

**Global Sourcing Dynamics, Inequality, and ‘Decent Work’ in Auto
Parts: Mexico Through the Brazilian Looking Glass**

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ABSTRACT

What are the social impacts of the rising auto parts star on the horizon of Mexico’s export-led, transnational corporation (TNC)-dominant development trajectory in terms of job quality and patterns of inequality surrounding auto parts employment? This essay finds these job opportunities in one of the country’s fastest growing manufacturing export sectors are a far cry from what the ILO terms “decent work”—they are insecure, with stagnant purchasing power, and declining protections against supervisory abuses, including evident violations of core international labor standards. These trends belie expectations about the fundamental job quality benefits of deeper insertion by firms in developing countries into dynamic global value chains such as that of automotives, which are found in influential but otherwise distinct “upgrading” and “TNC diffusionist” perspectives. Based on a comparison with strikingly similar patterns of declining job quality and heightened inequality in Brazil’s globally integrating parts sector since the early 1990s, the paper attributes these patterns to the confluence of global inter-firm processes and national policy choices—first, the socially exclusionary structural dynamics of sourcing to developing country locations within the evolving global automotive value chain and, second, economic policies (and inactions) that perpetuated a TNC-dominated form of global parts insertion with weakening backward linkages.

Global Sourcing Dynamics, Inequality, and ‘Decent Work’ in Auto Parts: Mexico Through the Brazilian Looking Glass

Scott B. Martin, Ph.D.

The changes wrought by the 1994 entry into force of the North American Free Trade Agreement (NAFTA) over the past decade were the culmination of a longer-term process of ever tighter integration of the Mexican automotive industry into the global automotive value chain dating back to the 1980s. The U.S.’s southern neighbor has become an integral part of the North American node of the global automotive value chain, and the importance of automotive production, employment, and exports to the Mexican economy have grown apace. Transnational corporations (TNCs) operating in Mexico, along with a handful of large domestically owned parts firms that are increasingly transnational in their own right, have been producing an increasing volume of auto parts that are exported, either directly or--through incorporation into vehicles that are assembled for export in Mexico--indirectly. Together, auto assembly and parts represented almost one fifth of all manufacturing employment in Mexico as of 2004, 22% of all Mexico’s exports (second only to oil), and 14.4% of its manufacturing gross domestic product, excluding the export processing (*maquila*) sector (INA, 2005). Exports from the auto parts sector in particular grew by an average of 15.3% over 1991-2004, and the Mexican business research institute CEESP estimates that one-third of all automotive employment in Canada and the U.S. was transferred to Mexico between 1978 and 1999 (2001, cited in Mortimore and Barron 2005:22). The empirical question addressed by this chapter is thus not just of sectoral but also larger national and regional

North American significance: What are the social impacts of the rising auto parts star on the horizon of Mexico's export-led development trajectory in terms of job quality and patterns of inequality among parts workers?

A once largely self-contained, backward, and small industry, built and protected under the concept of import substitution in the 1950s and 1960s by foreign manufacturers who “leapt over the tariff wall” to produce for the domestic market, has now become an integral part of the global automotive value chain. As jobs have declined in number in Mexico's increasingly productive final assembly industry, they have continued to increase in the parts sector, where employment now outnumbers assembly jobs almost 8 to 1¹ and stood at roughly 388,000 as of 2003 (see below). Yet, this chapter finds, these job opportunities are a far cry in terms of job quality from what the ILO terms “decent work”—they are insecure, with stagnant purchasing power, and declining protections against supervisory abuses, including evident violations of core international labor standards. Inequalities are expanding within the Mexican parts industry as its global integration increases: parts employers (and assembly firms undertaking outsourcing to cut costs) are reaping nearly all the benefits of productivity gains, and pay gaps between blue and white collar staff and between parts workers and assembly workers continue to grow. These trends stand in stark contrast to expectations about the fundamental job quality benefits of deeper insertion by firms in developing countries into dynamic global value chains such as that of automotives; such expectations are particularly prevalent in two influential but otherwise distinct bodies of literature that I will call the “upgrading” school and the “TNC diffusionist” perspective.

¹The parts sector accounted for 88.8% of all direct production employment in the Mexican automotive sector in 2004 (AMIA 2005).

Why has job quality deteriorated and inequality sharpened as Mexican parts operations have become more globally integrated and expanded since the 1980s? This chapter attributes the stagnation and decline of decent work in Mexican auto parts to the confluence of global processes and national policy choices—first, the structural dynamics of sourcing to developing country locations within the evolving global automotive value chain and, second, economic policies (and inactions) that perpetuated a TNC-dominated, form of global parts insertion with weakening backward linkages to smaller parts firms. While a considerable amount of blame for workplace and labor rights abuses *per se* must be placed at the door of the confluence of institutional legacies and a continued policy regime of corporatist labor control in Mexico, I argue, this is not the primary reason for stagnation or deterioration in other aspects of job quality or in terms of growing firm-level and intra-chain inequalities. The importance of both supply chain dynamics of the global automotive chain that tend to have harsh implications for parts workers (and locally owned firms) in developing countries lying at the “bottom of the food chain” and of unfavorable policy regimes is underlined through a comparative discussion of Brazil. Somewhat more recently, since the 1990 onset of trade liberalization, Brazil’s parts industry has been incorporated into the global automotive chain through the same basic worldwide automotive trends of expansion of automotive TNCs into emerging markets through “global sourcing,” “globally preferred sourcing,” and “follow sourcing/follow design” on the part of branded global assembly firms. In that South American country, attendant to heightened insertion into the global automotive chain and denationalization of what was once a sector dominated by national capital there has been a large shakeout in employment as well as aggravated wage dispersion within the value chain (though

workplace and labor standards abuses do not appear to be nearly so common, thanks to stronger, more encompassing unions and more autonomous collective bargaining). In both countries, I will show, intra-chain inequalities are even sharper than parallel processes in mature, developed economies by which parts employment has generally grown as assembly employment has contracted, and government policies regarding competitiveness and/or trade have aggravated rather than cushioned tendencies toward inequality and externalization of risk and costs by TNC automakers and their preferred TNC parts supplies to smaller parts firms and their workers.

The social costs, particularly for workers, of Mexico's version of export-oriented industrialization have been well documented in the literature on *maquilas*, or export processing operations (most recently, see the essays in Kopinak, ed. 2005). The very structure of the maquila import-export regime, of the predominance of "greenfield" non-industrial zones in the industry's development, and of the maquila labor relations regime's noted enmity toward independent union organizing make for a particularly and almost uniquely hostile environment for improving job quality and combating employment-related inequalities. This study seeks to expand our understanding of the barriers to improvement in labor and employment standards in the country and in Latin America more generally by, instead, focusing on the less well appreciated social costs of *non-maquila* export-oriented employment. Non-maquila employment in fact predominates in Mexican parts manufacturing (and automotive manufacturing more broadly). In 2003 for instance, the latest year for which data on both sectors was available, there were 387,901 Mexicans employed in the non-maquila parts sector (INEGI 2005), compared to 238,000 in maquila parts firms (Mattus Rivera 2004:82,

based on INEGI/Banco de México)—a ratio of 1.63:1. Data on production, wages, employment and other indicators are gathered separately in Mexico for manufacturing as a whole and the “maquiladora export industry;” as such all references to the “parts sectors” or “parts firms” in the chapter will be to the *predominant, non-maquila sector*, except in the very occasional instance where specific allusion is made to maquila parts activities.

The chapter concludes with a reflection on what are the points of leverage by which the structural tendencies toward heightened dualism and segmentation within the automotive value chain manifest in developing country parts industries can be counterbalanced and arrested. Strong, encompassing unions with the capacity to engage in collective bargaining at the multi-factory, multi-firm level can play an important role, but their capacity to counteract the growing power and market asymmetries within the globalizing automotive value chain is limited. Of greater importance are trade and energetic supplier development policies that are jointly favorable to the competitive survival and upgrading of the parts industry, particularly domestically owned and smaller parts firms. While the Mexican parts industry has tended to lack the latter, particularly at the national level, in Brazil a discriminatory, anti-parts industry trade regime that encouraged parts imports by assembly firms together with cutbacks in industrial policy support for the parts industry created significant structural obstacles for many smaller, domestically owned parts firms and in turn for parts workers and their unions. The essay concludes with a reflection that identifies the prevalent development policies for the automotive sector with problems of “export fetishism” and “TNC fetishism” that have been identified by critics.

Concepts and Debates

A useful way to approach issues of social inequality and job quality is through the ILO's multi-dimensional concept of "decent work" ("El Trabajo Decente," 2005). This essay asks whether and why there are structural asymmetries in access to "decent work," understood as remunerative wages, dignified working conditions, employment security, social protection (for situations of risk such as unemployment, disability, sickness, and retirement), and respect for collective worker voice without fear of dismissal. One major aspect of the concept is respect for ILO core labor rights conventions, concerning prohibitions on child and forced labor, non-discrimination, and respect for the right to organize and engage in effective collective bargaining. Given the available data, the major focus here will be on wage and employment security issues, though reference will also be made to working conditions and labor standards and labor rights issues. Linking the concept of decent work and job quality with the discussion of inequality, I will argue that the relative absence or presence of conditions of decent work can be understood with reference to relationships at two primary levels—between employers and managers and their workforce (labor/management and blue collar/white collar distinctions) and between segments of the value chain and the respective workers employed therein (in this case, assembly/parts supply distinctions). As this study is pitched at the aggregate national level and firm-level studies of segmentation and internal labor markets in parts firms in Mexico are lacking, it will not examine in any depth an important additional layer of inequality—intra-firm occupational and skill-based stratification and labor markets internal to firms. Given the absence of detailed aggregate or firm-level data as well as space, the gender, regional, and (in Brazil) racial disparities that are tightly interwoven

with value chain inequalities can not be given here the focused treatment that they deserve, either.

This study takes issue with two otherwise disparate bodies of theory and evidence--the “TNC diffusionist” perspective and the “upgrading” school--that concur on the fundamental job quality benefits of tighter, deeper, and more complex integration into dynamic global industries such as automotives. Mainstream economists (e.g., Bhagwati 2004, Moran 2002), as well as studies such as UNCTAD (1994), underscore that TNCs generally pay a wage premium and enact and diffuse more “modern” human resource management practices to developing countries, particularly when compared to host country firms. In the process, it is asserted or implied, work standards improve in terms of both material conditions of employment as well as respect for labor rights. The argument from this strand of the literature concerns the benefits when TNCs act as direct investors. These benefits are held to be greater the more capital- or technology-intensive firms are. There are parallel assertions about the benefits for wages and employment under conditions of trade liberalization whereby heightened import competition and export orientation drive up job quality in industries that enjoy comparative advantage. On all these grounds, the auto parts industry ought to be a prime exhibit for the “decent work” dividends of TNC-led global insertion in a developing country such as Mexico, where trade liberalization, regional trade preferences, and cost advantages have stimulated parts investment and activity.

What I call here the “upgrading” school has parallel expectations about the benefits of TNC-led global insertion. Yet these expectation are, however, derived from a different theoretical starting point—the notion of global value, or commodity, chains as

cross-border inter-firm networks (e.g., Gereffi and Korzeniewicz 1994, Gereffi, Spener and Bair 2002). At the outset, it must be explained that the global automotive value chain is a “producer-driven” subtype of value chain, in the nomenclature of this literature, as it is dominated by globally branded “terminal assembly” firms (General Motors, DaimlerChrysler, Toyota, and so on).² While some automakers such as Ford, General Motors, and Volkswagen have long operated a farflung network of overseas production sites that has included Brazil and Mexico among other developed and developing country sites, since the 1980s and especially 1990s they have increasingly been joined in expanding their production sites overseas by Japanese, Korean, and the other European automakers—both in other developed countries (particularly the United States) and in developing regions such as Latin America, East Central Europe, and Southeast Asia.

As the automakers have gone from “multi-domestic” to more truly globalized production, they have shifted toward “de-verticalization” (outsourcing) by concentrating more on the aspects of the value chain that provide the most profitability (marketing, finance, and design) while leaving “subassembly” stages to components firms. This development together with the international trend in the 1990s toward cross-border mergers and acquisitions within major industrial sectors has created, from the former ranks of U.S., European, Japanese, and other once nationally-based parts firms, a more consolidated group of *global* component makers who act as direct (“first-tier”) suppliers. Moreover, rather than the discrete parts of yesteryear these global parts firms now supply integrated components *systems* (e.g., brake systems, interior systems, steering modules, suspension systems, etc.)---hence the term “modular” or “systems” suppliers. These newly globalized parts firms are sometimes referred to as “globally preferred suppliers”

² This section draws on Humphrey (2003), Martin (2000), and ILO (2001).

in their relationship to assembly firms because each constitutes one of the handful of firms in any given component system to which the assemblers allocate the long-term supply contracts for each of their new factories. The practice by which global parts firms follow their principal customers around the globe and set up dedicated facilities within a few miles specifically for supplying parts modules for that particular assembly plant is often referred to as “follow sourcing.” Because this practice usually also entails the parts firm taking principal responsibility for designing these systems in accordance with the overall vehicle specifications provided by the automaker (which often will change from market to market based on safety laws, the conditions of local roads, and other national market permutations), so-called “follow design” is usually an integral component of “follow sourcing.”

This increasingly tight linkage between the handful of global assemblers and an increasingly smaller number of their globally preferred suppliers entails a *tiering* of relations between assembly firms and their suppliers, and of the parts industry as a whole based on “degrees of separation” of parts from final assembly. The bulk of these suppliers--so-called “second-,” “third-,” and even “fourth-tier” suppliers--no longer have any direct buyer-seller relationship with the firm into whose vehicles their pistons, axles, seat covers, and so on will ultimately be assembled. Instead these companies, typically much smaller than first-tier suppliers, sell to and often work under subcontract with the first-tier systems suppliers/globally preferred suppliers (or with a second-tier firm that works under subcontract with the first tier supplier). Rather than the assembler itself, it is the parts suppliers who now coordinate the supply chain for their particular components module and manufacture the complete modules that are supplied to the assembly firm for

final (modular) assembly. An additional way in which globalization figures into evolving supply chain dynamics in the automotive sector is through so-called “global sourcing,” whereby a given first tier or assembly firm procures certain highly standardized, price-dependent “commodified parts” on an as-needed, one-off, arms-length basis from the many smaller firms which make them. In a world of falling trade barriers and transportation costs, large firms can increasingly choose from among competing suppliers of such discrete parts on an international basis with less regard for borders. Hence the term “global sourcing” is applied when automakers, or indeed larger suppliers, buy specific components from cheaper providers overseas products that they once might have bought in the local market or that they once might have manufactured in-house; this entails a more arms-length, price-mediated, relationally thin kind of transaction as compared to globally preferred sourcing and follow sourcing/design.

With this necessary background on how the automotive chain has evolved from a “multi-domestic” into a more truly “global” value chain, we come to the particular optimistic spin that the upgrading perspective puts on the evolution of global value chains such as the automotive in terms of opportunities for developing countries that come to play a more strategic role within them. The expectation (or hope), particularly based on the perceived experience of how East Asian firms inserted themselves and move up over time into certain buyer-driven value chains in electronics and apparel from the 1960s onward, is that local suppliers in developing countries and in turn their workers will benefit from the heightened demand for greater value-added production and attendant technological and organizational assistance provided by global assemblers.³ In other

³ To be fair, these expectations are derived or have been inferred from research on other, so-called “buyer-driven” global chains, that predominate in light consumer goods industries such as clothing, footwear, and

words, such local companies--particularly those that have had export success or worked with foreign assembly firms as major supplier in the past--can either take the next step to become systems suppliers themselves, or at least can take on strategic roles as second and third tier suppliers for global parts firms who can play a similar “mentoring” role that facilitates their product and process upgrading. Whether or not this expectation at the level of *firm* upgrading has been borne out or not by more recent experience is the subject of increasing theoretical debate and empirical scrutiny, both for the automotive industry (e.g., Quadros 2005, Humphrey 2003, Ivarsson and Alvstam 2005, Lorentzen 2005) and for other value chains such as garments (e.g., the essays in Schmitz ed. 2005, Schrank 2005). However, specific impacts of supply chain dynamics on *job quality* and certainly on *inequalities* surrounding employment and remuneration--the focus of this essay--have been at best a tangential concern of this literature (for an exception, see Abreu et. al. 2001). It is also fair to say that such job quality and inequality impacts have often been a secondary, derivative concern, both in terms of theorizing and empirical research, for the original upgrading perspective. This chapter accepts that global value chains provide a useful heuristic within which to approach this understudied issue but advances a two fold argument about where the debate should head: (1) it must extend beyond mere job creation in single nodes of particular chains (i.e., particular lead firms and specific regional zones)--which tends to be the preferred indicator insofar as employment impacts are addressed by studies in this debate at all--to look at job quality and employment security and also to take a more aggregate view of job creation and destruction and wage trends across subsectors and (2) research must not so readily assume an improvement in

low-end electronics; here transnational “brands without factories” dominate through global buying (Gereffi and Korzeniewicz 1994, Gereffi et. al. 2002). Producer driven chains were presumed initially to be less hospitable to local firm upgrading by such authors.

job quality based on an improvement in the quality standards of production or on the use of aspects of high-performance work systems (work teams, broad job classifications, merit-based pay and promotion, and the like). On the latter point, a comparative international literature that examines how the job quality and labor standards impact of the introduction of “lean” or “flexible” manufacturing in both developing and developed areas--particularly in auto assembly-- there is overwhelming evidence that the introduction of flexibility does not necessarily redound to the advantage of workers; specifically, when such innovations are conceived and implemented unilaterally by employers without collective worker voice in their implementation and administration and absent strong protections against managerial discretion and abuses and for employment security, such innovations can in fact worsen job quality and, by implication at least, sharpen inequalities.⁴ This evidence, and the much more contingent perspective it presents on the putative benefits of changing production systems (and hence of tighter insertion into global chain that propagate such production systems), informs very closely this study of the Mexican auto parts node in the global automotive value chain and especially its North American component, as well as the comparative examination of the parallel global insertion of Brazil’s parts sector.

The Global Integration and Expansion of the Mexican Parts Sector

The global insertion of the Mexican parts sector emerged out of the conjunction of the specific corporate strategies guiding the larger globalization of auto production and sourcing described above with specific changes in national trade policies and sectoral

⁴ See Shaiken (1994, 2003) and Middlebrook (1995) on auto assembly in Mexico in particular; Martin (2000) on auto assembly in Brazil and Mexico; Deyo ed. (1996) on assembly in developing areas more generally; Deyo (1997) and Kuruvilla (1995) on East/Southeast Asia across industries; and Babson ed. (1995) and Juárez and Babson (1998) eds. on assembly and to some extent auto parts in the United States, Canada, and Mexico.

regulation. A series of automotive decrees regulated the industry over the period from 1962 through the entry into force of NAFTA in 2004. Mortimore and Barron (2005:25) in their CEPAL study succinctly and perceptively summarize their evolution as follows:

“...[T]here was an evolution from active, interventionist policies focused on ISI, especially for auto parts, toward more liberal policies of export promotion. The first decrees (1962, 1972 and 1977) were characterized by high tariff and non-tariff protection and strong performance requirements in the form of obligatory national production, minimum level of national content (60%), foreign exchange balancing [of inflows and outflows] by firm, obligatory exports of auto parts by vehicle assemblers, and restrictions on the maximum level of foreign capital permitted (49%) in auto parts firms...The Automotive Decrees of 1983 and 1989...authorized export models that required only 30% national content and facilitated the progressively greater incorporation of inputs from maquiladoras first into the export models and then into [vehicles produced for] the national market. Finally, rules regarding foreign exchange balancing and restrictions on foreign capital in auto parts were also relaxed [my translation]”

The parts sector was thus made up of assembly firms’ own (then) in-house parts operations (Ford’s Philco, General Motors’ Delphi, etc.) as well as domestic firms. In the absence of active state supplier development policies beyond ownership limitations that would facilitate the technological and managerial modernization of the Mexican owned parts firms, most of small and medium size (Lee and Cason 1994), “many of the auto parts made in Mexico were not very competitive in terms of price and quality” and parts exports by firms other than the assemblers were small (Mortimore and Barron 2005:25). The response of the Mexican state to the negative balance of payments impacts of this situation was, beginning with the export incentives of the 1972 decree, “to strengthen those firms with significant foreign equity in comparison with the wholly-owned Mexican ones....In 1975, although forty auto-parts firms made some exports, one [joint venture] firm, TREMEC, accounted for 42% of the total value, and ten firms [at least six with minority foreign capital] accounted for over 80

percent.” What gave the foreign-linked parts firms an advantage over wholly owned Mexican firms even at the height of the country’s economic nationalism in the 1970s was, Bennett and Sharpe contend, not just “[s]uperior technological capacity” but also “the transnational auto firms’longstanding relationships with their major parts suppliers”—they “preferred to buy from subsidiaries of those suppliers rather than from independent Mexican firms.” (p. 179) More recent trends in terms of heavy foreign domination of the parts sector under NAFTA are thus prefigured by earlier trends, and the larger dynamics of network ties by which foreign firms prefer to contract with companies with which they have established relationship are also brought to light. It is also worth underlining that, unlike in Brazil, Korea, and India which either had under ISI strong policies to encourage small and medium sized domestic parts firms to act as suppliers for foreign assembly firms operating in their protected markets (Brazil) or encouraged domestically owned auto assembly firms with high levels of in-house supply capacity/vertical integration (India and Korea),⁵ the Mexican state encouraged heightened foreign participation in the parts sector and de facto foreign domination at the high end of production *well before* the move toward neoliberalism and trade liberalization began under the De la Madrid presidency (1982-88); a major milestone of that trajectory of policy change was Mexico’s 1997 entry into the General Agreement on Tariffs and Trade.

With the gradual move toward export promotion, and with pressures from foreign and above all Japanese competition facing U.S. automakers, a raft of export-oriented auto assembly plants were set up in Mexico in the 1980s with their attendant global sourcing

⁵ See Lee and Cason (1994) on the contrast among Brazil, Mexico, and Korea in this respect, Humphrey (2003) on Brazil and India, and Addis (1999) on Brazil.

and globally preferred/follow sourcing. The NAFTA agreement created essentially a borderless, liberal North American automotive production and sourcing system, with strong incentives for any auto or parts maker who wished to sell in North America, particularly European or Asian ones, to locate anywhere in the region in order to enjoy equal access to the US market as their American rivals. Again it is useful to return to the CEPAL study to underline the main provisions affecting automotive manufacturing in Mexico (Mortimore and Barron 2005):

“....[T]ariff protection fell from 9.9% in 1994 to zero in 2004 (with certain quotas), the required level of national content fell from 34% in 1994 to zero in 2004 for vehicles and from 20% to zero in the case of auto parts. Foreign exchange balancing by firms was lowered from 80% [each firm had to export at least 80% of the value of its imports] to zero. The proportion of auto parts assembled by maquiladoras that could be sold in the domestic market went from 55% to 100%. At the same time, the *regional* content of the treaty partners grew from 50% in 1994 to 62.5% in 2004 where it will stay. Thus, through NAFTA the North American automotive industry was consolidated... In this manner, based on the transition from active policies in an open market in the first phase to increasingly horizontal or passive policies in the second [NAFTA] phase, Mexico has managed to become an important automotive export platform. [emphasis in original, my translation]”

The export ratio of Mexican vehicle production rose from about 2-3% in 1980, to about 28% in 1993 on the eve of NAFTA, to a peak slightly above 80% in 2001, falling back slightly to about 75% in 2002 (Mortimore and Barron 2005:21, Graph 3).

In constant (2003) peso terms, parts production (including chassis and motors) increased about 60% from 1987 to 1991, and reached a level of 5.6 billion current pesos in the latter year; however, exports had a somewhat rockier path during this period, and were actually lower in 1991 at \$1.93 billion than in 1987 at \$2.02 billion. The real boom in exports began in 1992, with the NAFTA agreement already negotiated and awaiting approval, and exports grew at an average annual rate of 15.3% over 1991-2004, falling in

only one year (2001). Overall parts production levels have exhibited more volatility, proving sensitive to macroeconomic/currency crises as well as soft periods in the U.S. economy. Parts production increased from 1991 to 1996 by 12.2% in nominal peso terms despite year on year drops in the 1993-1995 period reflecting the 1994-95 peso crisis. In real (1993) peso terms, production expanded by an average of 10.5% annually over the 1996-2000 period, but as the U.S. expansion of the 1990s lost most of its steam Mexico's part production fell by 6.6% in 2001 and recovered by 3.4% in 2002, only to stagnate (0.0%) in 2003. Still, in real peso terms annual parts production levels stood 74.5% higher in 2003 than they did at their 1995 nadir.⁶ Exports represented 23.4% of the dollar value of total production in 2003, down from 36.9% in 1997, but both still substantially higher than the probable single-digit ratios for the early 1980s, for which INEGI, the national statistics agency, did not report data⁷.

The restructuring of the Mexican parts sector has been highly uneven in response to increases in competitive pressures as well as opportunities. Leading the parts industry are an increasing number of foreign parts firms combined with a small handful of large domestic firms, owned solely or controlled by large Mexican *grupos* or by wealthy Mexican families who have strong foreign linkages in terms of technology sharing, licensing, and marketing in addition to their supply relationships with foreign automakers. Fully 70% of parts firms today are foreign-owned (Espinosa Vincens 2005).

Mexico's increasing attractiveness as an export platform for foreign and especially US parts firms reflected a confluence of several factors, according to CEPAL

⁶ All data in this paragraph are from INEGI, various years.

⁷ Author's calculation based on EIU average exchange rates, reported by Economist Intelligence Unit (www.eiu.com), to convert INEGI brute production figures dollars and measure them as a share of INEGI dollar export figures provided by INEGI.

(Mortimore and Barron 2005) and various trade publications (Chappell 2004, Reuters 2004, Automotive News 2005). Besides the NAFTA borderless regional automotive economy and regional content provisions for duty-free access of goods finished in one country for access into either of the others, a second factor is Mexico's continued comparative advantages (for those targeting the North American market) vis-à-vis lower labor-cost options like China--in terms of logistics, worker and manager training, English facility among managers and engineers, proximity for foreign technical personnel travel, and lesser supply chain vulnerability given geographic distance. Third and of most relevant consequence for parts workers, pressures for cost reductions from assemblers are also leading US-based firms or foreign firms with US operations to consider offshoring more and more parts production to Mexico.

The expansion and heightened foreign attractiveness of Mexican parts production is reflected in estimates of the total number of parts firms operating in Mexico. The large firm-dominated trade association Industria Nacional de Autopartes (INA) estimates that the number of firms has grown from 400 in the early 1990s; to some 800 by 2002 to around 1,000 in 2004 ((Medina Alvarez 2003, INA 2006, Espinosa Vincens 2005). Only about 60 parts firms are first-tier suppliers while there are an estimated 600 second-tier and 150 third-tier suppliers (BANCOMEXT 2004). Studies indicate the weakness of backward linkages of the larger, dynamic first-tier component systems suppliers to domestic SME parts firms (Espinosa Vincens 2005, Alvarez Medina 1993). As the CEPAL study notes, an "export platform" mentality has prevailed in the strategies of both US automakers and US parts firms, wherein the "local supplier base has played a secondary role to the US supplier base" in developing parts operations in Mexico

(Mortimore and Barron 2005:46) On the whole, Mexican supplier firms, which do not meet the quality, delivery, and other standards that the larger, mostly foreign parts suppliers do, generally are more labor-intensive and suffer from weak technological capacity, little access to investment capital, and poor managerial know how. These firms are largely relegated to the price-dominated market segments of the domestic aftermarket or to Tiers 2, 3, and 4. The relatively low quality of parts production outside the leading-edge firms (a chronic problem noted above) is seen as a major reason why Mexico's local content ratios are still considered rather low and are below the obligatory earlier 60% content, in the wake of the phaseout of that requirement and the NAFTA regional content that replaced it. This is notwithstanding modest recent improvements, from 34.7% in 1994 to 42.7% in 2002 and an anticipated 49.1% by 2006 (Mortimore and Barron 2005). In this same CEPAL study surveying a representative sample of 41 Tier 1-3 suppliers in Mexico, less than 50% of firms expressed a favorable opinion of the "impact of Mexican industrial policy on their own supplier networks;" moreover, second and third-tier suppliers, which are "mostly Mexican owned...do not feel incorporated, and some even feel weakened, by the industry's opening [my translation]" (Mortimore and Barron 2005:125). The overall picture, then, is that of a highly bifurcated Mexican auto parts sector and weakly articulated production chain, as one moves beyond the assembly/Tier 1 relationship further downstream.

Job Quality and Inequality: Employment, Wages, and Core Labor Standards

The social impacts of the insertion of the parts sector into the global automotive chain since the 1980s are felt in several areas—employment, wages, and labor rights. While overall employment has expanded since the 1980s, job levels have been volatile.

Meanwhile, part workers' wages have been slack and remained low, stagnating in real terms and falling ever further behind those of white collar parts managers and technical personnel and the remuneration levels of auto assembly workers. Taken together, these wage and employment trends suggest two dominant trends: (1) the adjustment of employment levels ("numerical flexibility") and of working hours ("working time flexibility") to market demands, as in lean times jobs are shed, work and overtime are intensified, or production is shut down temporarily, in more buoyant times new hires are made sparingly, and the benefits of productivity increases are appropriated by employers; and (2) the adjustment of wages and other compensation well below productivity and barely in keeping with overall inflation ("flexibility of remuneration").

Overall (including blue and white collar) employment levels in Mexican auto parts increased significantly beginning in 1990, from 237,480 to a peak of 474,000 in 1999 (INEGI did not publish figures for earlier periods). However, a subsequent decline in the 2000-2003 period and a slight recovery in 2004 left the level in the latter year at 433,500, 8.5% lower than five years earlier (Espinosa Vincens 2003, INA 2005). This decline in total employment since 2000 responds to the drop in overall production related to the US slowdown of the early 2000s noted above, but comes in spite of the continued expansion of the dollar value of exports over that same period.

More broadly, employment trends in Mexico's automotive industry are evolving largely in keeping with an international trend--evident in the United States and Western Europe and discussed below--whereby a secular shrinkage in auto assembly employment tends to be accompanied by a large increase in parts employment. Productive restructuring through organizational and technological innovation and outsourcing

generates labor-saving productivity advances, permitting production to increase (at least in many instances) even as staffing levels fall. For instance, while final assemblers in the U.S. eliminated about 50,000 jobs between 1987 and 1998, parts firms added almost 150,000 posts in the same period (ILO 2000). In Mexico, while automakers increased their value added by 59% and their labor productivity by 57% over 1990-2000, jobs increased by only 5 percent (and have declined since). Over the same decade, non-maquiladora components makers raised their labor productivity a comparatively much more modest 11% *overall*, their value added 39%, and their employment by 33%. (For their part, maquiladora parts firms raised productivity 8%, value added 52%, and employment 52%).⁸ Comparative data within the Mexican automotive chain thus reveal that much more innovation is happening in terminal assembly than in parts, where “sweating” of labor seems more prominent. If we consider the expansion and then contraction of employment in response to demand and to export opportunities over the past decade and a half, we can see how easily parts firms add and subtract workers as market conditions change and how comparatively little product and process innovation is occurring in the sector as a whole.

Wage trends underline how cheap parts labor is, and suggest how little cost there is to taking on and shedding workers as circumstances dictate. Despite overall compensation gains under global insertion, wage levels remain low in the Mexican parts industry and wage gaps between assembly and parts work and between managers and workers are considerable and have worsened. The 1983-89 period of initial global insertion was one of sharp cuts in real wages, which fell to a range of US\$1-3 per hour compared to \$7-10 hourly in the US parts industry during that period (CEPAL 1992:147).

⁸ All data from McKinsey & Co., cited in Mortimore and Barron (2005:20).

For 2004, U.S. automotive trade publications report wages in the Mexican parts sector in the US\$2-\$3 per hour range (Chappell 2004). The labor costs advantages of parts production in Mexico by foreign parts makers have remained considerable. In peso terms, parts workers have not fared much better. A recent study by Mexican scholars and an ILO consultant (Mertens et. al. 2005:35) finds that real hourly compensation per person increased by an average of a mere 0.3% per year over the 1994-2002 period. Over the same period, the study found, net unitary labor costs (again in inflation-adjusted terms) actually fell by 2.4% per year, while labor productivity grew 3.9% per annum. Clearly, most gains in labor productivity have accrued to employers.

In many ways, these wage trends mirror those in Mexican non-maquila industry as a whole. Real hourly remuneration per person (wages plus benefits) in non-maquila manufacturing fell by an average of 1.0% per year over 1994-2002, while in the maquila sector as a whole—counted separately in national statistics—the figure increased by 1.8% per year (Mertens et. al. 2005).

Moreover, the gap in remuneration between the wages (*salarios*) of blue-collar parts workers (*obreros*) and the salaries (*sueldos*) of managers, supervisors, technical, clerical and other “white-collar” staff (*empleados*) was wide and growing over the 1994-2002 period for which data are available. While obreros earned in the range of only 31.7-33.4% of what white collar staff did over the 1994-1998 period (an average of 32.7%), this declined further to 30.0% in 1999 and steadily year on year thereafter, dropping to a low of 27.7% in 2003 and registering a 1999-2003 average of only 29.1%.⁹ This is

⁹Based on data from INEGI, La industria automotriz en México, various years, author's calculations.

further evidence of the concentration of the benefits of expansion, exports, and productivity increases in the hands of employers (and the firms to which they supply).

These data on intra-firm blue collar/white collar wage differentials help shed further light on a larger national trend in Mexican manufacturing as a whole. For the country's manufacturing writ large, annual average *obrero* wages were 35.2% of those of *empleados* over 1994-2003 (oscillating within a fairly narrow range of 34.4-36.2%). In the parts sector over the same period, meanwhile, the figure was an even lower 28.1% and was consistently lower for every single year than for manufacturing as a whole.¹⁰ Economists Ros and Bouillon (2002:366) have noted, for Mexico as a whole, the “widening gap between skilled and unskilled remuneration” under the country's initial economic opening (1988-2004), and have used the same basic wage/salary ratio as their primary indicator. The data for parts suggest that in the case of parts this trend has continued and deepened even well after the first effects of opening were past.

Yet another dimension of wage inequality lies within the automotive value chain. The overall national “remuneration gap” between parts workers and assembly workers grew from parts workers earning 64.1% of assembly workers in 1988 and 57.5% in 1992 down to a median of 51.9% and a range of 49.7%-56.5% over the 1995-2002 period. The national data are not broken down by sub-segment of the parts complex, and include motor and chassis production which (as it is more technology-intensive and better compensated) likely skews the figures upward. But the situation appears to be one in which assembler/first-tier asymmetries are only the first and smallest layer of inequality, as the gap between wages in assembly and those in Tiers 2, 3, and beyond is likely much

¹⁰ Figures are calculated by the author from INEGI, various years.

greater.¹¹ While it is widely known that assembly work is exclusively male in Mexico and that at least a significant minority of parts workers are female, the absence of gender breakdowns in national sectoral data prevents us from exploring the important gender dynamic that is connected with polarization of incomes along the supply chain.

Compromised Labor Standards: Flexible Working Hours and Weaknesses in Freedom of Association

Denial of basic labor freedoms is a key aspect of structural inequality that can not be overlooked in the Mexican parts sector. Here the evidence is more scattered and qualitative and case studies of parts factories under ISI are surprisingly lacking, but the scattered evidence uniformly points in the same direction: What little protections parts workers had against arbitrary employer actions under ISI have been eroded or eviscerated during the process of global insertion of the parts sector in the past two decades.

Violations of core labor standards are frequent. Effective, meaningful collective voice in shaping conditions of work and employment is largely absent, as workers are subordinated to employer control through corporatist unions and the corporatist labor relations system, both of which have accommodated demands for greater flexibility.

While there are no breakdowns or much less time-series data on unionization in the sector, the parts industry, much like the maquila sector, has long had and continues to have only two significant forms of unions—official unions (particularly from the CROC, CTM, and CROM) as well as “protection contracts.” All unions are enterprise-level, and if an employer has multiple factories in different locations each will have its

¹¹ Assembly-Tier 1 wage gaps appear to be smaller than the national aggregate gap. For instance, Juárez Nuñez (1998) reports that Volkswagen’s first-tier supplier workers employed at the suppliers’ park built in the early 1990s right next to the factory as the firm cut back employment and outsourced on a large scale, received about one-third less than their colleagues at the assembly plant (in some cases, they were themselves laid off Volkswagen workers).

own union. Collective bargaining happens at the individual factory level and on dates that do not coincide within or across firms. In Mexico parts (and many other) employers, with the connivance of state and federal labor boards, occupy the space granted legally for a single monopolistic union per workplace (“union shop”) which might be filled otherwise by autonomous, authentic organizations. They do so by one of two means: (1) either cutting a deal with the state federations of official confederations to recognize corporatist official unions with whom they can cut side deals and who are the only representation option presented to the workforce or (2) cutting an even more insidious deal, by secretly creating a fictitious representative and registering a union and even a “contract” with the labor board, all in exchange for a monthly sum paid to the “labor leader” and without the work force’s consent, approval, or in many cases even knowledge.¹² Such protection contracts, always present at some level in Mexico, appear to have proliferated in Mexico generally during the era of export-orientation, neoliberalism, and NAFTA (Solidarity Center 2003); Bouzas (2003) estimates that 90% of contracts filed in Mexico since the late 1990s are protection contracts. It is not clear exactly how common they are in the parts sector per se, though one observer with considerable research experience in the Puebla parts sector asserts that protection unions and contracts are rife among parts firms more generally in Mexico (Júarez Nuñez 2004).

The obstacles encountered by the mostly unsuccessful efforts to organize independent unions in the parts sector and the kind of workplace-level, normally “hidden from public view” employer abuses brought to public light by these cases suggest how

¹² As the Solidarity Center (2003) report, authored by labor lawyer-scholar-activist Lance Compa, notes: “Mexico has no public registry of trade unions and collective bargaining agreements. Many workers are completely in the dark about whether a union exists at their workplace, or, if they know of the union, they cannot obtain a copy of the collective agreement” (p. 14).

deep and probably pervasive labor rights abuses are. A light was shone on abuses of core labor rights in the parts and other sectors by efforts to test the limits of the NAFTA labor side agreement and parallel efforts to form transnational labor rights advocacy networks. Credible accounts of the abuses have been presented through a variety of investigations, and in particular through complaints brought before the North American Agreement for Labor Cooperation (NAAALC) of the NAFTA side accord (Human Rights Watch 2001, Solidarity Center 2003, Hathaway 2000, Bognano and Lu 2003). The most celebrated cases inspiring transnational protests have involved the following seven foreign-owned plants in the late 1990s and early 2000s (some maquila, some not).¹³ All but two of the cases involved credible allegations of denial of freedom of association, typically through dismissal of activists, intimidation of workers, lack of respect for fair and secret ballots, and official denial of independent unions' registration efforts. Four of the cases involved clear instances of non-enforcement of Mexico's health and safety laws, and one plant also had violations of wages and hours laws. Despite credible findings of violations of Mexico's labor laws and core international labor rights conventions that led to the holding of public hearings in the US and/or Canada in all four cases presented to it (the first five in the note below, two of them joined in a single filing) and to the higher administrative step of "ministerial consultations" and inter-governmental agreements on remedies in two cases, official unions managed to retain their grip on all factories thanks

¹³ The cases are Korean-owned Han Young truck chassis and platform plant in Tijuana (1997-98); the US-owned Echlin/ITAPSA brake systems factory subsequently acquired by US-based Dana in Ciudad de los Reyes in the central State of Mexico (1997-98); the US-owned Echlin/ITAPSA brake systems factory subsequently acquired by US-based Dana in Ciudad de los Reyes in the central State of Mexico (1997-98); the Japanese-owned K & S Wiring wire harness plant in Aguascalientes (1998-2000); and the US-owned Alcoa plant in Piedras Negras, Coahuila (2002-04).

to official delays, stonewalling, or backtracking on implementation. The outcome in the other two cases was similar, despite energetic transnational protest campaigns.

These more high-profile cases of labor rights belie the relative surface calm of labor relations in the parts sector. In more normal circumstances, the kind of structure that maintains control over workers is the “incestuous alliance” among oligarchic corporatist union, authoritarian employer, and interventionist labor board (*junta de conciliación y arbitraje*) that Gutiérrez Castorena (2003) uncovers through careful firm-level research, including a worker survey, at the Sealed Power parts plant in Aguascalientes. Even in the absence of overt intimidation or corruption, the leadership clique of the CTM-affiliated union runs a tightly closed operation; close oversight by the state-level CTM and the implicit threat of job loss through the ubiquitous exclusion clause (which enables union leaders to have workers with whom they have disagreements fired automatically by virtue of them being kicked out of the union) inhibit any potential competitors or challengers from running rival candidacies. While the union holds an election to choose a negotiating committee for each collective bargaining period, workers are not consulted on the formation of the formal list of demands (*pliego petitorio*). Within these limits of a top-down union that does not mobilize rank and file, the union still energetically tries to defend wages and working conditions, such as a reasonable pace of work, in the face of an authoritarian management that proactively excludes it across the board from shaping decisions about work organization and production. The firm practically refuses to deal directly and one and one with the union in the bargaining process, forcing it to submit the pliego through the labor board and using the board as the go-between in conveying its response (in the process stringing out bargaining). When

direct talks finally open, they unsurprisingly reach an impasse quickly, after which they are switched to the venue of the board where it acts as formal mediator. Even though the union formally files a strike petition (*emplazamiento a huelga*) at the onset of each negotiating period, it almost never acts on this rather vacuous threat even in the face of employer intransigence, most likely because it would need the support of the labor board to carry out a legal strike and because it is weakly positioned to mobilize strong rank and file support. Clearly, this kind of labor relations and union structure, which appears quite common in Mexican auto parts, inhibits significant improvement in labor standards and enables parts employers to extract concessions from workers and shift costs of adjustment to them, leaving workers atomized and demobilized.

The pattern of weakening of work rules and other de facto or contractual protections that characterized the Mexican parts sector during the initial period of heightened global insertion is suggested by Mertens et. al. (2005:50):

“[Auto parts] was one of the first sectors that had to adjust to the new parameters of the market in the mid-1980s to early 1990s. The adjustments were not just organizational and technological but also social. Firms adjusted collective bargaining contracts, relocating new investments toward newly industrialized geographic regions and closing old installations with ‘expensive’ contracts. Or in some cases they negotiated an adjustment in the [contractual] clauses that affected costs (particularly benefits).”

National data suggest parts employers also have enjoyed substantial working-time flexibility, in parallel with the employment flexibility analyzed above—adjusting weekly working time to production needs. Data provided by the labor ministry (STyPS), are aggregated by larger branches of industry by the grouping parts workers with assembly workers and other “metal products” industries. The average (non-maquila) metalworker’s weekly working hours come out to 43.8 hours over the 1994-2004 period.

Monthly breakdowns of average weekly working hours, readily available for the 1996-2004 period onward only, underline considerable month to month variation in weekly hours; the “slackest months” (leaving out the December holiday month) consistently are in the 40.5-41.9 hours per week range and the “busiest months” in the 45.1-47.9 range. If weekly breakdowns were available, they likely would underline further the degree to which employers can exert pressure on parts worker to put in overtime (thus avoiding expanding staffing). Since these are aggregate figures, variations across firms could well be greater.

Also quite common in recent years, and further illustrating the numerical employment/hours flexibility enjoyed by employers, are “technical shutdowns” (*paros técnicos*). Here an entire factory or section of a factory is closed down temporarily, with workers laid off and not receiving either wages or social benefits (health care and social security) attached to full-time employment. In some instances, unions agree that workers will forego work and wages for specified periods in order to prevent layoffs and loss of benefits. Mertens et. al. (2005) discuss one such example, in the state of Guanajuato, in which--by union-employer agreement--parts workers did not work one week per month and received only half of their normal weekly wages for that week while conserving their pension and health benefits through the Mexican Social Security Institute (IMSS). Such measures represent a clear externalization of the burdens of adjustment to market circumstances from employer to worker, and thus of heightened labor-management inequality in relations of production. The dependence of workers and through them their families on access to basic employment-based government health and retirement benefits is sufficiently deep that in such instances they are forced, and apparently willing, to

accept wage losses as the lesser of two evils—and as an alternative to job loss altogether. Further aggravating the structural inequality in power between parts employers and workers is the growing weakness of unions in the assembly sector, which until the late 1970s were fairly strong at the company level (Roxborough 1984, Middlebrook 1995, Martin 2000, Shaiken 1994, 2003). Now controlled by corporatist unions in all but the cases of Nissan's Cuernavaca-area plant and Volkswagen's Puebla factory, these unions retain somewhat greater influence in setting wages but have largely accepted a flexible system of broad job classifications and pay norms and few or no limits on the capacity of firms to outsource and subcontract work. This means that assembly firms have had a relatively free hand to engage in outsourcing unfettered by effective union resistance or contractual restrictions.

Global Automotive Chain Dynamics and Harmful Sectoral Policies: Comparative Insights from Brazil

What explains degraded work and festering inequality in the Mexican parts industry? It is easy to jump to the conclusion that unique or unusual aspects of Mexico's industrial development, such as early and forceful shift toward export orientation and trade liberalization and the persistence of corporatist unions and labor relations, are the main culprits. However, a comparative examination of job quality in Brazil—a comparative latecomer to market reform, opening, and global automotive integration--amidst similar conditions since the early 1990s suggests that tendencies in value chain dynamics operating in developing countries within the global automotive affecting both these developing countries play a major role in creating structural inequalities. These structural tendencies can be aggravated if competitiveness policies are weak and discriminatory toward the parts sector (as in Brazil) or largely absent (as in Mexico).

Labor relations regimes and patterns of unionism appear to be of secondary importance, at least insofar as employment security and wage-related inequalities are concerned, but they can have an impact in preventing or aggravating the erosion of core labor standards. A trend toward more autonomous union organization and direct as well as partially coordinated collective bargaining in Brazil has blunted such trends, but not the exacerbation of distributional inequality or major loss of employment and decline in job security.

In Brazil, key domestic drivers of the parts industry's restructuring were the trade liberalization (begun in 1990), the establishment of the MERCOSUR customs union in 1991, fiscal adjustment and currency reform "Real Plan" of 1994 in the first half of the 1990s, and a new sectoral "automotive regime" (*regime automotivo*) policy introduced in 1995 by the Cardoso government. These trends intersected with the above-discussed developments in the global automotive value chain.

The loss of employment and job security was precipitous in Brazil, contrasting with overall job growth in Mexico. Total parts employment in Brazil (both blue and white collar) declined from 285,200 in 1990 (and an average of 257,900 over 1980-89) to 170,700 in 2003, a 40.1% drop (Sindipeças, [Desempenho: 2004](#), and Comin 1998:182). The figure has oscillated in the past two years, but stood at a fairly constant 170,000 as of November 2005 (www.sindipeças.org.br). Over the 1993-2003 period, total sales increased by 31.4 times in nominal local currency terms, but fell 6.5% to US\$12.4 billion in dollar terms. Output per worker grew from US\$59,000 in 1993 to \$72,642 in 2003 (Comin 1998:182 and author's calculations from Sindipeças). This is a 23.1% increase

that is over twice the eleven-year rate of increase of 11% in labor productivity reported above for Mexican parts for 1990-2000.

Why such a precipitous drop in Brazil compared to Mexico's erratic if significant overall employment expansion over a similar period? In Mexico, the impact of the phaseout of local content regulations and of import liberalization was mitigated by the NAFTA regional content requirements, by the fact that the move toward installation of a rash of new factories took place more than a decade earlier, as well as by preferential access to the huge U.S. market. In Brazil, notwithstanding some stimulus from MERCOSUR, the overwhelming impact of trade policy toward auto parts was negative and discriminatory. One dimension of the impact involved liberalized imports of parts and of finished vehicles--quantitative restrictions ended in 1991, tariffs were gradually lowered over 1991-95 (from 79% effective protection in 1991 to 34% in 1994) though raised again in 1996, for vehicle imports only, in 1996, to an effective rate of 148% (Comin 1998:87). The previous 60% Brazilian content became 60% *regional* content with MERCOSUR starting in 1991. The second dimension of the impact of trade liberalization came from the 1995-2000 automotive regime; the policy aimed (with success) to make Brazil more attractive to assembly firms by enabling them to increase imports of both finished vehicles and parts if they invested in new assembly capacity. Assembly firms were required to export one dollar for every dollar imported but firms assembling vehicles locally were allowed to import vehicles into Brazil through 1999 at half normal tariff levels, and reduced component import tariffs were put into place through 2000 (Humphrey 2003:128). This furthered a situation whereby, in 1996, the assembly sector enjoyed a 148% rate of effective protection, versus a *negative* fifteen

percent (-15%) protection rate for the components industry (Comin:1998:87). By 1997, Brazil's parts imports surpassed parts exports (even though the latter were also growing) for the first time ever, and in every year imports thereafter have exceeded exports (Sindipeças data are available on this only through 2003). From 1990 to 1997, imports grew from 20.6% to 50.1.4% of sales of automotive machinery and equipment (including machine parts and accessories); from 8.9 to 23.6% of all motors and vehicle parts; and from 0.2% to 14.0% of all finished vehicles sold.

The net result was nothing short of disastrous for the parts industry as a whole, especially smaller domestic suppliers. Sindipeças' data reveal that only three out of the eleven years between 1992 and 2002 were profitable for the parts industry; the net average annual loss was 1.27%. The devastating situation for the parts sector combined with the global consolidation of the parts business into a smaller number of global players resulted in a significant "denationalization" of the Brazilian parts sector (Comin 1998, Humphrey 2003); major nationally owned firms that had been significant exporters and/or suppliers to TNC assemblers in Brazil were bought up by foreign parts firms. Over 1994-2003, foreign firms increased their ownership from 48.1% to 78.5% of all parts capital, from 48.0 to 86.1% of all annual new investments, and from 47.6% to 76.7% of all profits earned by the sector (Sindipeças 2004). In 1995, 12 of the 25 largest automobile components firms in Brazil were locally owned; by 2001, eight of them had sold out to TNCs, one had become a joint venture, and the other three had retreated into the less competitive truck and bus components sector (Humphrey 2003: 17). In this context, the share of all national parts production that was sold to assembly firms declined slowly but steadily year by year, from 61.6 to 56.0% of all parts manufactured,

over the 1993-2003 period. Case studies of the sourcing strategies of new plants established in Brazil in the mid to late 1990s have consistently found that they preferred imported components and those provided by other transnational firms through follow sourcing or globally preferred supply rather than local suppliers; locally owned firms supplied only 4 of 33 components or component systems for one Daimler Chrysler plant in Brazil studied by Arbix and Zilbovicius (1997), and only two of 41 at another plant at an unidentified company (probably Ford) studied by Humphrey (2003:135). The “marginalization of the local owned [supplier] companies because of the development of global sourcing arrangements between leading assemblers and first-tier suppliers” that Humphrey (2003:16) finds based on comparative India-Brazil research, and sees as a more general trend in the developing world’s part sectors, is clearly underlined by the data presented here about job loss, declining profitability, and denationalization.

Though Mexico’s lesser ISI-era development of a domestic parts sector and preferential access to large markets under NAFTA have shielded that country from a Brazil-like production, employment, and ownership shakeout, parts production in Mexico does suffer from the same sort of globalization-related cost pressures as in Brazil and does have the additional downside of heavy dependence on a single market; hence, as demonstrated above, employment security is also a concern in Mexico. As compared to a sort of creeping denationalization that occurred in Mexico through allowance of minority participation since the 1970s and steady expansion of foreign firms’ presence at the high end, there was a very sudden and drastic denationalization of a once locally dominated parts sector in Brazil, in combination with a sharp contraction in demand for parts and pressure for quality and productivity improvements (Abreu et. al. 2000).

Meanwhile, parts exports grew significantly in Brazil-- if only at roughly a third the 15.3 percent annual average rate (over 1991-2004) of Mexico--at an annual average of 5.2% in constant dollar terms over 1993 to 2003 (author's calculations from Sindipeças 2004). The exports to total sales ratio of parts production increased from 11.2% in 1990, to 15.7% 1993, and on up to 22.0% in 2003 (Abre et. al. 2000, Sindipeças 2004), quite comparable to the 23.4% export ratio for Mexico reported in 2003. What thus distinguishes the two national automotive industries most sharply is not the scale of exports but rather the scale and rate of increase in exports of *finished vehicles* in Brazil, which is much more modest than in Mexico. Exports from Brazil went from 20.5% of all vehicle production in 2000 to 22.6% in 1993 and 29.2% in 2003, compared to the 80% export ratio of vehicles now assembled in Mexico that was noted earlier. This difference in the *derived demand* for parts via vehicle exports, in conjunction with the tendency noted above for assemblers to prefer global sourcing or globally preferred/follow sourcing parts where possible, meant comparatively less demand stimulus for parts in Brazil than was the case in Mexico. In terms of direct exports, Brazil did not have the benefits of preferential access to a huge market, but rather had to rely above all upon its ability to increase the shares of its parts exports going to Europe (from 14.0% in 1993 to 25.0% in 2003), to Africa (from 1.8 to 4.3), and to Asia and Oceania (from 3.4 to 11.6%). These increases helped the Brazilian parts industry make up for declining shares of its exports going to North America (50.4 down to 41.5%) and South America (29.6% down to 16.7%). (This greater export diversification could end being a long-term boon as compared to Mexico's heavy North American dependence.) In short, if Mexico's automotive industry has become, as noted above, an "export platform," what we find in

Brazil is a market where TNC final assembly is still predominantly national market oriented but with a steadily heightening export-import intensity. It may well be that Brazil's direct and indirect labor costs make it a less attractive export platform, leaving aside the additional complicating factor of geographic distance to major rich country markets. Clearly, the larger size of Brazil's internal market and hence greater opportunities for scale opportunities are also at least part of the story.

If we examine wage trends, it is clear that it has been comparatively easy to create parts jobs in Mexico precisely because they are so poorly paid and easily destroyed in times of slack demand. Wages appear to have been somewhat more downwardly inflexible in Brazil, but the only available evidence is indirect; despite the large-scale workforce reduction, the share of remuneration in total costs only decreased from 3.67% in 1996 to 3.55 in 2000, and then actually increased to 4.62% in 2003 (IBGE 2004). This suggests that metalworkers unions jointly representing auto assembly, auto parts, machine tools, and other metalworkers have had at least some success in defending real wages for remaining workers even as jobs have been lost. Their means for apparently doing so have been the multi-firm collective bargaining at the municipal and sometimes cross-municipal level that has become common in Brazilian manufacturing, particularly in the well-organized metalworking sector.¹⁴

In a context in Brazil in which the assembly industry has contracted much less sharply than the parts sector and in which assemblers are evidently externalizing costs and risks to suppliers, wage inequalities within the value chain have grown in that South American country, as in Mexico. In fact, they have grown more sharply in Brazil. This is despite the indirect evidence that wages may have held their own in real terms. Available

¹⁴ See, for instance, Bresciani (1997) and Rodrigues (2002).

time series data from the IBGE national statistics agency only cover the 1996-2003 period in Brazil, but calculations reveal that remuneration per person in the parts sector fell from 67.1% of that in the auto assembly sector (encompassing cars, vans, and SUVs) in 1996 to 48.4% in 2000 and to only 43.1% in 2003.¹⁵ In Mexico, to recall the earlier data, parts workers earned 64.1% of assembly workers in 1988 (in terms of total remuneration), falling to 57.5% in 1992, and further declining to a median of 51.9% and a range of 49.7%-56.5% over the 1995-2002 period.

It is instructive to put the value chain wage inequalities in Brazil and Mexico into comparative international perspective. A study by the ILO (2000) notes the tendency for the wage gap to grow within developed countries' automotive chains as outsourcing/de-verticalization grows; nonetheless, the wage gaps reported for all five developed countries covered were considerably less than in these two Latin American countries--parts workers earned a national average range of 67-77% of what assembly workers do across Germany, France, Canada, Spain, and the U.S. Hence, we find a greater degree of wage inequality within the value chain for *both* Brazil and Mexico.

This Mexico-Brazil similarity in contrast with mature economy trends suggests that outsourcing and supply chain dynamics tend to heighten inequalities between assembly and part remuneration more sharply in developing than developed countries. Why might this be the case?, we may ponder. Clearly, the marginalization of local suppliers which had operated under the protection of ISI is one likely component, and perhaps another is the greater strength and more encompassing nature of labor unions in the developed world. Yet, an equally likely candidate for explaining the differences may

¹⁵ Data are from the Pesquisa Industrial Annual on the www.ibge.gov.br. The author made the calculations based on average number of personnel employed during the year (total employees) divided into "total wages, withdrawals, and other remuneration" as reported for each sector for these respective years.

well be the impacts of a unique, more fiercely competitive environment deriving from the entry into developing country markets of more and more foreign suppliers. As Humphrey (2003) notes, the increasing attractiveness since the 1990s of developing countries as both markets and export platforms for global automotive firms has actually led to an increase in the *diversity* of nationality of ownership of firms in any given parts segment with local operations--as more automakers *from more home countries* (the U.S., Germany, France, Italy, Korea, Japan) assemble vehicles in each given country, each tends to bring with them from their home market its *own* preferred home-region/home-country suppliers, hence multiplying the number of parts firms operating in that country. This tends *not* to be the case in developed markets, where consolidation into a few key firms in each parts segment tends to prevail, notes Humphrey. This line of analysis would help explain why we see an overall increase in both the share and the number of foreign firms operating in both Latin American countries as well an increase in the overall number of parts firms, driven larger by the entry of new foreign operations. Figures for Mexico were noted above, but for Brazil Sindipeças reports an increase in the number of parts factories from 496 to 564 from 1993 to 2003 (the number of firms is not provided). Also, this increase is accompanied by a decrease in average firm size in Brazil, as the share of firms with 125 employees or less increased from 25.0% in 1993 to 37.3% while that of firms with 501 or more employees fell from 28.0% to 19.4%. (Comparable data on firm size were not available for Mexico.)

Larger sourcing dynamics within the global automotive chain thus create pressures that tend to make employment insecure, heighten downward costs pressures, and exacerbate wage inequalities in developing countries such as Brazil and Mexico.

Complicating this trend in Brazil has been the trade policy bias against local parts, as contrasted with a somewhat more even-handed approach to parts and assembly in Mexico and in NAFTA (and slightly higher regional content requirements in NAFTA versus MERCOSUR). In addition, there is another policy area that has contributed to externalization of risk and costs to parts workers in both countries—the weakness of national sectoral policies for the development of suppliers, particularly those aimed at smaller domestic firms. A recent CEPAL study (Mortimore and Barron 2003:36), for instance, bemoans “two serious problems regarding the [authorities’] vision of the Mexican automotive industry and its consistency with the national development strategy,” particularly regarding their stated goal of doubling automotive capacity from 2005 to 2010. First, the authors find, the lack of an “agreed upon sectoral strategy [raises] uncertainty” among investors and reflects “very little consultation of parts makers.” Second, the study cites “indicators...that suggest that the national development strategy for increasing competitiveness has regressed” in light of a loss of “dynamism” in the sector since 2000 (my translations). More broadly, analysts have criticized the way in which Mexican policy since the 1980s has relied on a low-cost, TNC-led export strategy with little attention to sectoral policy to foster local backward linkages, particularly in technological transfer and managerial and human resource upgrading (Calva 2003, Villareal 2003, Dussel Peters 2000). Some such as Villareal (2003) refer to Mexico’s development strategy as a whole as an export-processing model (*modelo maquilador*), in the sense of not just the overall growth in the size and share of maquila employment per se but also of a larger *paradigm* of use of imported inputs, capital, and technology even in non-maquila industry. The results, critics charge, are the disarticulation of domestic

production chains; polarization of firms into large, modern, outward-oriented and small, backward and inward-oriented; and the increasing import intensity of manufacturing exports in Mexican industry as a whole. These tendencies have been found to be exacerbated by NAFTA (Audley et. al. 2004). The sectoral strategy for the automotive sector announced in 2002, as part of the 2000-2006 National Development Plan (Programa para la Competividad de la Industria Automotriz), consists mainly of a series of quantitative objectives through 2010 in production, employment creation, investment promotion, and establishment of new supplier firms together with vague proposals for technology centers and quality certification programs and no specific funding commitments (for a summary see Ruiz Chávez 2003:225-57).

With respect to Brazil's policies, the tradition through the 1980s of active government influence through sectoral policies involving trade, investment incentives, technology assistance, capacity management, and export assistance, directed at both the assembly and parts sector, has been well documented and analyzed.¹⁶ A recent ILO study (Posthuma 2005) notes that a "lack of a clear industrial policy at the federal level...led to a loss of control over the developmental trajectory of this industry and diminished government influence on the behavior of multinational corporations in Brazil." This research, on the basis of a detailed study of the supply chain of a new General Motors factory built in the late 1990s in the state of Rio Grande do Sul, underlines the need for such policy, showing a "rise in the precariousness of inter-firm relations with suppliers, as one descended the production chain" from assembler to Tier 1 to Tier 2 and beyond. Supplier firms in the second and third tier--and in turn their workers--are highly

¹⁶See Shapiro 1994 on assembly, Addis 1999 on parts, and Lee and Cason 1994 on Brazil's policy in comparative perspective.

“vulnerable” in the second tier and beyond, given the limited nature or absence of guarantees in production contracts and given their weaker access to capital and technology, lower educational and training levels of their workforce, and greater difficulties meeting quality and delivery demands. Similar findings in terms of the gap in both firm capacities and of material conditions of work as well as general asymmetries and arms-length relationships in inter-firm relations within assembler’s supply chains in Brazil have been found in other case studies of the parts sector (see Quadros 2005 and the various essays in Abreu ed. 2000 and Nabuco et. al. eds. 2002). At best, as in Mexico, there are isolated, typically non-sector-specific programs, mostly local in their implementation even when federal, that provide specific “horizontal” services or sets of services to qualifying firms regardless of sector (e.g., worker or manager training, technological assistance, or export credits or marketing assistance). In terms of business organizations that would have to play a role in the formulation and implementation of any sectoral strategy, there was never a strong, encompassing sectoral association in Mexico or efforts to foster one, and TNC automakers (not parts firms) were the main interlocutors of the Mexican state and its NAFTA partners in the complex sectoral negotiations within the original treaty negotiations (Eden and Molot 1993). In Brazil Sindipeças seems to have lost its former status as the prime point of articulation with the state as sectoral policy has virtually disappeared, and as the bilateral assembler-state relationship has become the overwhelmingly dominant axis under the automotive regime policy and beyond (Comin 1998). In both countries, ample industrial (re)location incentives have been provided to automakers and their globally preferred/follow sources in the form of tax abatements, free land, infrastructure provision, and other services for auto plants and

suppliers parks. Their perverse impact is in effect to subsidize much of the cost for business of not only a shift in production from older, higher-cost, better-paying assembly and some parts factories (in greater São Paulo and central Mexico)--which have been hemorrhaging jobs to lower-wage, lower-cost “greenfield” locations--but also to subsidize follow sourcing. Assembly and parts workers as well as domestic parts firms suffer in the country as a whole under such “regional development” policies, however rational they may appear for the regions attracting new jobs and investment.

With global automotive chain dynamics and unfavorable public policy generating such structural inequalities in inter-firm and labor-management relations and in labor and employment conditions along the value chain, the potential of unions to redress inequalities is limited. This is true even in Brazil, where independent, comparatively stronger, and more encompassing union organizations exist in the automotive-cum-metalworking sector and where autonomous collective bargaining without state interference is much more common than in Mexico.¹⁷ Most auto parts workers are represented by municipal (or multi-municipal) metalworkers unions which are in turn belong to the two largest independent labor centrals that have emerged in Brazil since the early 1980s, the CUT and the Força Sindical. Collective bargaining over basic wage, benefits, and employment norms occurs at the “category” level between official employer organizations (sindicatos), but also typically and increasingly includes a parallel firm- and subsector-level (i.e., all parts firms, all assembly firms, etc.) dynamic which may address these issues as well but also includes specific workplace issues such as work rules, job classification and promotion systems, and the like. In practice, parts workers

¹⁷ The IBGE’s Pesquisa Sindical: 2001 (www.ibge.gov.br) found that Brazil’s labor courts were involved in only 12% of contract bargaining negotiations nationwide across all sectors, as compared to 33% in 1991.

are able to derive some “strength in numbers” benefit from settlements in which a single union or set of unions in neighboring municipalities can represent multiple component firms and in some cases also a larger assembly plant or more (as well as perhaps machine tools and other metalworking factories). While this might mean that wages are higher (and more uniform across neighboring parts firms) than they would be in the counterfactual case of a single-firm negotiation à la Mexico, wages still lag behind those of assembly plants even in the best organized and most militant metalworking union bases. In sum, while the kind of labor rights abuses described above in the Mexican parts sector were not present, stronger unions and freer collective bargaining were still insufficient in Brazil to blunt the overwhelming structural realities of a surge of imports, large-scale denationalization of the parts industry, massive job loss, and increasing wage inequalities.

Sourcing Dynamics, Job Quality, and Inequality

The findings and arguments of this study call into serious question the optimism of both the “upgrading” school and the “TNC diffusionist” perspective. Greater TNC control over local nodes of global value chains, in terms of their domination of both leading as well as intermediary roles occupied by firms, and greater TNC domination of production were not conducive to an improvement in job quality in either country or, in the case of Brazil, to even job preservation amidst increasing exports. Quite to the contrary, both employment insecurity and wage inequality grew. Clearly, these impacts were also exacerbated by policy acts of omission and commission, where arguably there was room for active state interventions that might have blunted social impacts. In neither country was there significant support for existing domestic firms to make the transition to

openness and heightened competition and for extensive backward linkages to be formed around expanding auto assembly activities, and in Brazil there were in fact policies that encouraged the rapid denationalization of the parts sector. Trade liberalization was rapid, unilateral, and without accompanying policies to ease the transition for parts firms to openness.

Beyond this element of policy contingency, where different policy choices about the pace of opening and accompanying measures arguably could have produced different results, there is yet another reason not to give the argument presented here a structurally determinist cast. As Humphrey (2003) conjectures looking forward in the case of India, where penetration of global assemblers has advanced more slowly than in Brazil but is on the rise, there may be national factors and legacies such as familiarity with the local market and parts ownership by local financial-industrial conglomerates with ample investment capital with that will give local parts firms in at least that large developing country the wherewithal to survive better amidst global insertion of their national industries than has been the case in Brazil and Mexico. In the case of Brazil, large Brazilian family-owned successful auto parts firms like Cofap and Metal Leve lacked the capital (they were not part of larger corporate conglomerates), international connections, and what Humphrey (2003) calls the “global reach” to be able to make the jump to global preferred systems suppliers, and thus were forced to sell out. Whether, if Indian conglomerates active in the parts sector do indeed remain independent players as the sector is globally inserted, that actually makes a difference for job quality impacts for Indian parts workers also remains to be seen. Presumably, locally owned first-tier suppliers would be more likely to maintain existing connections to smaller nationally

owned second and third-tier firms based on established networks (much like they used to have in Brazil; see Addis 1999), and would be more eager to provide the support for upgrading of such firms than TNC automakers and parts firms have generally proved to be. But this is only theoretically informed speculation.

The upshot of this study is that analysts, policymakers, and activists approaching export-led development through insertion into global value chains need to perceive clearly the connections, and endeavor to exploit the potential synergies, between nationally integrated development and improvements in job quantity and quality. The neglect of either may come at the peril of both. Economist Dani Rodrik (1999) has written cogently about the dangers of “export fetishism” arising from the Washington Consensus and the policies advocated by international financial institutions, and it would appear that Mexico and to some extent Brazil have fallen victim to this malady in their thinking about automotive development. A conceptual fallacy in contemporary development policy in many countries that is arguably quite directly related, and one that is also fostered by the “TNC diffusionist” perspective, is what economist Alice Amsden (2001, Chs. 8-10) labels “integrationism”—seeking to foster subordinate integration into the global economy at all costs, through unilateral measures heightening international exposure when necessary, and as an end unto itself. Part of this philosophy, which she argues has been particularly strong in Latin America in recent decades, involves what we might call “TNC fetishism”—perceiving global companies as unquestionable agents of development and modernization while forgetting the historical lesson that it was only through active state policies of bargaining and regulation that TNCs fostered a measure of national development under ISI and also incubated networks of local firms around

them so as to create a broader and deeper *industrial fabric*. Denationalization of the parts sector is not a problem because of nationality of ownership per se in an age of globalization in which capital knows no borders and in which the largest national firms can even aspire to be successful TNCs themselves. On the contrary, denationalization is problematic because it is symptomatic of a larger underlying neglect of the importance of fostering backward linkages that ensure greater domestic value added, more technology transfer, greater domestic ploughing back of profits, and more and better jobs that can actually provide some upward mobility. Given the polarization of national income and hollowing out of *local* production chains that has tended to characterize the shift toward market-based, outward-oriented economic strategies in Mexico and Brazil, and the largely “jobless” or even “job-destroying” character of the undoubted technological and organizational modernization that is happening in leading export manufacturing sectors such as auto parts, the problems raised in this chapter are much more than sectoral concerns. They are a fundamental part of the larger national social deficit in both countries that must be addressed urgently.

Bibliography

Abreu, Alice Rangel de Paiva, Leda Gitahy, José Ricardo Ramalho (2000). “Produção Flexível e Relações Interfirmas: A Indústria de Autopeças em Tres Regiões do Brasil.” In Alice Rangel de Paiva Abreu, ed. Produção Flexível e Novas Institucionalidades na América Latina. Rio de Janeiro: Ed. UFRJ, 27-73.

Abreu, Alice Rangel de Paiva, ed. Produção Flexível e Novas Institucionalidades na América Latina. Rio de Janeiro: Ed. UFRJ

Addis, Caren (1999). Taking the Wheel: Auto Parts Firms and the Political Economy of Industrialization in Brazil. University Park, PA: Penn State.

Alvarez Medina, María Lourdes (2002). “Cambios en la industria automotriz frente a la globalización,” Revista Contaduría y Administración, no. 206 (July-Sept.)/

Amdsen, Alice (2001). The Rise of the 'The Rest:' Challenges to the West from Late-Industrializing Economies. New York and Oxford: Oxford University Press.

Arbix, Glauco and Mauro Zilbovicius, ed. (1997). "Consórcio Modular da VW: Um Novo Modelo de Produção." In Glauco Arbix and Mauro Zilbovicius, eds., De JK a FHC: A Reinvenção dos Carros. São Paulo: Scritta, 449-70.

_____, eds., De JK a FHC: A Reinvenção dos Carros. São Paulo: Scritta.

Audley, John J., Demetrios G. Papademetriou, Sandra Polaski, and Scott Vaughan (2004). NAFTA's Promise and Reality: Lesson from Mexico for the Hemisphere. Washington, D.C.: Carnegie Endowment for International Peace.

Automotive News, "China?: Think about the Pipeline," August 8, 2005
(<http://www.autonews.com/article.cms?articleId=54088>)

Babson, Steve ed. (1995). Lean Work: Empowerment and Exploitation in the Global Auto Industry. Detroit: Wayne State University Press.

BANCOMEXT (2004). "The Automotive Industry in Mexico: Business Opportunities, 2004" (<http://www.investinmexico.com.mx>)

Bennett, Douglas C. and Kenneth E. Sharpe (1985). Transnational Corporations Versus the State: The Political Economy of the Mexican Auto Industry. Princeton, NJ: Princeton University Press.

Bhagwati, Jagdish (2004). In Defense of Globalization, New York: Oxford University Press.

Bognano, Mario F. and Jiangfeng Lu (2003). "NAFTA's Labor Side Agreement: Withering as an Effective Labor Law Enforcement and MNC Compliance Strategy?." In William N. Cook, ed., Multinational Companies and Global Human Resource Strategies, Westport, CN: Quorum, 369-401

Bouzas, José Antonio (2003). "Contratos colectivos de protección y el proyecto oficial de reforma laboral." In Reforma Laboral: Análisis crítico del Proyecto Abascal de reformas a la Ley Federal del Trabajo, México, D.F.: UNAM, 2003, 97-115.

Bresciani, Luiz Paulo (1997). "Na Zona do Agrião: A Nova Agenda de Negociação Coletiva." In Glauco Arbix and Mauro Zilbovicius, ed. (1997). In Glauco Arbix and Mauro Zilbovicius, eds., De JK a FHC: A Reinvenção dos Carros. São Paulo: Scritta, 257-84.

Calva, José Luis (2003). "Políticas públicas para la competitividad." In Enrique Dussel Peters, ed., Perspectivas y retos de la competitividad en México. México, D.F.: UNAM, Facultad de Economía, 209-232.

Centro de Estudios Económicos del Sector Privado (CEESP) (2001). "Industria nacional de autopartes." Actividad Económica 233 (July).

Chappell, Lindsay (2004). "Mexico Returns as Investment Hot Spot: Proximity to U.S. Market Lures Suppliers Reluctant to Build Plants in China." Automotive News, May 24, 2004.

Comin, Alexandre (1998). De Volta para o Futuro: Política e Reestruturação Industrial do Complexo Automobilístico nos Anos 90. São Paulo: Annablume Ed.

Comisión Económica para América Latina y el Caribe-CEPAL (CEPAL) (1992). Reestructuración y desarrollo de la industria automotriz mexicana en los años ochenta: Evolución y perspectivas. Santiago de Chile: Informes de la CEPAL No. 83.

De la Garza Toledo, Enrique (2003). "La crisis de los modelos sindicales en México." In Enrique de la Garza y Carlos Salas, eds., La situación del trabajo en México, 2003, México, D.F.: Plaza y Valdés, 297-322.

Deyo, Frederic, ed. (1996). Social Reconstructions of the World Automobile Industry: Competition, Power and Industrial Flexibility. New York: St. Martin's

_____ (1997). "Labor and Post-Fordist Industrial Restructuring in East and Southeast Asia." Work and Occupations 24:1 (Feb.), 97-118

Dussel Peters, Enrique (2002). "México en la globalización y la apertura comercial." In José Luis Calva, ed., Política económica para el desarrollo sostenido con equidad, Tomo II, México, D.F.: Casa Juan Pablo/Instituto de Investigaciones Económicas, UNAM, 13-47.

Eden, Lorraine and Maureen Appel Molot (1993). "Continentalizing the North American Auto Industry." In Ricardo Grinspun and Max Cameron, eds., The Political Economy of North American Trade, New York: St. Martin's, 297-314.

Gereffi, Gary and Miguel Korzeniewicz, eds. (1994). Commodity Chains and Global Capitalism. Westport, CN: Praeger.

_____, David Spener, and Jennifer Bair, eds. (2002). Free Trade and Uneven Development: The North American Apparel Industry after NAFTA, Philadelphia: Temple University Press.

Espinosa Vincens, Marco (2005). "Industria de autopartes: Escasa tecnología pero abundante mano de obra," Certeza: Economía y Negocios, June 12, 39-41

Gutiérrez Castorena, Daniel (2003). Democracia sindical en Aguascalientes. México, D.F.: Plaza y Valdés.

Hathaway, Dale (2000). Allies Across the Border: Mexico's 'Authentic Labor Front' and Global Solidarity. Boston, MA: South End.

Human Rights Watch (2001). "Trading Away Rights: The Unfulfilled Promise of NAFTA's Labor Side Agreement." June (<http://www.hrw.org/reports/2001/nafta/>).

Humphrey, John (1993). "Globalization and Supply Chain Networks: The Auto Industry in Brazil and India." Global Networks 3:2 (121-41).

Institute Brasileiro de Geografia e Estatística-IBGE (www.ibge.gov.br).

Industria Nacional de Autopartes-INA (2005). "La industria automotriz en México." <http://www.fumec.org/mx/espano/recursos/32INA.pdf>

Instituto Nacional de Geografía e Información-INEGI. La industria automotriz en México, México D.F (www.inegi.gob.mx), various years, 1990-2005.

International Labour Organization-ILO (2000). "The Social and Labour Impact of Globalization in the Manufacture of Transport equipment," Report for discussion at the Tripartite Meeting on the Social and Labour Impact of Globalization in the Manufacture of Transport Equipment. Geneva: International Labour Office, May 8-12.

Ivarsson, Inge and Claes Goran Alvstam (2005). "Technology Transfer from TNCs to Local Suppliers in Developing Countries: A Study of AB Volvo's Truck and Bus Plants in Brazil, China, India and Mexico." World Development 33:8, 1325-1344.

Júarez Nuñez, Huberto (2004). "Intervención en la Conferencia Nacional de Sindicatos de la Industria Automotriz en México." Aportes, Revista de la Facultad de Economía, Benemérita Universidad Autónoma de Puebla, IX:27 (Sept-Dec.).

_____ and Steve Babson, eds. (1998). Confronting Change: Auto Labor and Lean Production in North America/Enfrentando el Cambio: Obreros del automóvil y producción esbelta en América del Norte. Puebla, Mexico and Detroit: Benemérita Universidad Autónoma de Puebla and Wayne State University, Labor Studies Center.

Kopinak, Kathryn ed. (2005). The Social Costs of Industrial Growth in Northern Mexico. Boulder, CO: Lynne Reiner.

Kuruvilla, Sarosh (1995). "Economic Development Strategies, Industrial Relations Policies and Workplace IR/HR Practices in Southeast Asia." In Kirsten S. Wever and

Lowell Turner, eds., The Comparative Political Economy of Industrial Relations. Madison, WI: Industrial Relations Research Association, 115-150.

Lee, Naeyoung and Jeffrey Cason (1994). "Automobile Commodity Chains in the NICs: A Comparison of South Korea, Mexico, and Brazil." In Gary Gereffi and Miguel Korzeniewicz, eds., Commodity Chains and Global Capitalism. Westport, CN: Praeger, 223-44.

Lorentzen, Jochen (2005). "The Absorptive Capacities of South African Components Suppliers." World Development 33:7, 1153-1182.

Martin, Scott B. (2001). "Network Ties and Labor Flexibility in Brazil and Mexico: A Tale of Two Automobile Factories." In Cristopher Candland and Rudra Sil, eds., The Politics of Labor in a Global Age: Continuity and Change in Late-Industrializing and Post-Socialist Economies. New York and Oxford: Oxford University Press.

_____ (1999). "Transplants or Learning Fields?: New German Automobile Plants in the Southern United States and Their Supply Networks" (in German). In Heidrose Kilper and Ludger Pries, eds., Die Globalisierungsspirale in der Automobilindustrie. Das Beispiel der deutschen Hersteller-Zulieferer-Beziehungen. Herausforderungen für Wirtschaft und Politik. München/Mering: Rainer Hampp Verlag.

Mattus Rivera, Roberto (2004). "La industria maquiladora está de regreso!," Revista Ciencia Administrativa, Universidad Veracruzana, 2004:1, 79-86.

Mertens, Leonard, Flor Brown and Lilia Domínguez (2005). "Competitividad, productividad y trabajo decente: desafíos para la industria manufacturera." In Trabajo 1:1, 3a época (July-Sept.). Mexico City: UAM/OIT/Plaza y Valdés, 25-62.

Middlebrook, Kevin J. (1995). The Paradox of Revolution: Labor, the State, and Authoritarianism in Mexico. Baltimore: Johns Hopkins University Press.

Moran, Theodore H. (2002). Beyond Sweatshops: Foreign Direct Investment and Globalization in Developing Countries. Washington, D.C.: Brookings Institution.

Mortimore, Michael and Faustino Barrón (2005). "Informe sobre la industria automotriz mexicana." Santiago de Chile: CEPAL, Serie Desarrollo Productivo #162, August.

Nabuco, Maria Regina, Magda de Almeida Neves and Antônio Moreira de Carvalho Neto, eds. (2002). Indústria Automotiva: A nova geografia do setor produtivo. Rio de Janeiro: D P & A, 273-300.

Padilla Hernández, Salvador and María de la Luz Martín Carbajal (2003). “Tremec-Chrysler: Una experiencia exitosa de innovación,” Revista Espacios, 24:3 (2003) (<http://www.revistaespacios.com/a03v24n03/03240311.html>)

Piquini, Marco (1995). The Motor Industries of South America and Mexico: Poised for Growth. Economist Intelligence Unit Research Report, London and New York, January.

Posthuma, Anne Caroline (2005). “Industrial Renewal and Inter-Firm Relations in the Supply Chain of the Brazilian Automotive Industry.” SEED Working Paper #46, International Labour Office, Geneva.

Quadros, Ruy (2004). “Global Quality Standards and Technological Upgrading in the Brazilian Auto-Components Industry.” In Hubert Schmitz, ed. Local Enterprises in the Global Economy: Issues of Governance and Upgrading. Cheltenham, UK and Northampton, MA: Edward Elgar, 265-96.

Reuters, “U.S. Auto Parts Makers See More Jobs Moving Abroad,” February 17, 2004.

Rodrigues, Iram Jácome (2002). “Relações de Trabalho e Ação Sindical no ABC Paulista nos Anos 1990.” In Maria Regina Nabuco, Magda de Almeida Neves and Antônio Moreira de Carvalho Neto, eds., Indústria Automotiva: A nova geografia do setor produtivo. Rio de Janeiro: D P & A, 273-300.

Rodrik, Dani (1999). The New Global Economy and Developing Countries: Making Openness Work, Baltimore, MD: Johns Hopkins University Press.

Ros, Jaime and César Bouillon (2002). “Mexico: Trade Liberalization, Growth, Inequality, and Poverty.” In Roberto Vos, Lance Taylor and Ricardo Pães de Barros, eds., Economic Liberalization, Distribution and Poverty: Latin America in the 1990s, Cheltenham, UK and Northampton, MA: Edward Elgar, 347-89

Roxborough, Ian (1984). Unions and Politics in Mexico: The Case of the Automobile Industry. Cambridge and New York: Cambridge University Press.

Schmitz, Hubert, ed. (2004). Local Enterprises in the Global Economy: Issues of Governance and Upgrading. Cheltenham, UK and Northampton, MA: Edward Elgar

Schrank, Andrew (2004). “Ready-to-Wear Development?: Foreign Investment, Technology Transfer, and Learning by Watching in the Apparel Trade,” Social Forces, 83:1 (Sept.), 123-156.

Shaiken, Harley (1994). “Advanced Manufacturing and Mexico: A New International Division of Labor?” Latin American Research Review 29:2, 39-72.

_____ (2003). "México, los estándares laborales y la economía global." In Enrique de la Garza y Carlos Salas, eds., La situación del trabajo en México, 2003, México, D.F.: Plaza y Valdés, 15-36.

Shapiro, Helen (1994). Engines of Growth: The State and Transnational Auto Companies in Brazil. Cambridge and New York: Cambridge University Press.
Solidarity Center (American Center for International Labor Solidarity) (2003). "Justice for All: Worker Rights in Mexico," Washington, D.C. (<http://www.solidaritycenter.org/>)

Villareal, René (2003). "La competitividad sistémica en México: Conceptos y condiciones en México." In Enrique Dussel Peter, ed., Perspectivas y retos de la competitividad en México. México, D.F.: UNAM, Facultad de Economía, 187-208.

Zapata, Francisco, Taeko Hoshino, and Linda Hanono (1994). La reestructuración industrial en México: El caso de la industria de autopartes. México, D.F.: El Colegio de México, Centro de Estudios Sociológicos.

"El Trabajo Decente" (2005). Special issue of Trabajo 1:1, 3a época (July-Sept.). Mexico City: UAM/OIT/Plaza y Valdés.

UNCTAD (1994). World Investment Report 1994: Transnational Corporations,

Employment and the Workplace. New York and Geneva: United