

Globalization and the labor markets of the logistics industry

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When the Frontline documentary, “Is Wal-Mart Good for America?” was released, it presented a vision of an information-intensive logistics system which brought goods to market from far-off suppliers on schedule. In the documentary, when a customer purchases a product at Wal-Mart, the cashier’s computer scans the sale and sends information to the company’s inventory control internet data-base so that orders for new supplies of that product can be transmitted to suppliers in China. Throughout academia, researchers have absorbed this image, and fashioned a picture of a logistics industry that is tightly integrated¹. Sales data drives orders; orders drive logistics services; shipping data drive warehouse schedules; lean inventories mean low insurance and interest costs.

Union researchers began conceptualizing logistics as a strategic industry, vulnerable to disruption and labor power if logistics workers could only be organized on a global basis. At the Cornell University mega-conference on Global Corporations, Global Unions, Global Research, Global Campaigns, held in New York City, in February, 2006, the logistics sessions were well-attended, with researchers and unionists from China, Hong Kong, Australia, England, South Africa, Switzerland, Brussels, California, and Mexico participating in sessions that were the buzz of the meetings.

I began this research with the hypothesis that the information technology revolution was transforming work in the logistics industry. If IT could make it possible for corporate managers to coordinate purchasing, production, sourcing, logistics, warehousing, human resources and marketing decisions, surely it would at the same time transform the labor markets of the logistics industry itself into high-road

¹ Edna Bonacich and Jake Wilson, Getting the Goods: Ports, Labor and Logistics, 2008.

enterprises capable of taking fullest advantage of the vast quantities of information that computers and the internet were making available.

After two years of research into a variety of logistics labor markets, I have seen little that confirms my hypothesis. Seafaring, longshoring, drayage, and warehousing are not for the most part high-road industries, where educated and empowered workers are able to use information to produce efficient, low-cost, on-time solutions. Rather, the power of computer-based information processing is enabling businesses to scour the world for the cheapest supplies not only of raw materials and manufactured goods, but for labor itself. And the impact of the logistics revolution is not only that it provides employers to access far-flung networks of cheap labor, it also enables them to hire labor in ways that reduce their responsibilities, their benefit obligations, their tax liabilities, their insurance costs, and their fixed costs for equipment and so on.

The logistics industry's choice of low-road labor markets comes at considerable cost. As labor economist know from long experience, low labor costs reduce the need for capital investment, new technology, and integrated systems. The low-cost labor markets of the current global logistics industry impose significant costs to global commerce in terms of uncertainty, delay, additional inventory and insurance costs, lost sales, increased discounting. The low-road labor markets also impose costs to the public in the form of wasted fuel, excess air and water pollution, worn-out roads, overstrained infrastructure, heightened public health costs, unnecessary land use and on and on. So how has this state of affairs come about?

Containerization

The containerization of global shipping, which began in the late 1950's and took two decades to complete, brought great changes to logistics labor markets throughout the world. Containerization brought down the cost of loading and unloading ships as well as the duration of the time spent loading and unloading. This dramatic change reduced the need for longshore labor as well as the time ships spent in port, burning fuel, keeping seafarers' idle, and wasting the revenue-generating capacity of the idled

ship. Once containerization was in place, the cost of shipping goods long distances declined radically, which opened up the possibility for offshoring production, lengthening supply chains, reaching new customers, and bringing new sources of labor, raw materials, components, and logistics services into the realm of global trade and investment.²

Containerization made global transportation so much cheaper that the volume of trade began to grow rapidly. As the volume of trade grew, the labor markets grew, bringing tens of thousands of workers into trucking, rail freight, warehousing and logistics services.

Containerization also changed the direction of trade, which had important implications for the location of logistics jobs. As cargo was shifted from bulk shipping to container shipping, some ports, like Philadelphia and Boston declined in significance, while others, like Norfolk and Vancouver grew. Ports grew up near the new manufacturing centers that grew up as global businesses discovered new sources of labor and new suppliers of components and raw materials. Hong Kong, Mumbai, Shanghai, and Singapore grew in significance, while Chicago, London, Marseilles and New Orleans declined.

Neo-Liberalism

The ports didn't grow by themselves. The infrastructure required to handle the massive container ships was expensive, and in many cases, local businesses and governments lacked the capital to build the new terminals, erect the cranes, construct the highways, lay the tracks, and build the warehouses and distribution centers. The International Development Bank, aka the World Bank, entered the scene, offering to help local business communities and governments to raise private capital to build efficient new ports. In the age of neo-liberalism, there was a catch; the World Bank's development agenda required the new ports to adopt business and labor practices

² Marc Levinson, The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger, 2006.

consistent with neo-liberalism: global competition for services rather than local business networks, contracting out work rather than employing workers, deregulating product and labor markets.³ Local employers went bankrupt or were absorbed by global companies. Companies that had specialized in one branch of the logistics chain began investing in firms in connected branches of that chain. New global giants emerged, like Maersk and Cosco, which owned not only ships but terminals, trucking companies and warehouses all over the world.

The Logistics Revolution That Wasn't

In the 1990's, the development of information technology offered new possibilities to firms engaged in world trade. Computers, software programs and the internet made it possible for large shippers to become systematic about finding the cheapest freight rates and freight routes, the cheapest supplies, and the cheapest labor; furthermore, computer-powered inventory systems made it possible to integrate sales with orders, orders with shipments, shipments with deliveries.

The influx of global technology, the growth of global firms, and the development of knowledge processing technology gave rise to expectations that the labor markets of the logistics industry, which had already been transformed by containerization, would undergo a second revolution, one that would displace manual labor in favor of educated labor that could operate the larger, more technically complex systems more effectively. Some labor researchers believe that employers face the choice of taking a "high" road or a "low" road to competitiveness. The "high road" favors a competitive strategy based on innovation and customization, and thereby requires more skilled labor, while the "low road" competitive strategy focuses on recruiting the cheapest labor, keeping down wages and labor costs, and maintaining maximum labor flexibility.⁴

To illustrate the strategic choices employers in the logistics chain may take, the ILO's study of Global Seafarers traces the trajectory of maritime employment from 1979

³ World Bank, Port Reform Tool Kit, #7, "Labor Reform and Related Social Issues." 2001.

⁴ ILO, The Global Seafarer: Living and Working Conditions in a Globalized Industry.

to the present: In 1979, the study recounts, an American journalist sailed with a Norwegian ship to study how technological change and social organizational change were impacting the work of crew members. The shipping company had been collaborating with Oslo University's Work Research Institute to create a high-road version of seafaring labor. The author wrote: "Here we might catch a glimpse of the future of ... maritime shipping." Among the innovations:

1. The whole crew ate at once
2. There were excellent recreational facilities, including an indoor swimming pool
3. The crew was encouraged to upskill and take on more flexible work roles. Able-bodied seamen were given responsibility for their own work. The divide between work on the deck and work in the engine room was decreased. Hierarchy in organization was diminished in favor of more democratic structures.

However, according to this ILO study, maritime shipping has not taken the high road. Ship hierarchies are as steep as ever. Workers are separated from each other and from officers. Crew size is smaller. Work has intensified. Crewmen have less time in port. Wages have gone down. Social isolation remains intense. Experiencing chronic stress, workers suffer emotional problems and become alcoholic at high rates. Working hours are long, usually 60 hours per week, and pay is low: the ILO recommended minimum wage is \$435 per month, and many seafarers make less.

Most of the world's current crew of seafarers are uneducated, and they come from some of the poorest nations on earth -- Bangladesh, China, India, Pakistan, the Philippines, Estonia, and Latvia. Working at sea is no longer a way to see the world; when seafarers arrive at American ports, they often can't afford a visa. Even if they could afford one, their port stays are short anyway; those fortunate enough to debark have just enough time to go shopping at a local mall before they have to get back to sea. Leaders of the global logistics industry are trying to add to the seafarers' burdens responsibility for beginning the process of unloading the ships before they get into

ports. In Europe, these proposals for self-loading provoked continent wide strikes and a political mobilization by the unions before they were beaten back.

Of course, not all those involved in global shipping share the fate of these seafarers. The crews of transoceanic vessels include highly trained officers who are responsible for maintaining expensive equipment, keeping ships on course, on schedule, and in good order, maintaining communications with shipowners', shippers, and harbor masters, etc. This workforce has a different origin and a different education than the sea-farers. They ride aboard the same ships but they live in a different world.

In some ways, the story of the seafarers' emblemizes the impact of the recent revolutions in the logistics industry on its various labor markets.

Longshoring

If we turn to longshoring, which is what most people think of when they conjure up the logistics revolution, we can indeed find mighty crane operators who are lords of the docks. They pick up containers worth millions of dollars, and they put them down, gently, in a precise place, so as not to damage the equipment below. They are trained extensively and paid commensurately. If they are displeased with the terminal operators, they can reduce a busy port to chaos in a matter of hours.

The picture is not as pretty for the ordinary dockworker, who operates yard equipment, drives cars off ships, or monitors traffic at terminal gates. On the docks, technological advances, privatization and deregulation have made it possible for employers to lay off hundreds of thousands of longshoremen. The re-casualization of labor has taken place in Korea, New Zealand, and England, where longshoremen's union power has been broken.⁵ In the U.S. unions have won productivity gain sharing agreements, but standards are declining, at least on East Coast where the ILA was forced to accept a nine-tier contract that has reduced pay levels and reintroduced casual work patterns for thousands of recent hires. In 2006, the Waterfront

⁵ See Peter Turnbull's articles in the bibliography for detailed descriptions of the battles in England and in Europe.

Commission of New York Harbor reported that one-third of the longshoremen hired since 2003 had not worked enough hours to qualify for benefits. Some of them were receiving public assistance.⁶ On the West Coast of the U.S., in the EU and in Mumbai, India, longshoremen's unions have staved off deregulation, but the numbers of longshoremen are declining despite the rapid growth in the volume of trade.⁷

Port Trucking

Until about 1980, the port trucking, or drayage industry, was a unionized sector in which truck drivers made wages comparable to those of industrial workers, with medical insurance and pension benefits. In the late 1970s, Carter/Kennedy "reforms" brought to an end the regulatory regime which limited the number of trucking companies that could operate on each delivery route, a regime that set freight rates, a regime in which port truckers were union workers with health insurance, pensions, and industrial workers' wages. Post-1981, most drayage companies ceased to be owners of trucks and employers of drivers; under the new regime, most became brokers with few assets and even fewer responsibilities towards the drivers; Their role is to take orders and schedule pick ups and deliveries from port terminals to distribution centers and warehouses, which may be as far as seventy-five miles from the ports, depending on distribution patterns, land prices and labor costs. For their role in scheduling the truck movements of their contract drivers, they receive at least one half of the freight delivery rate⁸

In a generation, port trucking became a scene of destructive competition. With virtually no barriers to entry, anyone with a phone and fax machine could become a

⁶ Joe Malinconico, "Little-Used Dockworkers Ask 'Why Bring in More?'" Newark Star-Ledger, June 24, 2007.

⁷ S Sundar, "Restructuring and Regulation in the Ports Sector, Indian Experience," a powerpoint presentation; Ray, Amit S., "Managing Indian Port Reform," Case Study of Jawarallal Nehru Port Trust Reform (Mumbai), a World Development Report, 2005; Deepak Kumar, India Port Report, 10 Years of Reform and Challenges Ahead; Book review of above, in ICFAI Journal of Infrastructure, March 2004; George Tharakan, "Key Challenges for Port Sector Development in India;" Indian Brand Equity Federation, "Indian Ports: Sprucing Up to Face Boom Times." See also Turnbull.

⁸ See Dale Belman and Kristen Monaco, The Consequences of De-Regulation, De-Unionization, Technology and Human Capital On the Work and Work Lives of Truckers," *Industrial and Labor Relations Review*, March 2001.

trucking broker. There are now thousands of these brokers contracting with the 80,000 owner operators, who constitute 70% of the drayage labor force. Since these brokers have few if any assets or overhead costs, they constantly underbid each other, keeping transportation costs low, but shifting much of the cost of doing business onto surrounding communities in the form of dirty air, congested and broken roadways, and ubiquitous traffic accidents.

As independent contractors, owner drivers are treated by the law as independent businesses and have no collective bargaining rights, making them powerless to join together to negotiate higher rates. In fact, drivers have been sued for violating the federal Sherman Anti-Trust Act for going on strike to demand wage hikes. The low rates drivers receive do not allow them to maintain their trucks properly. The resulting high maintenance costs keep them from accumulating enough savings to afford to replace their aging trucks with newer ones that provided better fuel economy and produced lower emissions. Lack of health insurance means that when a driver, or a member of his family, gets sick, the driver can not afford to remain in a job without benefits. As tens of thousands of formerly Teamster union drivers left the industry, they were replaced by workers with the fewest options – immigrants from India and Pakistan in Seattle and Vancouver, from Central America and Mexico in California, from Cuba in Miami, and from Latin America, Africa and Asia in New Jersey. I have recently completed a survey of port truckers at the ports of northern New Jerseys which indicate that independent contractors net about \$28,000 per year for a 60 hour work week. This sum is not enough to afford them health insurance or to cover the cost of maintaining their trucks properly. More than seventy per cent of drivers have no health coverage, and the average truck is eleven years old. The recent surge in diesel fuel prices has prompted work stoppages throughout the country. Studies of drivers on the West Coast have found that port truckers there experience similar conditions.⁹

⁹ . East Bay Alliance for a Sustainable Economy, "Taking the Low Road: How Independent Contracting at the Port of Oakland Endangers Public Health, Truck Drivers and economic Growth." September, 2007 and⁹

Sixty hours on congested highways in aging, diesel fume spewing trucks would be bad enough, but the daily experience of drivers is worse than that. Because independent contractors are not paid for their time, but for the load, the operators of terminals, trucking firms, distribution centers and warehouses have no incentive to invest in technology or to streamline systems so that drivers can maximize the number of deliveries they make per day. Instead, drivers wait on lines – to get through the terminal gates, to pick up the chassis on which their loads will sit, to exit the ports with their boxes inspected, to drive through bottlenecks at ramps and bridges leading to and from the port, to deliver and pick up boxes at the loading docks of dc's and warehouses. Waiting on line, losing time, breathing in diesel fumes from old, outmoded trucks leads to disabling stress, heart and lung disease and cancer, but nobody knows how much.

The fact that drivers are not paid for their waiting time takes a toll not only on their health, but on the efficiency of the logistics chain itself. Since their extra low earnings means that freight rates have remained low despite the rapid increase in shipping volumes, logistics firms have little incentive to invest in modern equipment to speed up the movement of the trucks carrying containers into and out of the ports. In most of America's ports, the chassis which carry containers are old and traffic software outdated. Freight rates are so low that it is economical for shippers to let their containers sit around at the terminal yards for up to three days awaiting pick up and delivery – and some sit even longer, accumulating late fees. These boxes take up space, and clutter the yards. Because the freight rates are so low for the containers moving slowly through the congested terminals and highways, most customers don't insist on just-in-time delivery, for which they would have to pay a premium. As a result, they

have higher inventory and insurance costs, and they lose potential profits when they have to discount items that arrived at the stores too late to satisfy customer demands.¹⁰

The problems of US port truckers are shared by their brethren in Canada. At the port of Vancouver, the situation of long waiting times, low pay, and poor work conditions was so bad that the port truckers stopped work for more than six weeks in 1999. After trying a voluntary plan to improve the conditions of independent contractors for six year, the port decided in 2005 to adopt a truck licensing system, and to require that licensees hire port truckers as employees.¹¹

Bad as the working lives of American port truckers are, they are probably significantly better than those of most other drivers in the world's drayage markets. In China, truckers often spend half a day at a time lined up at truck stops waiting to refuel.¹² In southern Africa, drivers crossing national borders may have to wait weeks to get their travel permits approved. In India, truckers have to pay bribes to numerous government officials to gain access to highways and access roads.

In Korea, which has aspirations to be a freight center for northern Asia, port trucking is an impediment to development plans. In 2005, the Korean Minister of Labor reported that the average truck driver, who is an independent contractor, earns only 77% of the average urban workers' wage. For this, he works 80.7 hours per week, and sleeps in his truck an average of only 5.1 hours per day. Like U.S. truckers, Korean drivers suffer from the fact that their brokers take the fuel surcharges they are supposed to receive.

Warehousing

The logistics revolution has affected warehousing in that logistics service providers now have information processing capability that allows them to offer space at

¹⁰ David Bensman, "Keep on Trucking: The Supply Chain Motors Down the Low Road," New Labor Forum, Winter, 2008.

¹¹ "Fix, Lead, Grow: Vancouver's Solution to a Broken Port Trucking Industry," Clean and Safe Ports Coalition, 2007.

¹² The New York Times, "Powering china's juggernaut: truckers hauling coal" Sept. 20, 2006

a wide range of costs and a wide range of distances from ports and customers.

Someone ordering a product from China now has a world of choices:

1. They can have their freight stored in China until it is needed.
2. They can have it shipped to a transshipment port, and held there until a cheap freight rate is available on a container carrier.
3. They can have it shipped on the cheapest available container carrier, and then have it stored at a terminal's yard until it is needed.
4. They can have it sent via ship to a port, and then have it warehoused near the port.
5. They can send it via a cheap ship to a distant port, and then have it transported by rail to a distant warehouse until it is needed.
6. They can ship it to a nearby port and then have it trucked to a distant distribution center until it is needed.

This use of computer processing enables companies to expand their options for warehousing in much the same way as the container revolution enabled them to expand their sourcing and distribution options. Since companies have different needs, depending on their distribution networks, and the nature of the products they are distributing, they make different decisions. Fashion sensitive garments, food, and heavy equipment tend to be warehoused near the port; general consumer merchandise that will be sold during the Christmas shopping season can be stored wherever costs are lowest.

While just-in-time delivery inventory systems became the by-word in studies of high-performance work systems in the 1990's, it appears that many shippers prefer not to make themselves vulnerable to the high labor costs, expensive capital, and possibility of delay that just-in-time systems engender. At an import warehouse twenty-five miles from the booming port of Norfolk, trains bring containers on a regular schedule at low prices. But once the

containers are in the facility, they sit undisturbed for a week at a time. Trucks arrive to pick up freight without appointments.¹³

Meanwhile, in Cranbury, New Jersey, thirty miles from the ports of northern New Jersey, dozens of warehouses sit vacant even as new facilities are being built on speculation. The reason is that many shippers are finding it cheaper to store their freight fifty miles to the west, in the Lehigh Valley, or hundreds of miles to the south, in Georgia and South Carolina. Cheaper land and labor costs matter more to the bottom line than proximity to customers. During the past decade of cheap energy, the wasted diesel fuel and unnecessary mileage were of little consequence; perhaps now that the cost of diesel fuel has skyrocketed, the algorithm will change.

The high road/low road division exists in warehousing as well as in the other logistics sectors. In Europe, the high cost of fuel, and environmental regulations have provided incentives for warehouse companies to locate near customers and ports. They compensate for high labor and land costs by building higher warehouses, which require less land, and by investing in automated picking equipment to move up and down the vertical rows. Few such warehouses have been built in America. When a warehouse can assemble a labor force from temporary agencies which recruit immigrants willing to work without health insurance or pension benefits, it doesn't pay to train labor and invest in skill-intensive equipment.

Many warehouses have fork lift trucks that direct the drivers to the exact place where their pick-up is waiting. The driver barely needs to read or speak English. While the data base and information processing system that spits out his instructions is knowledge intensive, no one in the warehouse knows how to input the data or repair the equipment. Most of the technicians are in corporate headquarters; those that aren't can be hired on a contract basis.

¹³ Interview with warehouse manager, November, 2007.

Most warehouses are not unionized. Pay starts at \$9/hour. New hires come in on a temporary basis; when permanent slots need to be filled, the employer can select the most reliable of his contract employees. Not surprisingly, under these conditions, most employees are immigrants. In New Jersey's prime warehousing region along the New Jersey Turnpike between Edison and Jamesburg, most of the male warehouse employees – who do the receiving and forklift operation -- are Latino. Many female employees, who do the picking and packing, are South Asian.

Many warehouse operators have shifted as much of their supervisory and administrative burden as possible on to the labor agencies. These agencies now do the hiring, payroll administration, training and supervision of warehouse employees. In some of its branches, warehouse operation has become a subcontracted industry, like janitorial services, or port trucking.

Another feature of the warehousing labor market is its lack of job ladders. Once they are in it, most workers can hope for no more than a steady job at \$15 per hour without benefits. Unionization, health insurance, and pensions are very much the exception. Adding to the difficulty of the warehousing industry is the insecurity. Not only is this a seasonal industry, in which labor demand peaks in the build-up to the Christmas season, and slumps in the post-holiday winter months, but it is one where employers come and go as unprofitable operations are shut down and new facilities open alongside newly built infrastructure.

It would be a mistake to over-generalize. In markets where goods need to be delivered on-time to customers near the ports, or where the products are heavy and expensive to transport – think industrial heating systems – the work force may be more stable, the wage mix tilted to the high side, the employers'

willingness to invest in training greater.¹⁴ However, in the last fifteen years, advances in logistics have reduced, not raised the probability that companies will choose high-road warehousing solutions. Low fuel costs, lax diesel emission standards, loose zoning, low tax rates, development subsidies have all encouraged sprawl, dispersed distribution, greenfield development, immigrant labor, and temporary labor agencies.¹⁵

Conclusion

In the labor markets of the logistics industry, advances in information technology, combined with deregulation and privatization, and the influx of global investment capital, have enabled employers to access ever larger tools of labor. 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 in the form of air pollution, traffic congestion, infrastructure degradation, fossil fuel consumption, and ecologically damaging land use. While many workers and firms suffer from their lack of bargaining power, industry leaders remain profitable despite the systems' many inefficiencies, because low wages keep labor costs and freight rates low. Changes in public policy could change this suboptimal equilibrium, but most of the organizations involved in the industry will resist such changes. In Los Angeles, a coalition of environmentalists, labor unionists, public health advocates, and faith-based organizations forced the Harbor Commission to push logistics onto the high road. It remains to be seen whether this can be a model for sustainable change.

¹⁴ At a Volkswagen parts warehouse near Cranbury, permanent workers' wages start at \$21 per hour. The high wages reflect both a desire for a stable workforce, and for avoiding unionization, according to an interview with warehouse and human resource managers.

¹⁵ The above analysis of warehousing is based on interviews with managers at warehouses, 3PLs, NVOCCs, trucking companies and shipping lines. The interviews were conducted as part of an NSF-sponsored study of the logistics industry. Profs. William Rodgers and Maria Boile and th author are co-principal investigators in this larger effort. Many of the interviews were conducted by William Kramer, who has written a memo outlining the findings from the interviews. Carmen Martino, who develops safety and health curricula for the Rutgers Latino Occupational Safety and Health Institute, contributed his observations as well. While these interpretations were developed in conversations between the author, William Kramer and Carmen Martino, the author takes responsibility for all errors of interpretation.

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