product flow: “We don't utilize temps very much at all anymore.” In contrast, Manager 11, who oversees national distribution operations for a housewares company, delineates the use of temps in particular work processes:

We try to keep a percentage balance: 70 [direct-hire]/30 temp, or 60 [direct-hire]/40 temp. Too much is not good, too little is not good. It's based on business and market.

When I came to [this company], someone used the term "money jobs." There are certain jobs that, because of the amount of effort it takes you to train that person and the amount of stability [you need] in that job, you want it to be a [company] associate. You don't want to have to worry about the temp pool and all the training. For example, packing. We go above and beyond with our packing, we gift box, almost white glove service at times, and you pay for that. We have very pretty packaging and take great pride in that. But it takes a lot of work to get there, so packing is a department we don't like to have temps in. Unless it's fourth quarter where we have no other option. The customer is going to see that we take a lot of pride in making sure that certain departments are [company]-run, [direct-hire]-staffed, that they have high morale, they love what they do,

because they are our last line to the customer. [In unloading], high temp staff there. [In] shipping depending, it can have some temp in it. Shipping to storage more than shipping to the customers themselves, because again we have another line of defense in there. Not a lot in furniture because of how critical that is. It's because if you get it wrong, it's expensive for us to fix it.

Where the work process is the last touch before a customer received it, and where the company feels they had a competitive advantage over other housewares retailers, direct-hire workers are preferred. Work processes are broken apart into discrete tasks: unloading, shipping to other DCs in the network, packaging. Unloading and shipping to storage are sufficiently deskilled and not customer-facing, and thus rendered suitable for the temp pool. Furniture may otherwise be a department appropriate for temps, but the economic risk of a mistake in furniture delivery is enough to make those jobs direct-hire.

Because of sparse data on the shift from direct-hire to temporary staffing arrangements in distribution, the longer-term trend is difficult to chart. Yet many of the managers I spoke with were long-timers in the industry, and referred to the shift over time from direct-hire or union to temporary workers. Manager 16 describes the transition:

Manager 16: We go back 10 years, well, maybe more like 20 years, the bulk of our labor was employed by us, by the company. Now, almost all my labor is sourced out through staffing companies. What we'll do is, my forklift drivers, they're my core group.

BG: And they're hired by you?

M16: No, I keep them on the staffing company [chuckles].

BG: They're as close as it comes to being hired by you?

M16: Yes, that's as close as it gets [...]The forklift drivers, they're the ones I invest in, they're trained, certified, I've invested time into them, I want to keep them happy, keep them coming back every day so we can accomplish what we need to accomplish. Whereas our day labor I like to call it, other people call it temp labor, they roll in per our request, we basically place an order on a daily basis.

Manager 16's facility is an extreme case, utilizing 92% temp labor in his multi-client 3PL distribution center. He distinguishes his core workers as if they were direct-hire, and credits this treatment of workers—long-term temps made to feel like “real” employees—with his high retention rate. This is the manager's strategy for replicating the erstwhile employment relationship and thus gaining the benefits of a committed, loyal workforce. Day labor, on the other hand, is a commodity to be called in hours before it is necessary.

Even while most managers cite volatility as the central reason for employing temp labor, as Manager 16 did, this existence of a mix of long-term temps and day labor temps betrays this as the single causal factor. In fact, the long-term temp dynamic marks a clear move beyond the argument that distribution relies mostly on qualitative or quantitative flexibility to deliver supply chain agility. Even in the context of universal at-will employment, where either party may terminate their relationship with the other at any time, employers in distribution go a step further to avoid direct employment relationships. Long-term temps allow employers shift the risk of uncertainty—be it product volumes, worker organizing, or changes in work process—away from firms and out into the labor market. I argue in the following sections that this labor strategy is part and parcel of

producing the right kind of warehouse worker, and compelling workers to exert themselves on the job.

### **The Myth of a Job Ladder**

Manager 5 runs a 3PL warehouse dedicated to promotional goods for a large tobacco company and talks about the screening function temp agencies provide:

For the temps that come in for higher volumes, we see how they work, get to “test-drive” them. If they aren’t working or aren’t compatible we mark them as “no return,” so next time we need temps they’re not even allowed to be selected for the pool... If [a direct-hire worker] does decide to leave, even though these people are here 10, 20 years, some of them are on the verge of potentially retiring. So if we need to increase workforce we use our core temps as our pool of [potential] employees. That in itself is the driving factor and motivation for them to perform.

Test-driving is apt metaphor for the way managers think about temps. When one “test-drives” a car, he is considering whether its looks match his taste, whether it handles the way he wishes, and whether it performs to his standards. Most drivers are test-driving multiple cars—whether or not one is in the market for a car—to try the latest model and the newest features the market is offering. For employers of temps, the industry parlance for assessing workers is simply “return” or “do not return.” When a worker receives the latter assessment, for any reason, he or she is permanently out of the potential pool. In this way, the commoditization of 3PL services trickles down through temp agencies to test driving workers’ bodies themselves.

The manager quoted above, who was generally evasive during our interview and



declined to provide a tour of the facility, told me that among her permanent, direct hire workforce, mostly forklift drivers, there was no turnover—"None." The warehouse labor strategy is to maintain a 60/40 ratio of direct-hire to temp: a permanent, direct hire workforce of 15 mostly male forklift drivers and a handful of direct-hire leads; a core, temporary labor force that are "coming in every day unless we tell you otherwise"; and supplemental day labor temps when volatility spikes, which generally is once every month for one week. Manager 5 contracts with two staffing agencies and splits the work between the two.

Manager 5 illustrates a central mechanism for motivating workers in precarious positions to perform well on the job: the possibility, however remote, that there is a direct-hire job awaiting them. Mind you, in this case it may take one or two *decades* because of the lack of turnover, and the worker is induced to remain a core temporary worker throughout. But this is a common way for client companies and temp agencies alike to market jobs to workers, who may or may not know to be wary of these promises.

Worker 1 describes the terms of her employment with a temp agency that is under contract with a large, national 3PL, where she is an unloader:

[The temp agency] said I'd be permanent—after three months I could get hired on by [the 3PL and get] \$10.50 an hour, overtime [with] time and a half, ten-hour days, four days a week. I think they completely lie to people, since I've never seen anyone working at [the facility as a direct-hire] who's not a forklift driver. I saw one kid who started the other day, came in and was like, "They told me they would put me in a computer job." And I was like, "No. Do you see any computers around here?" Why are they just lying to people like this? What's the point? Part of it I think is that [the temp

agencies] don't know what's going on in the warehouse, and part of it is that they try to get people to think it's more than, you're just a temp that nobody cares about, that there's room for advancement, that you're not just going to get randomly fired. Because otherwise people wouldn't feel motivated.

Worker 1 views the empty promise of being hired on directly as a way to keep workers on the job. Workers interviewed and surveyed often said they were promised a direct hire job after a probationary period, often of 90 days. Yet data from the worker survey showed that of workers who were hired by temp agencies into a warehouse, few had been subsequently hired on directly. The rest of the workers either continue to work with the distant hope of being hired on or are dismissed, and churn through to the next warehouse. Similar to the dynamic of the temp hierarchies discussed above, what gets framed as a job ladder is actually a mechanism for compelling and disciplining workers on the job. Manager 24 says the dynamic is necessary, or “you'd never get good work out of them.”

Many employers suggest that temps perform better during the initial probationary period and if hired on their performance plummets. This was one reason cited for using temps for short periods of time, and not hiring them directly. From the perspective of workers, on the other hand, the so-called probationary period is a farce since across the board, so few temp workers are ever hired into the company. Instead, over and over again, temp agencies promise the possibility of direct-hire jobs and/or access to benefits with the temp agency after a probationary period, but workers are let go at the three-month mark or persist as

temps.

For workers who do get hired on, there is a distinct awareness of the change from temp to direct hire. Worker 3 had been hired as a temp forklift driver at a company that distributes pallets for fresh fruits and vegetables, and after six weeks was offered a direct-hire position, which he took. I asked him to describe the process of moving from a temp and a direct-hire.

[Being a direct-hire] feels different. I would feel comfortable going to a work picnic. I feel like I have more responsibility to show up—when you're a temp and you call off, they'll just get another temporary guy. I feel like I'm getting more hours than a temp would. I feel more comfortable. I feel more watched, more supervised, more expected of me now. So even though it was just changed systematically, it definitely feels different. I feel like I basically have to represent [my company]. I've been looking for a career, for a job like this, for a job to accept me, to hire me in, not just because I've completed the hours but because I know how to work, that I have good work ethics. They told me that. I don't know if they tell everyone the same speech, but it really made me feel better that day, that they watched and they noticed that I'm putting it all in. I think the temp workers know they have a job but at the same time you could wake up tomorrow and they say, "We don't need you." It's more secure.

There is a stark difference to Worker 3's perception of his security after he becomes a direct-hire worker. In addition to a bump in pay and access to benefits like health care and a 401k, Worker 3 also talks about a sense of pride and loyalty that come with being a direct-hire employee. When he went to the grocery store and saw one of his company's pallets, he realized "every day, every store... everybody uses [our pallets]." Before he was hired on directly, he said he "never paid attention." For Worker 3, working directly for the company changed his attitude toward his employer.

Even more striking is Worker 3's articulation of what it feels like when a warehouse workplace "accepts" him, demonstrates that he is of value, and respects his work. Workers I spoke with expressed so much desire for this—to be recognized for their contribution, and sometimes to contribute to innovation and improving the efficiency of work processes they understand so well. But at the very least, they wanted to be *noticed*—a reflection of the extent to which workers, their lives, and their humanity are erased from the storyline of logistics, transformed through a process of commodification of their bodies.

The paradox of "a career in warehousing" is that a small minority of employers offer what can be thought of as a career, in the Fordist sense: a family-supporting occupation that offers benefits, some semblance of security, and opportunities for advancement. Instead, the industry animates a wholesale downshift in the expectations for work. Warehouse workers are expected to be herculean: to make a career in an industry that does not, generally speaking, offer a career.

The existence of Temp Hierarchies and Magic Ratios, and employers' floundering development of these preferred labor strategies, are good examples of the gap between an idealized vision of smoothly operating logistics strategies and actually-existing projects on the ground. Structuring the local labor market to provide flexibility and risk shift requires extensive, active intermediation—and this is not the high tech, future-forward innovation that industry boosters advertise.

Temp Hierarchies and Magic Ratios are mechanisms through which both temp agencies and workers are disciplined, through provisional inclusion and fierce terms of competition, and compelled to enter the market. While some managers thought their own ratio was standard across the industry, my interviews found no convergence in this respect. In some cases labor strategy is the direct result of mandates from the client companies, and in others it is a product of the warehouse manager or their 3PL company.

### **The “Temp Mentality”**

I don't know if they're lazy, [or] they just don't have the commitment... I can see why [they] don't have a permanent job, you know. You don't have that work ethic that we're looking for and that's why you're a temp and you move around from job to job. There's definitely a temp mentality. The temp mentality is the mentality where I don't care, I don't work here. [Or] I work here, but I don't work for you, and as soon as something better comes along, I'm gone, I'm going to go to that. It goes back to what I'm talking about, that's why we prefer an 80/20 workforce [80% direct hire, 20% temp] because the temp mentality is where they don't care, they don't take enough pride in their job, because they know they're just going to bounce somewhere else next. Where[as] a permanent person has got that pride in what they do, they take ownership because it is a permanent job, they are getting benefits. They know they're coming to work every day. They know that next week they're not going to be told hey sorry we don't need you anymore. (Manager 29)

Which came first, the temp job or the temp mentality? The direction of the causal arrow between the two is the subject of debate and, as demonstrated by Manager 29's sentiments, can be a moving target. In the first half of this quote, he locates the problem on the supply side: temps are lazy and noncommittal. In the second half, Manager 29 suggests that it is actually the structure of the

industry—the prevalence of temp work and lack of permanent jobs—that produces apathy among temp workers. For many managers I spoke with, the origins of inadequacy are clearly found in workers.

I think there is a reason that people are in this loop of temp services. I think those are the guys that know they need a job and know there's warehousing jobs available, but there is a lot of people that can work for five or six weeks and then be off for eight or nine weeks because they made enough money in their five or six to get by [sic]. Nobody really is looking for a career. I shouldn't say nobody, a lot of people aren't looking for a career in this, and so they just kind of float around and kick around in that temp service loop. Some are content to do that. And it's hard to pick the ones out that, you know, just haven't had any choice from the ones that are content with doing that.

This quote from Manager 1 summarizes a common refrain repeated throughout my interviews: there is an inherent reason that people are in the temp loop.

Manager 1 concedes that there are some temps who “don’t have a choice” to be stuck in the temp loop, though implies they are a minority. The career prospects for workers in distribution are dim, yet he specifically points out the lack of desire for a career in warehousing, not the lack of prospects for one. This employer was one of few in my sample that hires directly and offers close to a living wage, with benefits, for warehouse workers. His facility is a cold storage food distribution warehouse, and he admits that it is a particularly hard warehouse job and that they have to pay more than the prevailing rate for warehouse workers to entice and retain them in brutal working conditions.

One worker spells out clearly the wide range of workers who toiled alongside her in the warehouse.

I mean, for some people it's like, they're young, they're just kind of doing this to earn some money. There's a couple of kids I met who are in school and they're just doing this at the weekend to earn money because it fits into a school schedule of weekday classes. Then there's some people who this is like, they've had a career and this is a step down. Like a few people are construction workers and now they are having trouble finding work, so they have to do this. Some people had good union jobs and those jobs have just disappeared so they don't really have many other options. And then there's some people who are you know maybe they, they were in jail or they have a criminal record and they're trying to like get back on the right path, trying to hold down a job and this is more like a beginning for them. So the people are in a lot of different places. There's a lot of different people.

Worker 1's description of workers betrays the idea that warehouse workers are a particular subset of the workforce with a temp mentality. Her evidence suggests instead that workers seek opportunities to work wherever they can, and it is the definitive lack of advancement potential in temping that limits their ability to do so, not innate characteristics.

Employers frame the temp labor strategy as a rational response the need for flexibility and cost control. Yet inscribed in its implementation are normative assumptions about how particular kinds of people are made valuable to capital.

The caliber of people, you know, without being unionized and stuff aren't as good, a lot of these people are Spanish and they don't understand... I have trouble with them learning, but I deal with it I guess. I don't really turn over a lot of people here through discipline and mistakes [...] because I know first of all it costs you money, and second of all, the next guy in line is probably going to be the same caliber, so you just have to discipline them and hope for the best, to tell you the truth, in this labor force.

It was difficult to get employers to talk openly about race—much more difficult than discussing gender, for example, where employers willingly and explicitly

reviewed the division of labor for women and men. Yet race is a constant undercurrent to discussions of the warehouse workforce, and is enmeshed in constructions of workers as having a temp mentality and poor work ethic. For Manager 10, temps are unprofessional and “Spanish,” and there is little to no differentiation between workers in the low-caliber labor pool. Constraining turnover because of sunk training costs is only part of the retention equation, since a replacement worker is not likely to be any better, and might be worse. As Manager 18 puts it, “Everybody used to think that Hispanics were the greatest workers in the world—until they become Americanized. They become Americanized, they get just as lazy.”

It was clear to workers that particular markers of difference presented serious liabilities. A criminal record, explains Worker 12, relegates you to a permatemp role in the warehouse:

The way it's set up, [as] far as convicted felons, you can work [in] the warehouse, through the temp service, but they won't hire you on because your background. If I can work for you for \$8.75 as a temp, now it's time for me to get hired on [directly] for \$14 dollars an hour, you won't hire me on but you'll keep me here as a temp, though. And I don't think that's right at all.

Yet the vice president of sales at a temporary staffing agency insisted that the temp industry exists because there are workers who want to be temps. These workers don't want to commit to a job; they want to be able to walk away. He calls it a “socioeconomic and cultural thing.” When I asked the racial demographic of his labor pool, he estimated 70 percent Latino, 30 percent



African American; but when I asked specifically about white workers, he then added that ten percent are white. If a temp applies at his agency and their resume has only temp staffing assignments, the VP said, he is not put off: in fact, that is his target demographic, what he calls "career temps."

Ken Ackerman is a management consultant and prolific author in the trade press about labor strategy. His advice on hiring in what he counter-intuitively characterized as the current "tight labor market" was to look closely at soft skills:

Attitude is the most important attribute. Job knowledge can be acquired by any intelligent person. Attitude is ingrained from early childhood, and is difficult to change. Honesty is equally critical. Unfortunately, today we cannot assume that any individual is honest. [...] Work ethic is related closely to attitude. While productive work habits are common throughout much of the U.S., it is not the situation within every culture. (Ackerman, 2015)

This sentiment sits alongside a widespread belief amongst managers that temporary workers prefer to rely on government assistance rather than work, and that the generous provision of government benefits gives these individuals little incentive to find a job. Without ever referring to race, these managers relied on the coded language of lazy and parasitic. Cultural difference in work attitude is conflated with other markers of difference. Manager 16 says he's very alert to body language and uses this sense to judge temp workers as they arrive at the warehouse.

[I look at] posture, when you get the guy that comes in, the building's this temperature and he's all bundled up, his eyes are half-closed. The biggest thing I joke about is, do their feet come off the ground when they walk? Or are they shuffling? There's obvious signs [sic]. You look at people and you go, hmm, I don't think that guy's going to work out, I don't think she's going to work out.

The manager went on to say that he looks at a worker's productivity numbers to judge whether they are a good fit, but already, his radar is tuned into particular worker traits that make him more or less suspicious of new temps. I visited this warehouse in April, and the ambient temperature inside was comfortable, until we toured the unloading bays. Dock doors are open with trucks backed in, and the gaps around the door allow in the chilly spring air. The notion of soft skills gets expanded here—now temps should be able to predict the temperature of the warehouse, even though it's common across the industry for warehouses to be under-heated and drafty in the winter and sweltering in the summer. Even the way temps walk is an indication of their potential worth.

Managers are very particular about the kinds of bodies that represent the most value. Even height becomes a marker of value in the warehouse. Multiple managers referred to the stature of Latino men as a challenge to finding an appropriate workforce, especially for unloaders. Manager 18 breaks it down this way: "I have to request guys that are at least 5 foot 7 in order to reach. It sounds silly but these are things with temporary labor you really have to look into—if your container is all the way to the ceiling, you got to be able to reach up there."

Here, we can return to the interaction that opens Chapter Two, from the Vice President of Sales for a temp agency who identifies "A Latina mother with five kids who absolutely needs the paycheck" as the ideal worker. We can draw from

the VP's quote that a worker's level of desperation can signal their potential value, within highly racialized and gendered limits. I'll turn now to gender on the shop floor, since it was a prevalent theme in interviews, and one marker of difference that employers would speak openly about.

### **“Lights” and “Heavies”**

Examination of the racial and ethnic segmentation in warehouse workforces has revealed the favoritism for particular groups of workers, the sorting of workers into jobs, and the overwhelming majority of low-income non-white workers in the sector. The role of gender, on the other hand, has received far less attention in the industry.

“Lights” and “heavies” are the terms that warehouse managers use to place orders for female and male workers from temporary staffing agencies. When I first began hearing this in interviews with employers, I was struck by the boldness of the gendering of work, in the face of clear illegality. But as I wandered through warehouses on tours, it became clear that it's not only the language used to describe workplace segmentation, but also the shop floor practices, that constitute the mechanisms through which gender is produced and made useful to capital.

Warehouse work, especially for retail goods, is largely manual labor: containers get unloaded, often by hand, stacked on pallets or carts, and forklifts move goods

to storage locations or to outbound trailers. Pickers walk the warehouse selecting items based on a pick list and sending the goods toward packing and shipping stations. Warehousing is traditionally the purview of men, and masculinity is a defining feature of the workplace.

Yet women form a substantial part of the warehouse workforce: on average, roughly a quarter of workers in the industry are women. The expectation for women in warehouses is that they will carry out different roles in the course of a day: to work like men, to do what has been deemed the work of women, to be subjected to sexual harassment, and to “use flirtation as a form of currency” (Gutelius, 2015, p. 58). Because they are mutually constituted, feminized and masculinized work must be understood together.

What is typically the work of women, or “bitch work,” as it is known in some warehouses (Worker 5), involves working in receiving (scanning and inspecting incoming goods), doing clerical work, assembly, and project work (which consists of short-term, often one-off tasks like labeling cans). Below, a warehouse manager describes how ordering occurs:

BG: I’ve noticed project work is often done by women.

Manager 18: Yes, as they would say in the industry, they are lights. There are heavies versus lights. Heavies are men.

BG: You’re putting in an order to your temp agency, you say I need six heavies and three lights?

Manager 18: Yes.

BG: And everyone knows what that means?

Manager 18: Yes. They all work with that.

And Manager 16 breaks down the roles of women and men:

Dealing with the staffing agencies, heavy lifters are the ones in a container, unload[ing] product off the floor, stacking it on a pallet, stretch wrap. Light lifters are more project work, so if you were to take a look at that, I do a lot of project work with females.

The use of the terms “heavy” and “light” focuses attention on the physical characteristics of workers in order to normalize the assignment of women and men to warehouse tasks. Employers refer specifically to the physical strength required to lift and move freight as an unloader, working inside of containers, often moving boxes by hand to pallets or carts. One of the most casualized and deskilled positions in the warehouse, but also one of the most critical, unloading requires endurance, strength, and toughness. Heavy lifting is a decisively masculinized work process.

“Project work” refers to time-limited tasks like labeling or relabeling, kitting goods into promotional configurations (e.g., endcaps at the supermarket), or creating custom assortments of products. Employers ascribe supposedly feminized traits—attention to detail, meticulousness, and lack of physical strength—to these activities. Project work is often on short notice and can last anywhere from a couple of days to a couple of months, but is usually limited to the completion of the tasks associated with project. Project workers, then, are critical in absorbing

a spike in volatility caused by either consumer demand or upstream mistakes or production changes, and are almost always women.

As with other markers of difference, though, femininity is not a static category.

Consider this comment from Manager 16:

When I request light lifters, there's typically more women available because... They have more requests for heavy lifters. When they don't have enough light lifters they can give me a heavy lifter, but you can't take a light lifter and make them a heavy lifter.

The manager asserts that there is an explicit fluidity for men, wherein men can be light lifters, but women cannot be heavy lifters. Despite not being the preferred workforce for feminized tasks like project work, heavies are seen as qualified to relabel or sort goods. Lights, he asserts, are not capable of lifting and moving goods as an unloader.

Yet women *are* heavy lifters: all of the women I interviewed had been unloaders at one point in their warehouse job churning, loading and unloading containers alongside men. The discourse of heavies and lights suggests rigidity to the gendering of roles, as though physical strength were the only differentiating factor between the work of heavies and lights, but shop floor practices reveal far more fluidity. Light lifters are expected to toil in feminized tasks, but to also be assigned to “work like men” when managers determine that demand requires it.

There is also evidence that it is not women but a produced concept of femininity that assigns so-called “bitch work” to bodies. Interviews revealed that two other groups of people—both male—found themselves periodically assigned to light-lifter tasks: workers with disabilities, and “scrawny” men, particularly young, white scrawny men. Similar to Salzinger (2003, p. 37), I found that femininity is being used in warehouses more as “a set of transferable characteristics,” such as attention to detail, which could be located mainly but not exclusively in women’s bodies. The fluidity between masculine and feminized jobs is not a subversion of the gender order, but a managerial practice that ensures flexibility.

This is not to say that mobility is frequent, nor that there is fluidity across all warehouse positions. A rigid masculinization of forklift drivers, for example, means that women comprise the vast minority of workers in this role—nationally, just 7.4 percent of industrial truck and tractor operators (forklift drivers) are women (Bureau of Labor Statistics, 2016). It is common practice for forklift training to be at least somewhat warehouse-specific, and for warehouses to have training programs for new lift drivers. Many women, however, felt forklift positions were inaccessible, even when they requested multiple times to be trained. This, in turn, has clear economic implications for female workers. Forklift drivers are paid better, have a certified, transferrable skillset, and are more likely to be direct-hire, long-term positions than any other non-management occupation in the warehouse. The fluidity of feminized labor stops short to protect particular masculinized occupations, and the highest-paying, most stable jobs on

warehouse shop floors are ones that women were *not* doing.

A lot of the [women] are doing assembly. They're putting chairs and stuff together... I really went through the temp agency and said, why don't we see if there are some females who can do assembly for us, because their attention to detail is greater, they're just better suited for the job. And I don't mean that in a chauvinistic way. Everyone has got physical characteristics. (Manager 26)

The meticulousness of women is an oft-repeated feminine trope. The discourse is combined with actual workplace practices that inscribe femininity on certain bodies and into certain labor processes. Manager 26 specifically sought to increase the number of female warehouse workers on his staff because of women's apparent proclivity to detail—in his words, their “fanaticism.” Defining particular tasks as feminized allows employers to expand the potential labor pool for warehouse workers, thereby helping firms to tap into slack labor markets. The temp agency infrastructure makes this process of gender adjustment possible, even simple: the manager calls his temp agency and specifically asks to have females delivered to the warehouse. Accomplishing this same goal—of hiring 8-10 women for a particular task in the workplace—would be far more difficult, and risky, if the manager undertook the HR process directly.

“Some of the repetitive jobs that we got, women seem to gravitate towards... it's almost a little community of [them]... they do all of our receiving.” This quote from Manager 9 exemplifies a commonly expressed perspective on the part of employers: that gender is a natural sorting mechanism in the warehouse. The manager suggested that women were self-selecting into particular roles, perhaps



even community-building in the process. This would imply that warehouse workers exercise autonomy and are given at least some decision-making power in terms of the work they perform on the warehouse floor. Interviews and diaries with workers, however, suggested precisely the opposite: women and men are assigned particular tasks throughout the course of the day based on notions of appropriate feminine and masculine work, and even in cases where they explicitly request not to do these tasks, they are denied any choice.

The extent of gender rigidity in warehouses is dependent on managerial styles, workplaces processes, and labor strategy, but its variation shows the fragility of the concept of gendered work, and the effort required to maintain it.

It's not [the temp agency] who decides whether you stay or leave that place, it's the [client company], so if I had a serious issue with one of the supervisors, I could talk to [my temp agency] but... they're not going to jeopardize their relationship with [the client company] over me. I could ask to be transferred to a different warehouse but that's about it, you know?  
(Worker 1)

The structure of the distribution industry presents unique possibilities for the gendering of work, particularly the extensive subcontracting relationships prevalent in retail distribution. The temp industry is not a passive beneficiary of changing labor markets. As Peck and Theodore (2002, p. 467) write, they are "actively engaged in exposing, making, and expanding the market for temporary labor." Temporary staffing agencies are active participants in the gendering of warehouse work: they collude with employers to discriminate by developing a code for the illegal gendering of jobs; they proactively recruit workers into the

temp labor pool based on gender assumptions and deliver these workers just-in-time to clients; and their relationship with client companies introduces perverse incentives to ignore sexual harassment. Supervisors may not see temporary staff as their employees, increasing the likelihood of misconduct. And when employees complain about a worksite supervisor, agencies have little reason to address the problem, as Worker 1's quote above details. Temporary staffing agencies, then, are calcifying gendered divisions of labor in distribution.

Many of the gender dynamics in distribution are, unfortunately, not unique to this sector. The discursive practices and shop-floor management strategies define women's value as attention to detail and docility. Of course, patterns of occupational segregation and discrimination do not mean that all women experience gender similarly. Some women workers actively resist being pigeonholed and talk back to management when they try to do so, while others are compliant and even encouraging. Harassment and segmentation are persistent, but the distinct ways in which sexuality and gender are experienced on the shop floor differ vis-a-vis race, class, education, physical appearance, and ability.

While there is significant variability in competitive strategy among commonly located firms performing largely similar activities, there are observable patterns in which managers, as embodied subjects, determine the ways that gendered meanings are produced and made use of in labor and competitive strategy.

Women are produced as appropriate labor for particular feminized tasks in the warehouse, while still expected to perform more masculinized duties when the need presents itself in goods movement volumes. Lights and heavies, terms meant to denote the literal ability to lift goods, obscure the nuance of structural factors and practices beyond the judgment of physical strength in the maintenance of gendered relations. We can view the feminization and masculinization of work as what Werner (2012, p. 407) calls “productive technologies that construct kinds of work as valuable and valueless, on the one hand, and associate certain jobs with certain kinds of bodies, on the other hand.” These productive technologies are marshaled in service of the driving logics of distribution: maintaining maximum flexibility and shifting risk away from lead firms. There are three central ways this occurs:

1. Feminized work expands the labor market by creating appropriate roles for female workers, reducing the risk of a labor shortage and helping maintain sufficiently low wages.
2. The constrained fluidity that exists between heavy- and light-specific tasks ensures that volatility can be met through an on-demand, highly flexible workforce, while reinscribing gender roles.
3. The precarious nature of temp work in warehouses pushes economic risk from the supply chain out into the community, but this process is uneven, conditioned by the gendered relations of work.

The gendered division of labor in distribution, as in any other industry, is neither inevitable nor natural, and there is particular work that gendering does in compelling the low-wage workforce into employment. The industry structure makes it both possible and of value to produce masculinity and femininity: gendering is one condition of possibility for the functioning of global supply chains.

## Conclusion

As Peck and Theodore (1998) showed, temp workers are expected to deliver continuity only when the employer requires it, and this, as managers themselves assert, affects workers' actual job performance—their drive, loyalty, and commitment. Workers in temp jobs are not inherently deficient; rather, the “deficiency... lies on the demand side, with the shortage of stable jobs” (ibid., p. 663). Similar to Wright's (2013) exploration of the paradox of the “disposable third world woman,” the contradictions inherent within the framing of warehouse workers by their employers are striking. As Peck (1996, p. 23 emphasis in original) writes, “*Making workers* is a complex and contradictory process.” Employers weave a story about their workers that allows them to respect and disrespect them in the same moment, to value and devalue their role in the supply chain. Employers deride workers for “chasing the dollar”—moving between workplaces that offer slightly higher wages. In reality, this is precisely what firms in a highly cost-competitive environment are doing, particularly in the 3PL market and amongst temp agencies. Employers expect workers to be loyal and harbor a longer-term outlook, when the entire industry is predicated on short terms, slim margins, and chasing the dollar.

## **Chapter Seven: Conclusion**

Aggregate accounts of economic change and globalization inspire a certain pessimism among those dedicated to a more just world: low-road employment that relies on vulnerable workers seems to be the inevitable result of the changing structure of the global economy, outside the realm of influence by local agents and institutions. My goal in this research was to trouble this inevitability, and expose some of the “welds” that hold together supply chains. A view of global production networks from below disrupts the aspirational image of logistics and reveals it as a lurching and experimental affair that is, at its core, the product of the social world.

### **The Role of Warehousing in Logistical Systems**

I’ve shown in this dissertation that the competitive dynamics of global production networks and the transformation of logistical strategies have produced a set of driving logics for warehousing and distribution. These, in turn, have been enabled by fundamental changes to employment relationships in the U.S. at many spatial scales. In response to my first research question (What are the driving logics of distribution?), two logics emerged in my research: flexibility, or smoothing out volatility up and downstream; and risk shifting, the transferring risk from product markets and lead firms out into labor markets. Flexibility and risk-shift profoundly shape the competitive dynamics of the warehousing sector, in which outsourcing has emerged as one central mechanism through which warehouses deliver these critical logistical functions.

This understanding of the role of warehousing in supply chains offers a revision of global production networks, in two realms: logistics and upgrading. Within the GPN framework, logistics should be understood as embedded within other production networks and shaped by particular sector-specific dynamics. The competitive dynamics of warehousing, which are based on providing supply chains with opportunities for flexibility and shifting risk, are shaped by inter-firm relationships, product markets, and volatility that originate upstream and downstream in supply chains, and thus cannot be separated from the drive toward just-in-time delivery.

The literature on global production networks, and processes of upgrading within them, suggests that in low-value nodes of a network, characterized by low barriers to entry and high levels of inter-firm competition, firms have little power to enhance their ability to move up the value curve. In these firms, jobs are likely to be degraded because competitive pressures often manifest as downward pressures on labor costs. But this research showed that this result is not inevitable—it's a product of the way these industries are organized, and the processes of restructuring they are undergoing. The greatest barrier to social upgrading in distribution is the lack of power of workers in a highly fragmented and contingent work environment. Absent collective bargaining rights and sustained worker organizing in distribution, it is unlikely that competitive advantages that translate into higher profit margins will filter down to front-line

workers on the shop floor. Upgrading in supply chains, then, must be conceived as more than the ability of firms to move into higher-value activities.

### **Conditions of Possibility for Warehousing**

The conditions of possibility for contemporary warehousing, the subject of my second research question, include the exogenous forces that come to bear on these workplaces yet originate far from the shop floor. But the approach I've used here, GPNs from below, offers a more nuanced examination of the landscape of actors and institutions that shape labor markets for warehouses. Warehouse operators and labor contractors emerge as *the* central figures in processes of adjustment and experimentation.

In order to fulfill their role along the supply chain, I found that distribution center operators and temp agency managers seek and produce intricate hierarchies of workers that are based on markers of social difference and disadvantage.

Warehouse operators and temp agency managers employ a range of methods to compel workers into precarious jobs within the logistics sector, including creating and maintaining differential access to stable jobs for certain workforce segments, and perpetuating the myth of job ladders that move workers from temps to direct-hires.

The combined effects of these industry and labor market dynamics take a toll on workers. While wages are one central indicator of the poor quality of jobs in

warehousing, the insecurities workers face are financial but also social and personal. The widespread contingency that defines work in the industry translates into income volatility, with spillover effects into areas like housing and transportation. The severe constraints on moving into direct hire, long-term employment or opportunities to climb a job ladder mean that workers churn through jobs seeking small increases in pay, and workers find their dignity compromised.

But industry structure also constrains employers. Because of the extreme reliance on cost to differentiate among third-party operators, contracts are hard-won and profit-thin. Managers must meet the costs and expectations of the contract, and often experiment with different workplace systems and restructure their operations to do so. Many rely on temporary staffing agencies, which enable the industry to function despite deep contradictions arising from the instability of employment. This research explored the ways in which temp agencies are critical to processes of adjustment and experimentation in warehousing, revealing new strategies of cost containment and of outsourcing responsibility while simultaneously working the edges of legality and morality. Although managers certainly are able to exercise power within workforce systems, their ability to exercise managerial authority is constrained by forces outside of the shop floor. As a result, they tend to exercise their power in a limited realm, tinkering with labor strategy and work process adjustments within the constraints of thin margin contracts.



Warehousing and distribution is an industry in a precarious moment. The prevailing outsourcing dynamics rely on widespread risk-shifting and large, highly flexible labor markets. What are the long-term effects and limitations of the labor strategies employed in distribution in Chicago? Will workers be willing to churn indefinitely through a series of temporary jobs? Will the entrance of Amazon in particular locations, which absorbs a tremendous amount of labor during peak seasons, significantly change the dynamics of local labor markets? What will the effects of joint employment be for temp agencies and their warehouse clients? As campaigns to raise the minimum wage have taken hold, some predict dire consequences on the distribution industry—are these predictions dramatic or realistic? Finally, how will changing labor market dynamics affect the role of warehousing, and the ability of distribution firms to deliver the flexibility and risk shift expected of them?

To illustrate the need to track the shifting sands of competitive and labor strategy in logistics, I want to return briefly to the trucking sector. As I discussed in Chapter Four, surveys of outsourcing practices reveal that warehousing and truck transportation are the two logistics activities most prone to outsourcing. Truck driving has never been a glamorous job. Particularly for long-haul carriers, quality of life is severely diminished by being gone from home for extended periods of time. Over the last 20 years, as logistics managers have sought to reduce costs throughout the supply chain, transportation emerged as a key

target. The rising costs of fuel, combined with changing regulatory frameworks for trucking that now require firms to hire more drivers, has translated into downward pressures on wages and working conditions. What used to be a salaried job with benefits, often unionized, has been replaced by widespread independent contracting. One report suggests that a full two-thirds of U.S. truck drivers are misclassified as independent contractors (Smith, Marvy, & Zerolnik, 2014). Truck drivers are essentially piece workers, earning a few cents for each mile they travel. When the truck is standing still, in traffic or being loaded, or the driver is performing required inspections, they aren't earning money. Following the common theme, firms effectively shifted inefficiencies and risk onto truck drivers.

The trucking industry hemorrhaged its workforce over time. Today, the truck driver shortage presents a serious threat to the viability of freight transportation in the U.S. The American Trucking Association estimated that at the end of 2015, the industry was short by 48,000 truck drivers, and turnover rates are extremely high (Costello & Suarez, 2015). How do companies reverse the long-term trends that have pushed workers out of the industry? The manager for recruitment at Con-way, a leading freight trucking firm, summarized what many in the industry are thinking: "Overall, the industry needs to adjust compensation levels to match the jobs at hand" (Badkar, 2014).

The tides seem to be turning for truck drivers. Trucking companies now compete

for qualified drivers by raising pay, providing new trucks to drive, and revamping scheduling practices to allow drivers more time at home. As important, though, is that some trucking companies are beginning to push back against customers with unreasonable expectations or contractual requirements that translate into poor working conditions for drivers. For example, the owner of a 9,000-driver operation in Omaha said they charge more or will in some cases walk away from a client if their practices negatively impact the company's drivers. "We recognize turnover at an account level now," he said. "We simply cannot afford to put drivers in a situation where we'll lose him or her over shipper practices" (Kilcarr, 2015).

The dynamics of trucking are such that there are few alternative options: self-driving trucks are still decades away from being viable and opportunities to shift truck freight to rail are limited. Truck drivers require a skillset and special certification, one that costs up to a few thousand dollars, that sets them apart from low-skill manual warehouse labor. Yet their credentials didn't render them safe from downward pressures on wages and working conditions or the shifting of risk that has occurred over the last several decades. What resulted was a manmade labor shortage that now has companies backpedaling on long-run trends toward low-road employment.

This dissertation began in a city council meeting in August 2015 in Moreno Valley, California, as policymakers approved the World Logistics Center

development. Around the same time, the National Labor Relations Board ruled in the Browning Ferris case that subcontracted firms, like temp agencies, and client firms could be held as joint employers, a sea change in employment relations.

The *Browning-Ferris* case has the potential to significantly shift the nature of competition in warehousing, with ripple effects on the 3PL industry. If companies can no longer outsource the risk associated with employing workers in warehouses, the industry might be forced to develop different labor strategies, which, in turn, would present a new set of challenges and opportunities to workers and the organizations that represent them.

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## Appendix One: Note on Data Issues

All data sources are imperfect, but the particular data issues presented by U.S. government sources for the warehousing and distribution industry have made it difficult to understand the nature of warehouse work, particularly for economic development planners trying to understand the potential impacts of the industry on local employment.

1. NAICS codes for warehouse establishments fall between a number of different codes, depending on the categories selected by establishment owners. For example, a Target warehouse is classified under NAICS 493, Transportation & Storage, while a WalMart warehouse is grouped in 423, wholesale trade. In other cases, distribution centers are classified according to the types of goods moving through them—e.g., pharmaceuticals, beauty supplies and perfume, or advertising material distribution services. In still other cases, third party logistics firms are classified in warehousing and storage, but also in management consulting. For the 2012 NAICS code revisions, the Economic Classification Policy Committee for NAICS recommended that “units that collect, store, and distribute goods to affiliated retail locations should be classified to NAICS Subsector 493, Warehousing and Storage and to the appropriate industries based on the production process of the individual units being



- classified.” This makes using single NAICS codes a risky way of measuring even basic indicators of the industry.
2. BLS Occupational data is the best gauge of employment in this sector, yet this data includes occupations in manufacturing and other industries that are also prevalent in warehousing. The five most common occupations in warehousing and distribution are Laborers and Freight, Stock, and Material Movers; Shipping, Receiving and Traffic Clerks; Stock Clerks and Order Fillers; Industrial Truck and Tractor Operators; and Packers and Packagers, Hand. However, these BLS statistics only count the number of direct hire employees, and do not incorporate the workers hired through temporary staffing agencies. Because of this, even occupation-level data on wages tend to be skewed upwards by capturing only the wages of direct hires, which have been shown to be significantly higher than temps.

## Appendix Two: IRB Approval

### UNIVERSITY OF ILLINOIS AT CHICAGO

Office for the Protection of Research Subjects (OPRS)  
Office of the Vice Chancellor for Research (MC 672)  
203 Administrative Office Building  
1737 West Polk Street  
Chicago, Illinois 60612-7227

#### Approval Notice Initial Review (Response to Modifications)

June 7, 2011

Beth Gutelius, MUPP  
Urban Planning and Public Affairs  
400 S Peoria St #2100  
M/C 345  
Chicago, IL 60607  
Phone: (312) 996-4327

**RE: Protocol # 2011-0327**  
**“Warehouse Worker Diaries”**

Dear Ms. Gutelius:

Your Initial Review (Response to Modifications) was reviewed and approved by the Expedited review process on June 6, 2011. You may now begin your research

Please note the following information about your approved research protocol:

<b><u>Protocol Approval Period:</u></b>	June 6, 2011 - June 4, 2012
<b><u>Approved Subject Enrollment #:</u></b>	10
<b><u>Additional Determinations for Research Involving Minors:</u></b> These determinations have not been made for this study since it has not been approved for enrollment of minors.	
<b><u>Performance Sites:</u></b>	UIC, Warehouse Workers for Justice
<b><u>Sponsor:</u></b>	None
<b><u>PAF#:</u></b>	Not Applicable
<b><u>Research Protocol(s):</u></b>	

a) Ware house Worker Diaries Research Protocol; Version 2; 05/23/2011

**Recruitment Material(s):**

- a) Warehouse Worker Diaries Telephone Recruitment Script; Version 2; 05/23/2011
- b) Warehouse Worker Diaries: Screening Questions; Version 2; 05/23/2011

**Informed Consent(s):**

- a) Warehouse Worker Diaries Informed Consent Script; Version 2; 05/23/2011
- b) Waiver of Signed Consent Document granted under 45 CFR 46.117 for eligibility screening
- c) Alteration of Informed Consent granted for eligibility screening
- d) Waiver of Informed Consent granted under 45 CFR 46.116(d) for recruitment purposes
- e) Alteration of Informed Consent granted for this research

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.,

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

**Please note the Review History of this submission:**

Receipt Date	Submission Type	Review Process	Review Date	Review Action
04/20/2011	Initial Review	Expedited	04/23/2011	Modifications Required
06/02/2011	Response to Modifications	Expedited	06/06/2011	Approved

Please remember to:

→ Use your **research protocol number** (2011-0327) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,  
**"UIC Investigator Responsibilities, Protection of Human Research Subjects"**

**Please note that the UIC IRB has the prerogative and authority to ask further**

**questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.**

**Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.**

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Marissa Benni-Weis, M.S.  
IRB Coordinator, IRB # 2  
Office for the Protection of Research

Subjects

Enclosure(s):

- 1. UIC Investigator Responsibilities, Protection of Human Research Subjects**
- 2. Informed Consent Document(s):**
  - a) Warehouse Worker Diaries Informed Consent Script; Version 2;  
05/23/2011
- 3. Recruiting Material(s):**
  - a) Warehouse Worker Diaries Telephone Recruitment Script; Version 2;  
05/23/2011
  - b) Warehouse Worker Diaries: Screening Questions; Version 2;  
05/23/2011

cc: Michael Pagano, Urban Planning and Public Affairs, M/C 350  
Nikolas C. Theodore, Urban Planning and Public Affairs, M/C 345

## Appendix Three: Vita

### BETH GUTELIUS

#### EDUCATION

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- |                |   |
|----------------|---|
| 2016           | Ph.D., University of Illinois at Chicago, Urban Planning and Policy<br>Dissertation: <i>Global production networks “from below”:<br/>Geographies of<br/>labor in logistics</i><br>Committee: Nik Theodore (chair), Rachel Weber, Brenda Parker,<br>John Jairo<br>Betancur, Marion Werner (SUNY Buffalo) |
| 2012           | Summer Institute in Economic Geography, Zurich, Switzerland   |
| 2009<br>Policy | M.U.P.P., University of Illinois at Chicago, Urban Planning and<br>Specialization: Economic Development<br>Advisor: Nik Theodore  |
| 2000           | B.A., Antioch College, Cultural and Interdisciplinary Studies   |

#### RELEVANT PROFESSIONAL EXPERIENCE

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##### **John D. and Catherine T. MacArthur Foundation**

2014-2015 Research Associate

2012-2014 Research Assistant

Conduct research to inform grant-making, strategy development, and evaluation methods and metrics; review grant proposals and make funding recommendations; manage strategic explorations of new areas of work.

##### **Center for Urban Economic Development**

2009-2013 Research Assistant

Coordinated national and regional research projects on labor and working conditions; designed and fielded surveys; conducted data analysis and evaluations; supported grant writing and proposal development for new research projects.

##### **University of Illinois at Chicago, Disability Resource Center**

2007-2009 Facilities Access Consultant

Coordinated campus-wide development of strategies for improving physical access to learning environments.

##### **Active Transportation Alliance/Chicago Department of Transportation**

2004-2007 Transportation Planner (consultant)  
Coordinated citywide pedestrian policy and planning; managed budget of \$2.4 million in federal contracts; wrote successful grants totaling \$1.1 million; hired and supervised team of five.

## CONSULTING

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### **National Domestic Workers Alliance**

2016 Research consultant on data analysis

### **American Federation of Teachers, New Mexico**

2016 Research and policy consultant on early childhood education expansion and workforce development

### **Ford Foundation**

2016 Research Consultant to Quality Work and Economic Security program

### **John D. and Catherin T. MacArthur Foundation**

2016 Research consultant to Foundation's exploration of the Future of Work

### **New Orleans Workers Center for Racial Justice**

2015 Research consultant for Strategic Logistics Campaign

### **Warehouse Workers for Justice**

2010-2015 Research and policy consultant

### **Food Chain Workers Alliance**

2011 Research consultant for *Workers Along the Food Chain* research project

### **Center for Regional Economic Competitiveness,**

2011-2012 Researcher for ACCRA Cost of Living Index

## PUBLICATIONS

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### **Peer-Reviewed Journals**

Gutelius, B. (2015). Disarticulating distribution: Labor segmentation and subcontracting in global logistics. *Geoforum* 60, 53–61.

### **Book Chapters**

Chang, V. & Gutelius, B. (2016). Field-building in stages: Funding and sustainability in civic innovation, in *Civic Media: Technology, Design, Practice*, Gordon, E. & Mihailidis, P., eds. Boston: MIT Press.

### Editor-Reviewed Journals

Gutelius, B. (2013). Contract fights, community rights: Chicago teachers and education justice. *Progressive Planning* 197, 36–39.

### Policy Reports and White Papers

Theodore, N., Gutelius, B. & Burnham, L. (2013). *Home Truths: Domestic Workers in California*. Prepared for the National Domestic Worker Alliance, New York, New York.

Gutelius, B. & O'Neill-Kohl, S. (2011). *Who's Hiring? Characteristics of Casa Latina Employers*. Prepared for Casa Latina Worker Center, Seattle, WA

Gutelius, B. (2010). *Bad Jobs in Goods Movement: Warehouse Work in Will County, Ill.*

Prepared for Warehouse Workers for Justice, Chicago, IL

O'Neill-Kohl, S., Gutelius, B., Dickson-Quesada, A., & Tarczyska, K. (2010). *Creating Routes to Advancement in Contingent Labor Markets: Workforce Development Activities of Day Labor Centers*. Prepared for the National Day Laborer Organizing Network, Los Angeles, CA

### AWARDS AND GRANTS

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2016	Ford Foundation grant to fund conference on logistics. \$20,000
2013-2014	Deans Scholar Fellowship, University of Illinois at Chicago. \$25,000
2012-2013	Pilot Projects Research Training Program, National Institute of Occupational Safety and Health (for dissertation research). \$18,079
2012-2013	Berger Marks Foundation Scholarship. \$1000
2008	Rob Mier Memorial Scholarship, University of Illinois at Chicago. \$1000

### INVITED SPEAKER

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2015 "Logistics as Shangri-La or Shitshow?" University of Toronto, Department of Geography, October 10.

2015 "The Rise of Contingent Work and Worker Center Responses." Funder Briefing, Neighborhood Funders Group, September 25.

2013 "Distribution Nodes in Global Production Networks." Illinois State University, Department of Geography, September 20.

## TEACHING EXPERIENCE

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### University of Illinois at Chicago, College of Urban Planning & Public Affairs

2011-2012 Teaching Assistant. *Cinema and the City* (undergraduate)

## ACADEMIC PRESENTATIONS & CONFERENCES

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- 2016 Conference Convener, "Logistics: current research and organizing." Rutgers University, New Brunswick, NJ.
- 2016 Co-presenter, "The production of value in logistics." Association of American Geographers Annual Meeting, San Francisco, CA
- 2016 Co-organizer, "Critical Logistics" panels I-III. Association of American Geographers Annual Meeting, San Francisco, CA
- 2015 Presenter, "'Lights' and 'heavies': Gendered work in logistics." Association of American Geographers Annual Meeting, Chicago, IL
- 2015 Co-facilitator and organizer, Wall Street Accountability Research Training. Washington, DC
- 2014 Presenter, "Engaging Communities through Research." Labor Research & Action Network Annual Conference, Washington, DC
- 2013 Moderator, "Research by New Scholars." Labor Research & Action Network Annual Conference, Washington, DC
- 2013 Presenter, "Inclusion and exclusion in distribution: The shifting labor strategies of firms in GPNs." Association of American Geographers Annual Meeting, Los Angeles, CA
- 2012 Discussant, "On the trail of the global commodity chain: Analytical construct, policy tool, or critical research paradigm?" Summer Institute in Economic Geography, Zurich, Switzerland
- 2012 Presenter, "Distribution at the margins." Association of American Geographers Annual Meeting, New York, NY
- 2011 Presenter, "A research agenda for the margins." Underserved Populations Research Group, Illinois Occupational and Environmental Health and Safety Education and Research Center, Chicago, IL



2011 Co-presenter, "Worker surveys as a strategic tool." Labor Research & Action Network Annual Conference, Washington, DC

## SERVICE

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2016	Research advisory board member for California Domestic Worker Employer Survey
2016	Reviewer, <i>Society and Space</i>
2015	Economic development advisor, Jesus 'Chuy' Garcia Mayoral Campaign
2011-present	Advisory Committee (elected), Labor Research & Action Network Planning Committee, On-Demand Economy Research, 2015 Co-chair, Conference Working Group, 2013-2014 Co-chair, New Scholars Working Group, 2011-2013
2006-2011	Advisory Board member and editor, AREA Chicago

## MEDIA COVERAGE

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"Abuse of domestic workers a widespread issue, study says," by Tatiana Walk-Morris,

12/3/2012. Chicago Talks

"Domestic workers face many hardships, report finds," by Steven Ross Johnson, 11/27/2012. Progress Illinois

"A thriving industry built on low-compensated temp workers," by Kari Lydersen, 8/28/2010. The New York Times

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