

Global value chains and international competition

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Globalization has given rise to a new era of international competition that is best understood by looking at the global organization of industries and how countries rise and fall within these industries. The global value chains framework has evolved from its academic origins to become a major paradigm used by a wide range of international organizations, such as the World Bank, the World Trade Organization, the International Labor Organization, and the U.S. Agency for International Development. Global value chains highlight how new patterns of international trade, production, and employment shape the prospects for development and competitiveness, using core concepts like "governance" and "upgrading." This article illustrates the use of this framework by contrasting the industrial upgrading experiences of China and Mexico, through which China has wrested market share from Mexico in a diverse spectrum of U.S. product markets en route to becoming a dominant global manufacturing power in just a couple of decades. The future of international competition will reflect the consolidation and resilience of global value chains and the determination of emerging economies to continue to upgrade to higher value goods and services within these chains, with a growing emphasis on domestic and regional markets.

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I. INTRODUCTION

In the 1990s, a new framework, called global commodity chains (GCCs), linked the concept of the value-added chain directly to the global organization of industries.¹ The insight that emerged from this work was the growing importance of global buyers (mainly retailers and brand marketers, or "manufacturers without factories") as key drivers in the formation of internationally dispersed production and trade networks.² Gereffi contrasted these buyer-driven chains to what he termed producer-driven chains,³ which are the production systems created by vertically integrated transnational manufacturers in capital- and technology-intensive industries such as automobiles, aircraft, and advanced machinery. Buyer-driven commodity chains were essential to the rise of East Asia's export-oriented economies,⁴ and they highlighted the significance of design and marketing in the activities of global production systems. The new framework drew attention to the diverse range of economic actors that could exercise significant power on both the supply side and demand side of global production and distribution networks.⁵

¹ See COMMODITY CHAINS AND GLOBAL CAPITALISM (Gary Gereffi & Miguel Korzeniewicz eds., 1994); Gary Gereffi, *International Trade and Industrial Upgrading in the Apparel Commodity Chains*, 48 J. INT'L ECON. 37 (1999); Gary Gereffi, *Shifting Governance Structures in Global Commodity Chains, with Special Reference to the Internet*, 44 AMER. BEHAV. SCI. 1616 (2001).

² The American Antitrust Institute sponsored an invitational symposium on buyer power that has analogous insights to the notion of buyer-driven chains in the GCC literature, but there wasn't an explicit connection to the global economy. See Gregory T. Gundlach & Albert A. Foer, *Buyer Power in Antitrust: An Overview of the American Antitrust Institute's Invitational Symposium on Buyer Power*, 53 ANTITRUST BULL. 233 (2008); Zhiqi Chen, *Defining Buyer Power*, 53 ANTITRUST BULL. 241 (2008).

³ Gary Gereffi, *The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks*, in COMMODITY CHAINS AND GLOBAL CAPITALISM, *supra* note 1, at 95.

⁴ Gary G. Hamilton & Gary Gereffi, *Global Commodity Chains, Market Makers, and the Emergence of Demand-Responsive Economies*, in FRONTIERS OF COMMODITY CHAIN RESEARCH 136 (Jennifer Bair ed., 2009).

⁵ The GCC approach adopted what Dicken et al. call "a network methodology for understanding the global economy." The objective is "to

The global value chain (GVC) concept has recently gained popularity as an overarching label for this body of research because it focuses on value creation and value capture across the full range of possible chain activities and end products (goods and services) and because it avoids the limiting connotations of the word "commodity," which to some implies the production of undifferentiated goods with low barriers to entry. Like the GCC framework, GVC analysis highlights the international expansion and geographic fragmentation of contemporary production networks and focuses primarily on the issues of industry (re)organization, coordination, governance, and power in the chain.⁶ Its concern is to understand the organizational reconfiguration taking place in global industries and its consequences. The GVC approach also explores the broader institutional context of these linkages, including trade policy, regulation, and standards.⁷

The GVC approach analyzes the global economy from two contrasting vantage points: top down and bottom up. The key concept for the top-down view is the "governance" of global value chains, which focuses mainly on lead firms and the organization of international industries; the main concept for the bottom-up perspective is "upgrading," which focuses on the strategies used by countries, regions, and identify the actors in these networks, their power and capacities, and the ways through which they exercise their power through association with networks of relationships." See Peter Dicken, Philip Kelly, Kris Olds & Henry Wai-Chung Yeung, *Chains and Networks, Territories and Scales: Towards a Relational Framework for Analysing the Global Economy*, 1 GLOBAL NETWORKS 89, 93 (2001).

⁶ John Humphrey & Hubert Schmitz, *Governance in Global Value Chains, in LOCAL ENTERPRISES IN THE GLOBAL ECONOMY: ISSUES OF GOVERNANCE AND UPGRADING* 95 (Hubert Schmitz ed. 2004); Gary Gereffi, *The Global Economy: Organization, Governance, and Development*, in THE HANDBOOK OF ECONOMIC SOCIOLOGY c. 8 (Neil J. Smelser & Richard Swedberg eds., 2nd ed. 2005).

⁷ For an up to date review of this literature, see the links and more than 560 publications listed at the Global Value Chains Web site, <http://www.globalvaluechains.org>. For a World Bank perspective on global value chains in the context of the recent economic crisis, see GLOBAL VALUE CHAINS IN A POSTCRISIS WORLD: A DEVELOPMENT PERSPECTIVE (Olivier Cattaneo, Gary Gereffi & Cornelia Staritz eds., 2010).

other economic stakeholders to maintain or improve their positions in the global economy. One of the key findings of value chain studies is that access to developed-country markets has become increasingly dependent on participating in global production networks led by firms based in developed countries. Therefore, how value chains function is essential for understanding how firms in developing countries can gain access to global markets, what the benefits from such access might be, and how these benefits might be increased.

The remainder of this article will highlight the framework that has been developed to analyze the governance of global value chains. Upgrading in the global economy will be illustrated by examining the cases of Mexico and China, which have both relied heavily on export-oriented industrialization, but with contrasting results in recent years.

II. THE GOVERNANCE OF GLOBAL VALUE CHAINS

Power is the ability of a firm or an organization to make or shape strategic decisions that affect the configuration and direction of the value chain and thus influence and control other firms in the chain. Power can reside in any part of the value chain structure and it takes many forms. Within the chain, power is exercised by firms of different types and workers within firms. Outside the chain, power comes from the state and other institutions created by the enabling environment and consumers. Those in possession of industry power actively shape the distribution of profits and risk through their activities.

Within the chain, power at the firm level is exerted by lead firms. Lead firms can be producers or buyers in the chain. In *producer-driven chains*, power is held by final-product manufacturers; such chains include capital-, technology- or skill-intensive industries. In *buyer-driven chains*, retailers or marketers of the final products exert the most power through their ability to shape mass consumption via strong brand names. They source their products from a global network of suppliers located in places that combine low costs, satisfactory quality, and proximity to major markets. Knowing if the lead firm in a chain is a buyer or a producer can help to determine the most likely upgrading opportunities for suppliers. For example, buyer-driven chains tend to provide more opportunities to their sup-

pliers for product and process upgrading because the core competence of the buyers is marketing and branding, and the suppliers are responsible for implementing and sometimes refining the specifications issued by the buyers.⁸

The connections between industry activities within a chain can be described along a continuum extending from market governance, characterized by arm's-length relationships, to hierarchical value chains, characterized by direct ownership of production processes. Between these two extremes are three network forms of interfirm governance: modular, relational, and captive (see figure 1).⁹ Network-style governance represents a situation in which the lead firm exercises power through coordination of production (to varying degrees) with suppliers, without any direct ownership of the firms.

Market: Market governance involves transactions that are relatively simple. Information on product specifications is easily transmitted, and suppliers can make products with minimal input from buyers. These arm's-length exchanges require little or no formal cooperation between actors, and the cost of switching to new partners is low for both producers and buyers. The central governance mechanism is price rather than a powerful lead firm.

Modular: Modular governance exists when complex transactions are relatively easy to codify. Typically, suppliers in modular chains make products to a customer's specifications and take full responsibility for process technology using generic machinery that spreads investments across a wide customer base. This keeps switching costs low and limits transaction-specific investments, even though buyer-supplier interactions can be very complex. Linkages (or relationships) are more substantial than in simple markets because of the high volume of information flowing across the interfirm link. Information technology and standards for exchanging information are both key to the functioning of modular governance.

Relational: Relational governance exists when buyers and sellers rely on complex information that is not easily transmitted or learned.

⁸ Gereffi, *International Trade*, *supra* note 1.

⁹ Gary Gereffi, John Humphrey & Timothy Sturgeon, *The Governance of Global Value Chains*, 12 *REV. INT'L POL. ECON.* 78 (2005).

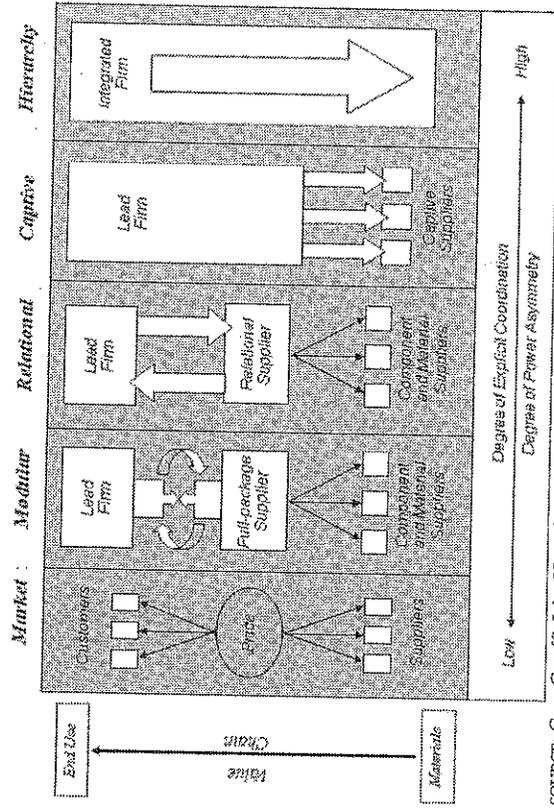
This results in frequent interactions and knowledge sharing between parties. Such linkages require trust and generate mutual reliance, which are regulated through reputation, social and spatial proximity, and family and ethnic ties. Despite mutual dependence, lead firms still specify what is needed and thus have the ability to exert some level of control over suppliers. Producers in relational chains are more likely to supply differentiated goods based on quality, geographic origin, or unique characteristics. Relational linkages take time to build, so the costs and difficulties required to switch to a new partner tend to be high.

Captive: In these chains, small suppliers are dependent on one or a few buyers that often wield a great deal of power. Such networks feature a high degree of monitoring and control by the lead firm. The power asymmetry in captive networks forces suppliers to operate under conditions set by, and often specific to, particular buyers, leading to strong ties and high switching costs for both parties. Since the core competence of the lead firms tends to be in areas outside production, helping their suppliers upgrade their production capabilities does not encroach on this core competency, but benefits the lead firm by increasing the efficiency of its supply chain. Ethical leadership is required to ensure suppliers receive fair treatment and an equitable share of the market price.

Hierarchy: Hierarchical governance describes chains characterized by vertical integration and managerial control within lead firms that develop and manufacture products in-house. This usually occurs when product specifications cannot be codified, products are complex, or highly competent suppliers cannot be found. While less common than in the past, this sort of vertical integration is still an important feature of the global economy.

The form of governance can change as an industry evolves and matures, and governance patterns within an industry can vary from one stage or level of the chain to another. Therefore, we need to go beyond a descriptive typology of governance categories to a brief explanation of the conditions under which various types of governance emerge and change over time. A theory of GVC governance has been posited that accounts for the five governance types illustrated in figure 1 with different combinations of three key variables: the *com-*

Figure 1
Five Types of Value Chain Governance Structures



SOURCE: Gary Gereffi, John Humphrey & Timothy Sturgeon, *The Governance of Global Value Chains*, 12 Rev. INT'L. POL. ECON. 78, 89 (2005), reprinted by permission of the publisher, Taylor & Francis Ltd., <http://www.informaworld.com>.

Figure 2
Dynamics in Global Value Chain Governance

Governance Type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base
Market	Low	High	High
Modular	High ②	High ④	High
Relational	High	Low ③	High ⑤
Captive	High	High	Low
Hierarchy	High	Low	Low

① increasing complexity of transactions (codifiable transactions; decrease in supplier competence)
 ② decreasing complexity of transactions (easier to codify transactions; high supplier competence)
 ③ better codification of transactions (open or de facto standards; computerization)
 ④ de-codification of transactions (new products; new processes)
 ⑤ increasing supplier competence (technological learning)
 ⑥ decreasing supplier competence (new technologies; high switching costs)

SOURCE: Gary Gereffi, John Humphrey & Timothy Sturgeon, *The Governance of Global Value Chains*, 12 Rev. INT'L. POL. ECON. 78, 90 (2005), reprinted by permission of the publisher, Taylor & Francis Ltd., <http://www.informaworld.com>.

plexity of information the production of a good or service requires (design and process); the ability to *codify* or systematize the transfer of knowledge along the chain; and the *capabilities* of existing suppliers to produce efficiently and reliably (see figure 2).¹⁰

Information complexity refers to the intricacy of information and knowledge that must be transferred to ensure a particular transaction can occur. Suppliers working with complicated product and process specifications are more difficult to control and coordinate, which increases switching costs. This effort can be reduced through standardization and codification.

Information codification is the extent to which complex knowledge is converted into industry-wide standards or situation-specific information that can be efficiently transmitted along the chain at a minimal cost. Developments in information technology enabling better logistics management, such as electronic data interchange (EDI), radio-frequency identification (RFID), or computer-aided design (CAD), allow complex data to be easily handed off between value chain partners.

Supplier capability refers to the ability of suppliers to meet all transaction requirements. These may include quantity and quality specifications, on-time delivery, or environmental, labor and safety standards. Suppliers need access to support services such as input supply, equipment maintenance and upgrades, reliable transportation, and certification assistance to develop new capabilities. If affordable and effective services are not available from supporting markets, suppliers will rely more heavily on buyers to meet these needs and vice versa.

If any of these three variables changes, then value chain governance patterns tend to shift in predictable ways. For example, if a new technology renders an established codification scheme obsolete, modular value chains are likely to become more relational; and if competent suppliers cannot be found, captive networks and even vertical integration will become more prevalent. Conversely, rising supplier competence might result in captive networks moving in the relational direction, and better codification schemes set the stage for modular networks.

III. INDUSTRIAL UPGRADING AND INTERNATIONAL COMPETITIVENESS

Since the 1970s, the international economy has evolved through a combined process of outsourcing and offshoring that has been termed global sourcing. In their continuing quest for lower costs and higher profitability, U.S. branded manufacturers began to emphasize marketing and design over production; initially they moved their manufacturing subsidiaries to lower-cost locations within the United States (e.g., relocating factories from the Northeast and Midwest to the South) and eventually to overseas locations like Mexico, the Philippines, and East Asia. Soon retailers (like Sears, Kmart, and JCPenney) and marketers (such as Nike, Reebok, and Liz Claiborne) joined the global sourcing game, and they provided a flood of orders to contract manufacturers in East Asia's export powerhouses, such as Hong Kong, Taiwan, South Korea, Singapore, Vietnam, and eventually China.¹¹

Industrial upgrading refers to the process by which economic actors—nations, firms, and workers—move from low-value to relatively high-value activities in global production networks. Different mixes of government policies, institutions, corporate strategies, technologies, and worker skills are associated with the upgrading process. However, we can think about upgrading in a concrete way as linked to a series of economic roles associated with production and export activities such as assembly, original equipment manufacturing, original brand-name manufacturing, and original design manufacturing.¹² This sequence of economic roles involves an expanding set of capabilities that developing countries seek in their pursuit of an upgrading trajectory in diverse industries.

One of the ways that we can assess industrial upgrading for export-oriented economies like Mexico and China is to look at shifts in the technology content of their exports over time. Each country's exports are divided into five product groupings, which are listed in ascending levels of technological content: primary products,

¹¹ Gereffi, *International Trade*, *supra* note 1; Hamilton & Gereffi, *supra* note 4.

¹² Gereffi, *supra* note 6, at 171.

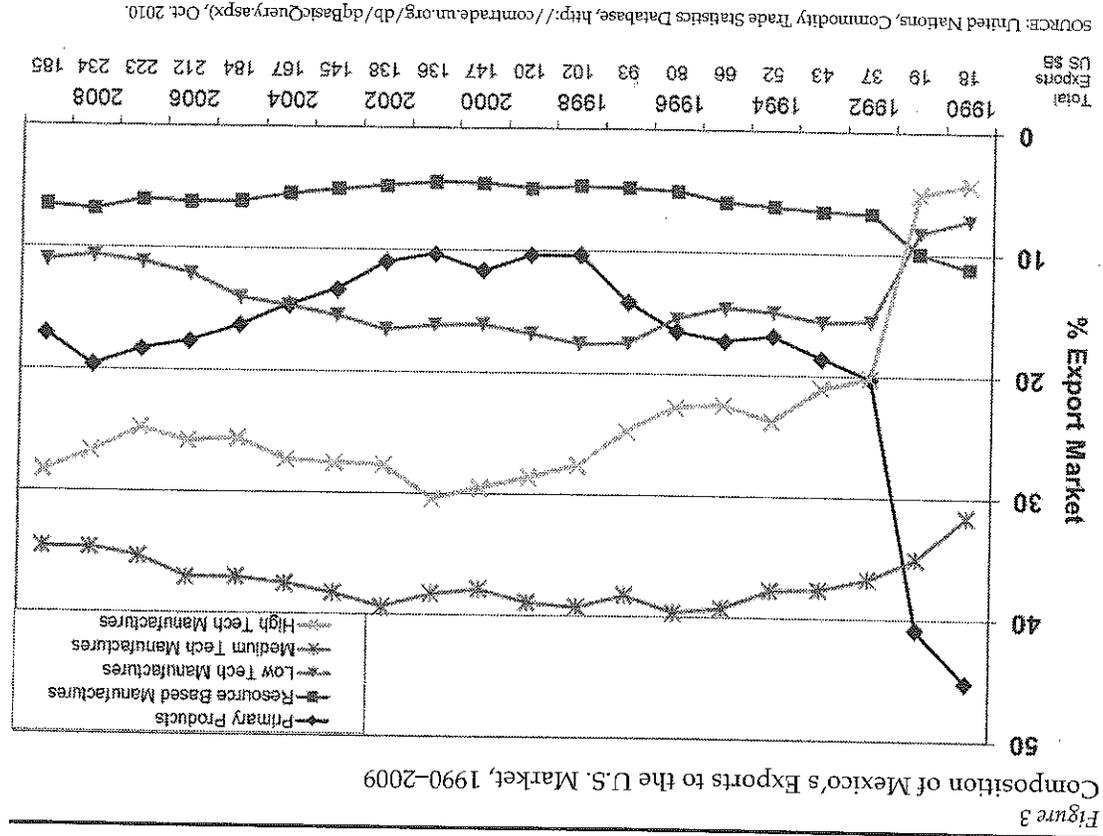
¹⁰ See *id.* at 85–87.

resource-based manufactures, and low-, medium-, and high-technology manufactures.¹³

In 1990, nearly fifty percent of Mexico's total exports to the U.S. market were primary products, the most important of which was oil (see figure 3). In 1993, one year prior to the establishment of the North American Free Trade Agreement, medium-technology manufactures (mainly automotive products) and high-tech manufactures (largely electronics items) moved ahead of raw materials in Mexico's export mix. By 2009, over sixty percent of Mexico's exports of \$234 billion to the U.S. market were in the medium- and high-technology product categories, followed by primary products (which rebounded from their nadir of ten percent of total exports in 2001) and low-technology manufactures (such as textiles, apparel, and footwear). Thus, in two decades, Mexico's export structure was transformed from one based on raw materials to one dominated by medium- and high-technology manufactured items. This pattern of rapid industrial growth would have been labeled a clear success story under conventional development theory. However, the volume of Mexico's total exports to the United States fell from \$234 billion in 2008 to \$185 billion in 2009, raising questions about the sustainability of its export model.

Figure 4 highlights the composition of China's exports to the U.S. market from 1990 through 2009. Unlike in Mexico, the leading product category in China's exports to the U.S. market was low-technology manufactured goods. These were primarily made up of a wide variety of light consumer goods supplied in buyer-driven chains, such as apparel, footwear, toys, sporting goods, and housewares. These products accounted for about two-thirds of China's overall exports to the United States in the early 1990s. By 2009, however, high-technology exports from China had increased their share to thirty-five percent of China's overall exports to the U.S. market and were poised to pass low-technology exports for the top spot in China's export mix.

¹³ Sanjaya Lall developed this technological classification of exports based on 3-digit Standard International Trade Classification (SITC) categories. His article provides the detailed list of products under each category. See Sanjaya Lall, *The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98*, 28 OXFORD DEV. STUD. 337 (2000).



Mexico and China have a number of commonalities in their export trajectories to the U.S. market during the past two decades. Both are diversified economies, with a range of export products. In both cases, manufactured exports are more important than primary product or resource-based exports; within manufacturing, high- and medium-technology exports are displacing low-technology goods. While these export data have limitations as indicators of industrial upgrading,¹⁴ both economies appear to be increasing the sophistication of their export structures.

A more detailed look at the international trade data shows that since 2000, China has beaten Mexico in head-to-head competition in the U.S. market. The table identifies six of the leading manufactured products of which China and Mexico are significant U.S. suppliers. In five of these products, Mexico's share of the U.S. market was greater than China's in 2000; by 2009, China had wrested the lead from Mexico in all but one of these items. In automatic data processing machines (SITC 752), for example, China's share of U.S. imports increased more than fivefold from 11.3% in 2000 to 59.9% in 2009. In telecommunications equipment (SITC 764), China's market share nearly quadrupled from 10.3% to 38.8%; and in electrical machinery (SITC 778), it almost tripled from 11.9% to 32.5%. Only in auto parts and accessories (SITC 784) did Mexico expand its lead in the U.S. market over China.¹⁵

¹⁴ These export data are not sufficiently detailed to tell us about the process by which these products are made. Auto parts or electronic components, for example, could still be made in labor-intensive ways by relatively unskilled workers. Thus, industrial upgrading cannot be assured just by moving in the direction of medium- or high-technology finished products. However, the relative proportion of high-value activities is likely to go up as we move from low-technology to medium- and high-technology export categories.

¹⁵ These findings are consistent with the results of Gallagher et al., which show that in the 2000–2005 period, over half (fifty-three percent) of Mexico's exports were under "direct" threat (when Chinese exports in the same sector grow and Mexican exports decline) or "partial" threat (when Chinese exports grow faster than their Mexican counterparts) from China. See Kevin P. Gallagher, Juan Carlos Moreno-Brid & Roberto Porzecanski, *The Dynamism of Mexican Exports: Lost in (Chinese) Translation?*, 36 WORLD DEV. 1365, 1370 (2008).

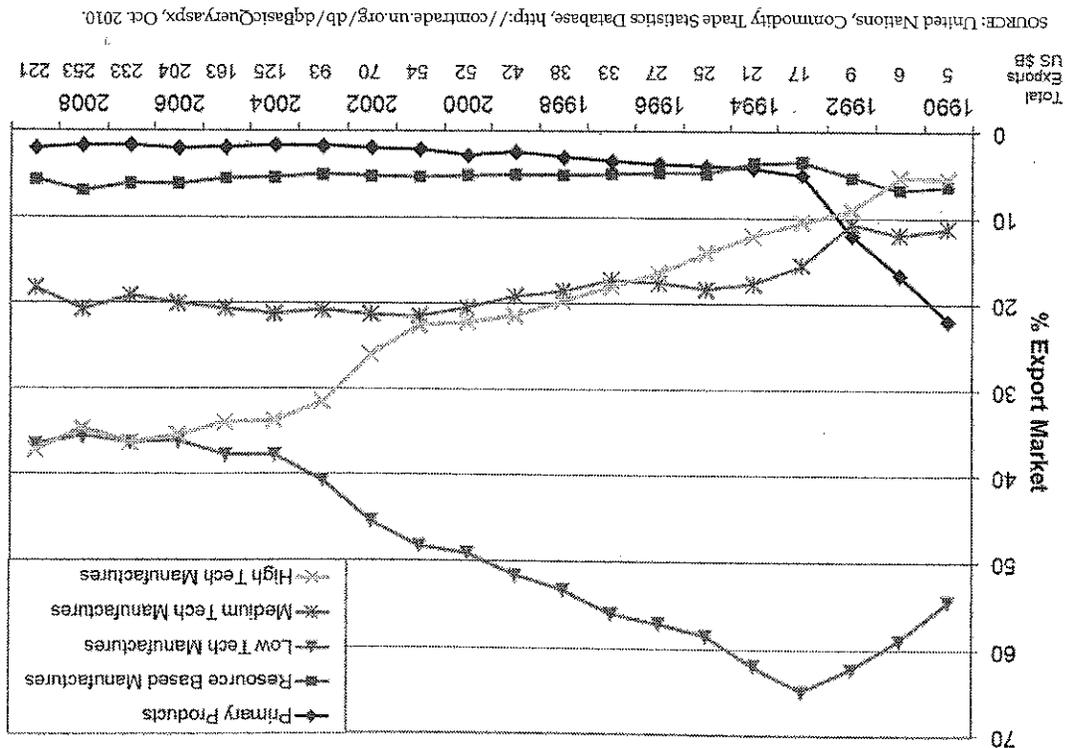


Figure 4
Composition of China's Exports to the U.S. Market, 1990-2009

SOURCE: United Nations, Commodity Trade Statistics Database, <http://comtrade.un.org/db/dpBasicQuery.aspx>, Oct. 2010.

Table
Mexico's and China's Competing Exports to the United States,
2000-2009

SITC	Product	2000			2009			Change in market share 2000-2009
		Value (\$billions)	Share of U.S. market	Value (\$billions)	Share of U.S. market	Value (\$billions)	Share of U.S. market	
752	Automatic Data Processing Machines and Units	Mexico	6.4	11.5	7.0	13.1	1.6	
		China	6.3	11.3	32.0	59.9	48.6	
		U.S. total	55.9	—	53.4	—	—	
764	Telecommunications Equipments and Parts	Mexico	9.1	20.6	12.9	16.3	-4.3	
		China	4.6	10.3	30.7	38.8	28.5	
		U.S. total	44.3	—	79.1	—	—	
778	Electrical Machinery and Apparatus	Mexico	3.1	18.3	3.8	19.9	1.6	
		China	2.0	11.9	6.2	32.5	20.6	
		U.S. total	17.1	—	19.1	—	—	
784	Auto Parts and Accessories	Mexico	4.6	16.3	7.8	26.3	10.0	
		China	0.4	1.5	3.1	10.4	8.9	
		U.S. total	28.4	—	29.7	—	—	
821	Furniture	Mexico	3.2	16.9	3.0	12.2	-4.7	
		China	4.5	23.6	12.7	51.6	28.0	
		U.S. total	18.9	—	24.6	—	—	
84	Articles of Apparel and Clothing	Mexico	8.7	13.6	3.6	5.2	-8.4	
		China	8.5	13.2	27.1	39.1	25.9	
		U.S. total	64.3	—	69.3	—	—	

SOURCE: U.S. Department of Commerce, <http://dataweb.usitc.gov> (last visited Feb. 17, 2010).
NOTE: SITC = Standard International Trade Classification.

Why has China gained U.S. market share over Mexico so rapidly and decisively? There are several factors. First, China's labor costs have traditionally been significantly lower than Mexico's. However, China's labor market is in serious turmoil. At the height of China's export boom, persistent labor shortages were reported at scores of Chinese factories, a trend that pushed up wages and led a number of manufacturers to consider moving their factories to lower-cost countries like Vietnam, Cambodia, and Bangladesh.¹⁶ In the wake of the

recent economic recession, however, it is estimated that 20 million Chinese workers have lost their jobs as a result of slumping demand in industrialized economies, sparking a massive return migration to the rural areas that provided much of the workforce that fueled the export surge.¹⁷ Thus, China's export model can no longer rely on a stable supply of abundant low-wage workers.

Second, China has leveraged its huge economies of scale and made major investments in infrastructure and logistics to lower transportation costs and to speed time to market for its export products. The growth of China's "supply chain cities"—led by foreign direct investment-driven clusters in Guangdong (including Dongguan and Humen) and single-product clusters in Zhejiang (such as Anji and Datang)—is a perfect illustration of how China's governments and entrepreneurs are turning scale-driven specialization into a persistent competitive advantage for the country.¹⁸ China's sheer size has also allowed it to develop diverse manufacturing clusters at the regional level, each with its own specialization: the Pearl River delta in the southern part of China specializes in labor-intensive manufacturing, including the production of components and their assembly into finished consumer goods in a wide range of industries; the Yangtze River delta near Shanghai specializes in capital-intensive industry and the production of cars, semiconductors, mobile phones, and computers; and the Zhongguancun technology hub in Beijing is an entrepreneurial high-tech zone, often dubbed China's Silicon Valley.

China's advantage is not simply the magnitude of its manufacturing capacity, but the fact that its central government makes its strategic decisions in an authoritarian, top-down manner; once key decisions are reached, often after intense debate in national party congresses, they can be implemented quickly and massively. In its run up to the 2008 Olympics, China spent US\$160 billion on airport

¹⁷ *China's Role in the Origins and the Response to the Global Recession: Hearing Before the U.S.-China Economic and Security Review Commission of the U.S. Congress*, 111th Cong. 105-10 (2009) (statement of Alexandra Harney, *The China Price: The True Cost of Chinese Competitive Advantage* (2008)).

¹⁸ Gary Gereffi, *Development Models and Industrial Upgrading in China and Mexico*, 25 EUR. SOC. REV. 37 (2009).

¹⁶ David Barboza, *Labor Shortage in China May Lead to Trade Shift*, N.Y. TIMES, Apr. 3, 2006, at C2; Peter S. Goodman, *China Ventures Southward: In Search of Cheaper Labor, Firms Invest in Vietnam*, WASH. POST, Dec. 6, 2005, at D1.

construction, transportation systems, sports venues, and other infrastructure projects.¹⁹ The unprecedented scale of China's development is leading the country to import close to thirty percent of global demand for many hard commodities, including oil, coal, steel, and cement.

Third, China has a coherent and multidimensional upgrading strategy to diversify its industrial mix and to add high-value activities. In their detailed study of China's export performance, Lall and Albaladejo argue that China and its East Asian neighbors are developing high-technology exports in a regionally integrated fashion, based on complex networks of export production that link leading multinational electronics corporations to their first-tier suppliers and global contract manufacturers.²⁰ The export patterns for high-tech products reveal complementarity rather than confrontation between China and its mature East Asian partners (Japan, South Korea, Taiwan, and Singapore). China's role as a motor of export growth for the region, however, could change as China itself moves up the value chain and takes over activities currently carried out by its technologically advanced regional neighbors. Rodrik suggests that China is already exporting a wide range of highly sophisticated products, and he calculates that China's export bundle is similar to that of a country whose per capita income is three times higher than China's current level.²¹

Fourth, China is using foreign direct investment to promote "fast learning" in new industries and knowledge spillovers in its domestic

market.²² Despite restrictions imposed by the World Trade Organization against domestic performance requirements for multinational corporations, China's local market is sufficiently attractive for foreign manufacturers that they are willing to comply with the wishes of local, regional, and national government authorities, despite stringent requirements regarding technology transfer and other matters.

The experiences of Mexico and China show that international competitiveness requires more than an export-oriented growth strategy. Sustained industrial upgrading requires the ability not only to participate in global value chains that link global buyers in the most developed economies with increasingly capable suppliers in the developing world, but also the ability to diversify export products as well as export markets in order to tap new sources of demand for the expanding global supply base for industrialized goods. Although both Mexico and China have relied very heavily on the U.S. market to fuel their export growth, China has fared much better than Mexico notwithstanding the current economic downturn. In addition to the institutional factors mentioned above, China's strong performance reflects its unique supply chain relationships to both the U.S. economy as well as to its East Asian neighbors.

If China is currently the factory of the world, the United States has become the world's supermarket. In reality, the U.S.-China trade deficit, which hit a record high of \$273 billion in 2010,²³ is not simply a bilateral problem driven by unfair Chinese competition, as is frequently alleged. The United States has a *multilateral* trade imbalance with 100 other economies in the world. The root cause of this problem is what Stephen Roach, Chairman of Morgan Stanley Asia, has called "America's excess consumption model."²⁴ In early 2007, U.S. con-

¹⁹ Qing Zhang & Bruce Felmingham, *The Role of FDI, Exports and Spillover Effects in the Regional Development of China*, 38 J. DEV. STUD. 157 (2002); Mark Yaolin Wang & Xiaochen Meng, *Global-Local Initiatives in FDI: The Experience of Shenzhen, China*, 45 ASIA PAC. VIEWPOINT 181 (2004).

²⁰ U.S. CENSUS BUREAU, FOREIGN TRADE STATISTICS: TRADE IN GOODS WITH CHINA (2009), <http://www.census.gov/foreign-trade/balance/c5700.html#2010>.

²¹ *China's Role in the Origins and the Response to the Global Recession: Hearing Before the U.S.-China Economic and Security Review Commission of the U.S. Congress*, 111th Cong. 11-20 (2009) (statement of Stephen S. Roach).

¹⁹ ERNST & YOUNG, SPOTLIGHT ON CHINA: CROSS-BORDER TRANSACTIONS IN EMERGING MARKETS 2 (2007), [http://www.ey.com/global/assets.nsf/International/TAS_Spotlight_on_China.pdf/\\$file/TAS_Spotlight_on_china.pdf](http://www.ey.com/global/assets.nsf/International/TAS_Spotlight_on_China.pdf/$file/TAS_Spotlight_on_china.pdf).

²⁰ Sanjaya Lall & Manuel Albaladejo, *China's Competitive Performance: A Threat to East Asian Manufactured Exports?*, 32 WORLD DEV. 1441 (2004). See also Timothy Sturgeon & Ji-Ren Lee, *Industry Co-Evolution: A Comparison of Taiwan and North American Electronics Contract Manufacturers*, in GLOBAL TAIWAN: BUILDING COMPETITIVE STRENGTHS IN A NEW INTERNATIONAL ECONOMY (Suzanne Berger & Richard K. Lester eds., 2005); Gereffi, Humphrey & Sturgeon, *supra* note 9; Gary Gereffi, *Commodity Chains and Regional Divisions of Labor in East Asia*, 12 J. ASIAN BUS. 75 (1996).

²¹ Dani Rodrik, *What's So Special About China's Exports?*, 14 CHINA & WORLD ECON. 1 (2006).

sumption accounted for seventy-two percent of real gross domestic product (GDP), a record for the United States and for any major economy in the world. While this U.S. consumption binge may be unsustainable, it has fueled the export-led growth model of China and much of the rest of Asia for the past several decades. It is precisely for this reason that the prospective post-bubble demise of the U.S. consumer is such a threat: it undermines the external demand on which the Chinese economy and the rest of export-dependent Asia have depended during their boom years. If the United States consumes too much, then one can say China exports too much. The two trends have been mutually reinforcing and a source of vulnerability to both economies.

China's export dependence has grown dramatically. Between 2001 and 2007, the export share of China's GDP nearly doubled from twenty percent to thirty-six percent, and during the same period, developing Asia's export share hit a record forty-seven percent of GDP. These trends are closely connected because the Asian economy is increasingly China-centric. East Asia's exports to China underpin Chinese exports to the rest of the world and the economic growth of the entire East Asian region. The complementarity of Asia's China-centric value chains explains why China and its neighbors are raising their high-technology exports in tandem.²⁵ However, this tight pan-regional integration has vulnerabilities in tough times, just as it was a virtuous circle when China's exports were booming.

IV. CONCLUSION

Where does the global economy go from here? Even before the current economic crisis, a new governance structure was emerging on the international scene. It is widely believed that the Washington Consensus is dead. The neoliberal turn in global economic ideology in the 1980s, led by the United States and buttressed by the policies of key international organizations such as the World Bank, the International Monetary Fund, and the World Trade Organization, was undermined by its failures to deliver on the promise of sustained

economic growth and prosperity for developing economies.²⁶ The relatively successful large emerging economies (such as China, India, Brazil, South Africa, and Russia) are demanding more clout in the governing institutions of the international economic system, as we see more high-level negotiations involving the G-20 countries (nineteen of the world's largest national economies, including many in the developing world, plus the European Union) than the clubby G-8 (the United States, United Kingdom, France, Germany, Italy, Russia, Japan, and Canada). While the pre-crisis hegemony of the neoliberal regime is clearly unhinged, the shape of the future is still hard to discern.²⁷

International trade and foreign direct investment will rebound, although economists predict that the impact of the recession on employment and slow domestic growth in the major developed economies of the world will continue to be felt for another several years. What will change, however, is the infatuation stoked during the Washington Consensus years for export-oriented industrialization. This model was successful when the large advanced industrial economies of North America and Europe were willing to subsidize the export growth of developing economies through high levels of consumption and burgeoning trade deficits. But as we have seen, it is questionable in the long run.

Global value chains are becoming more consolidated.²⁸ Large multinational manufacturers, retailers, and marketers who manage global sourcing networks are proclaiming that they want fewer, larger, and more capable suppliers and that they will operate in a reduced number of strategic locations around the world. This is likely to promote a higher degree of regional sourcing, with suppliers located close to the major consumer markets in North America, Western Europe, and East Asia. In industries like apparel, leading suppli-

²⁶ José Antonio Ocampo, *Forward, in RETHINKING FOREIGN INVESTMENT FOR SUSTAINABLE DEVELOPMENT: LESSONS FROM LATIN AMERICA* xiii (Kevin P. Gallagher & Daniel Chudnovsky eds., 2009).

²⁷ Gary Gereffi & Frederick Mayer, *Globalization and the Demand for Governance, in THE NEW OFFSHORING OF JOBS AND GLOBAL DEVELOPMENT* 39 (Gary Gereffi ed., 2006).

²⁸ GLOBAL VALUE CHAINS, *supra* note 7.

²⁵ Lall & Albaladejo, *supra* note 20.

ers (countries and firms alike) have strengthened their positions in the industry. On the country side, China has been the big winner, although Bangladesh, India, and Vietnam have also continued to expand their roles in the industry. On the firm side, the quota phase-out and economic recession have accelerated the ongoing shift to more streamlined global supply chains, in which lead firms choose to work with fewer, larger, and more capable suppliers that are strategically located around the world.²⁹

Globalization is not going to disappear, but it is likely to become more decentralized, perhaps on a regional basis. Globalization's benefits will continue to be unevenly distributed, with its gains going to those with more education, skills, wealth, and power. However, the inclusion of large emerging economies like China, Mexico, and India among those who are benefitting, at least in part, is a qualitative shift in the process. But it will not necessarily improve the chances for smaller countries in the global economy unless they devise upgrading policies to enhance their own capabilities to foster development.

²⁹ Gary Gereffi & Stacey Frederick, *The Global Apparel Value Chain, Trade and the Crisis: Challenges and Opportunities for Developing Countries* (World Bank Policy Research Working Paper 5281, 2010); Gary Gereffi & Michelle Christian, *The Impacts of Wal-Mart: The Rise and Consequences of the World's Dominant Retailer*, 35 ANN. REV. SOC. 573 (2009).

*A*utomotive aftermarket: *A case study in systems competition*

BY NORMAN W. HAWKER*

As automobiles have become more durable and complex, manufacturers have denied access to parts, information, and training to anyone but authorized dealers. Increased intellectual property law protection has greatly contributed to these developments. This article examines the aftermarket for collision repair parts and the aftermarket for maintenance and repair services, and finds that problems such as consumer myopia and third-party payers keep consumers from factoring the total cost of ownership into the price of an automobile. Even robust competition in the primary market for new automobiles may not inhibit manufacturers from reaping monopoly profits in these aftermarkets. Potential solutions to these issues in the aftermarket for maintenance and repair services may be found in mandating access for independent service providers. In the aftermarket for collision repair parts, a potential solution may be found by creating an exception to design patent law for third-party collision repair parts.

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