

forms, and that exercise agency through moral action. From Meyer's "world society" perspective, the modern world is stateless; it is based on shared rules and models, and made up of strong, culturally constituted actors. Sassen (2000) also detaches sovereignty from the national state. She emphasizes the role of global cities as strategic sites for the production of specialized functions to run and coordinate the global economy, and posits that financial and investment deregulation are driving the geographic location of strategic institutions related to globalization deep inside national territories.

INDUSTRIAL UPGRADING AND GLOBAL PRODUCTION NETWORKS

Major changes in global business organization during the last several decades of the twentieth century have had a significant impact on the upgrading possibilities of developing countries. This section will illustrate how the reorganization of international trade and production networks affects the capability of developing countries in different regions of the world to improve their positions in the value chains of diverse industries.

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 upgrading success. 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 (OEM), original brand name manufacturing (OBM), and original design manufacturing (ODM) (Gereffi 1994b, 222–24). This sequence of economic roles involves an expanding set of capabilities that developing countries must attain in pursuing an upgrading trajectory in diverse industries. In the remainder of this section, we will look at evidence from several sectors to see how global production networks have facilitated or constrained upgrading in developing nations.

Apparel

The global apparel industry contains many examples of industrial upgrading by developing countries.²⁵ The lead firms in this buyer-driven chain are retailers (giant discount stores like Wal-

mart and Target, department stores like J.C. Penney and Marks & Spencer, specialty retailers like The Limited and Gap), marketers (who control major apparel brands, such as Liz Claiborne, Tommy Hilfiger, Polo/Ralph Lauren, Nike), and brand name manufacturers (e.g., Wrangler, Phillips-van Heusen). These lead firms all have extensive global sourcing networks, which typically encompass 300 to 500 factories in various regions of the world. Because apparel production is quite labor intensive, manufacturing is typically carried out in countries with very low labor costs.

The main stages for firms in developing countries are first, to be included as a supplier (i.e., exporter) in the global apparel value chain; and then to upgrade from assembly to OEM and OBM export roles within the chain. Because of the Multi-Fiber Arrangement (MFA) associated with the GATT, which used quotas to regulate import shares for the United States, Canada, and much of Europe, at least 50 to 60 different developing countries have been significant apparel exporters since the 1970s, many just assembling apparel from imported inputs using low-wage labor in local export-processing zones.

The shift from assembly to the OEM export role has been the main upgrading challenge in the apparel value chain. It requires the ability to fill orders from global buyers, which includes making samples, procuring or manufacturing the needed inputs for the garment, meeting international standards in terms of price, quality, and delivery, and assuming responsibility for packing and shipping the finished item. Since fabric supply is the most important input in the apparel chain, virtually all countries that want to develop OEM capabilities need to develop a strong textile industry. The OBM export role is a more advanced stage because it involves assuming the design and marketing responsibilities associated with developing a company's own brands.

East Asian newly industrializing economies (NIEs) of Hong Kong, Taiwan, South Korea, and Singapore, which are generally taken as the archetype for industrial upgrading among developing countries, made a rapid transition from assembly to OEM production in the 1970s. Hong Kong clothing companies were the most successful in making the shift from OEM to OBM production in apparel, and Korean and Taiwanese firms pursued OBM in other consumer goods industries like appliances, sporting goods, and electronics.²⁶ After mastering the OEM role, leading apparel export firms in Hong Kong, Taiwan, and South Korea began to

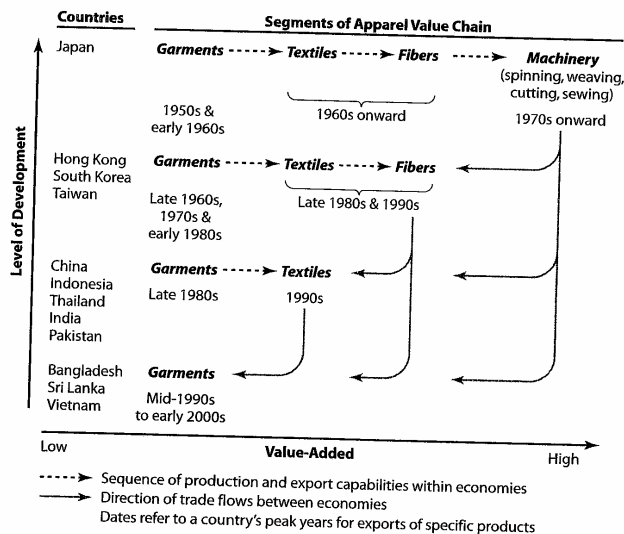


FIGURE 1. Industrial upgrading in the Asian apparel value chain. Dotted arrows refer to the sequence of production and export capabilities within economies. Solid arrows refer to the direction of trade flows between economies. Dates refer to a country's peak years for exports of specific products.

set up their own international production networks in the 1980s, using the mechanism of "triangle manufacturing" whereby orders were received in the East Asian NIEs, apparel production was carried out in lower-wage countries in Asia and elsewhere (using textiles from the NIEs), and the finished product was shipped to the United States or other overseas buyers using the quotas assigned to the exporting nation (Gereffi 1999).

Thus, international production networks facilitated the upgrading of East Asian apparel firms in two ways: first, they were the main source of learning from U.S. and European buyers about how to make the transition from assembly to OEM and OBM; and second, the East Asian NIEs established their own international production networks when faced with rising production costs and quota restrictions at home, and in order to take advantage of lower labor costs and a growing supply base in their region. Asian apparel manufacturers thus made the coordination of the apparel supply chain into one of their own core competences for export success.

Figure 1 presents a stylized model of industrial upgrading in the Asian apparel value chain. The main segments of the apparel chain—garments, textiles, fibers, and machinery—are arranged along the horizontal axis from low to high levels of rela-

tive value added in the production process. Countries are grouped on the vertical axis by their relative level of development, with Japan at the top and the least-developed exporters like Bangladesh, Sri Lanka, and Vietnam at the bottom.

Figure 1 reveals several important dynamics about the apparel value chain in Asia, and the GVC approach more generally. First, individual countries progress from low- to high-value-added segments of the chain in a sequential fashion over time. This reinforces the importance in GVC research of looking at the entire constellation of value-added steps in the supply chain (raw materials, components, finished goods, related services, and machinery), rather than just the end product, as traditional industry studies are wont to do. Second, there is a regional division of labor in the apparel value chain, whereby countries at very different levels of development form a multitiered production hierarchy with a variety of export roles (e.g., the United States generates the designs and large orders, Japan provides the sewing machines, the East Asian NIEs supply fabric, and low-wage Asian economies like China, Indonesia, or Vietnam sew the apparel). Industrial upgrading occurs when countries change their roles in these export hierarchies.²⁷ Finally, advanced economies like Japan and the East Asian NIEs do not exit the in-

dustries when the finished products in the chain become mature, as the "product cycle" model (Vernon 1966; 1971, chap. 3) implies, but rather they capitalize on their knowledge of production and distribution networks in the industry and thus move to higher-value-added stages in the apparel chain. This strategic approach to upgrading requires that close attention be paid to competition within and between firms occupying all segments of global value chains.

It is important to note, in closing this section, the key role played by international regulation in the organization of the apparel value chain. The MFA and its apparel quotas will be eliminated in 2005 as a result of the Agreement on Textiles and Clothing in the WTO, and many of the smaller apparel exporters that only do assembly will probably be forced out of the world export market. This should greatly increase export concentration in the global apparel industry, with China likely to be the major winner, along with other large countries such as Mexico, India, Turkey, Romania, and Vietnam that have developed considerable expertise in OEM production. Mexico's rapid move in the 1990s to the top of list as the leading apparel exporter to the United States owes a great deal to the passage of NAFTA in 1994, which allowed the creation of textile production and other backward linkages in Mexico, and thereby facilitated the entry of the U.S. retailers and apparel marketers that previously shunned Mexico in order to import apparel from Asia. In addition, employment in the apparel export industry increased in Mexico from 73,000 in 1994 to nearly 300,000 in 2000, mainly because Mexico coupled its relatively low wage rates with its recently acquired ability to carry out "full-package" (or OEM) production (Bair and Gereffi 2001; Gereffi, Spener, and Bair 2002). However, China regained the lead from Mexico in 2001 and 2002, as Mexico has been unable to match the volume and low price of Chinese apparel exports, and because of the intense competition from new suppliers that continue to enter the U.S. market.²⁸

Electronics

Global production networks have been a central feature in the development and upgrading of Asia's large, dynamic electronics sector. In the case of electronics, there have been competing cross border production networks set up by U.S., Japanese, and European firms, led by TNCs that span the entire value chain in various industries. For high-tech industries like electronics, these producer-driven

chains must combine cost competitiveness with product differentiation and speed to market. Cross-border networks not only allow firms to combine these very different market demands effectively, but they also permit the integration of Asia's four distinct development tiers: Japan occupies the first tier; the East Asian NIEs are in the second tier; the major Southeast Asian countries of Malaysia, Thailand, the Philippines, and Indonesia are in the third tier; and the fourth tier contains China and late-late developers such as Vietnam. While the economic crisis of 1997 called East Asia's economic miracle into question, it appears that the structural changes associated with recovery from the crisis will reinforce and increase the opportunities for networked production, as the process of corporate restructuring leads firms to focus on core activities and supplement these with the increasingly specialized technology, skills, and know-how that are located in different parts of Asia (Borras, Ernst, and Haggard 2000).

The diverse upgrading dynamics in Asian electronics can best be seen by contrasting the U.S. and Japanese production networks. In the mid-1990s, U.S. networks were considered to be relatively open and conducive to local development in host countries, while Japanese networks were perceived as closed and hierarchical with activities confined within affiliates that were tightly controlled by the parent company (Borras 1997). U.S. electronics multinationals typically set up Asian networks based on a complementary division of labor: U.S. firms specialized in "soft" competencies (the definition of standards, designs, and product architecture), and the Taiwanese, Korean, and Singaporean firms specialized in "hard" competencies (the provision of components and basic manufacturing stages). The Asian affiliates of U.S. firms in turn developed extensive subcontracting relationships with local manufacturers, who became increasingly skilled suppliers of components, subassemblies, and even entire electronics systems. Japanese networks, by contrast, were characterized by market segmentation: electronics firms in Japan made high-value, high-end products, while their offshore subsidiaries in Asia continued to make low-value, low-end products. In terms of Asian upgrading, the U.S. production networks were definitely superior: U.S. networks maximized the contributions from their Asian affiliates, and Japanese networks minimized the value added by their regional suppliers. Although there is some evidence that Japanese firms tried to open up their production networks in the late 1990s, at best there has

been partial convergence, with persistent diversity (Ernst and Ravenhill 2000).

Taiwan's achievements in electronics are especially notable for several reasons. During the 1990s, Taiwan established itself as the world's largest supplier of computer monitors, main boards, mouse devices, keyboards, scanners, and notebook personal computers (PCs), among other items. About 70 percent of the notebook PCs sold under OEM arrangements to American and Japanese computer companies, which resell them under their own logos, have been designed by Taiwanese firms. Acer, Taiwan's leading computer maker, is successful at both OEM and OBM production. Progress has been equally remarkable in the field of electronic components, and Taiwan also boasts one of the world's leading silicon foundry companies, the Taiwan Semiconductor Manufacturing Corporation (Ernst 2000). What is especially impressive about these accomplishments is that small and medium enterprises have played a central role as a source of flexibility in Taiwan's production networks. The role of small and medium enterprises as engines of growth and industrial transformation sets Taiwan apart from South Korea, which has relied extensively on huge, diversified conglomerates (*chaebol*) as the cornerstone of its electronics sector. The Taiwanese model in the computer industry draws on a combination of several factors: government policies that facilitated market entry and upgrading; strong linkages with large Taiwanese firms and business groups; and organizational innovations, such as the shift from relatively simple, production-based OEM to more complex "turn-key production" arrangements that encompass a wide variety of high-end support services, including design and global supply chain management (Poon 2002).

One of the most striking features of the electronics industry in recent years has been the rise of global contract manufacturers (Sturgeon 2002). A significant share of the world's electronics manufacturing capacity is now contained in a handful of huge contractors, such as Soletron, Flextronics, and Celestica. These firms are pure manufacturers. They sell no products under their own brand names and instead focus on providing global manufacturing services to a diverse set of lead firms, such as Hewlett Packard, Nortel, and Ericsson. All have operations that are truly global in scope, and all have grown dramatically since the early 1990s. Soletron, the largest contractor, expanded from a single Silicon Valley location with 3,500 employees and \$256 million in revenues in 1988 to a global

powerhouse with more than 80,000 employees in 50 locations and nearly \$20 billion in revenues in 2000. Although they have global reach, all of the largest contract manufacturers are based in North America. Except for the personal computer industry, Asian and European contract manufacturers have not developed, and the few that did were acquired by North American contractors during their buying spree fueled by the inflated stock prices of the 1990s. Global contract manufacturers introduce a high degree of modularity into value chain governance because the large scale and scope of their operations create comprehensive bundles of standardized value chain activities that can be accessed by a variety of lead firms through modular networks.

Fresh Vegetables

A final example of the role of global production networks in promoting industrial upgrading involves the production of fresh vegetables in Kenya and Zimbabwe for export to U.K. supermarkets.²⁹ Africa has very few success stories in the realm of export-oriented development, but some countries of sub-Saharan Africa seem to have found a niche in the fresh vegetables market. Several factors tie this case to our previous examples. First, fresh vegetables are a buyer-driven value chain, albeit in the agricultural sector. As with apparel, there is a high level of concentration at the retail end of the chain. The largest U.K. supermarkets and other food retailers control 70 to 90 percent of fresh produce imports from Africa. These retailers have avoided direct involvement in production; they just specialize in marketing and in the coordination of their supply chains.

Second, a major stimulus for local upgrading in Africa comes from U.K. retailers ratcheting up the standards that exporters must meet. U.K. supermarkets have moved beyond compliance with product quality and legislative (or due diligence) requirements for how produce is grown, processed, and transported. They now are focusing on broader standards that exporters must meet, such as integrated crop management, environmental protection, and human rights. In addition, retailers are beginning to use third-party auditors paid for by producers to ensure compliance with these standards.

Third, more stringent U.K. requirements have led to a decline in the market share of smallholder production and small export firms, which have been excluded from the supermarket supply chain. The horticulture industry in sub-Saharan Africa is

dominated by a few large exporters that source predominantly from large-scale production units. In both Kenya and Zimbabwe, the top five exporters controlled over three-quarters of all fresh vegetable exports in the late 1990s.³⁰

Fourth, as in apparel and electronics, market power in the horticultural chain has shifted from those activities that lower production costs to those that add value in the chain. In fresh vegetables, the latter include investing in postharvest facilities, such as cold storage; barcoding products packed in trays to differentiate varieties, countries, and suppliers; moving into high-value-added items such as ready-prepared vegetables and salads; and treating logistics as a core competence in the chain in order to reduce the time between harvesting, packing, and delivery. Pushing back these functions into Africa can reduce the cost for U.K. supermarkets because adding value to vegetables is labor-intensive and African labor is relatively cheap, but taken together these high-end services can become a new source of competitiveness and an opportunity to add value in Africa.

THE GLOBALIZATION BACKLASH: DILEMMAS OF GOVERNANCE AND DEVELOPMENT

In recent decades, a strong antiglobalization movement has emerged. As markets have gone global, many people sense that globalization means greater vulnerability to unfamiliar and unpredictable forces that can bring economic instability and social dislocation, as well as a flattening of culture in the face of well-financed global marketing machines and "brand bullies" (Rodrik 1997; Klein 2000; Ritzer 2000). The so-called Battle of Seattle, the massive protest against WTO trade talks in late 1999, was triggered not only by a lack of accountability and transparency in the deliberations of dominant global economic institutions like the WTO and the IMF, but also by a sense of outrage that corporate-sponsored international liberalization was moving full steam ahead, while the social safety nets and adjustment assistance traditionally provided by national governments were being removed. The historic compromise of "embedded liberalism," characterized by the New Deal in the United States and social democracy in Europe, whereby economic liberalization was rooted in social community, was being undone (Ruggie 2002a).

A major problem is that the purported benefits of globalization are distributed highly unequally. The IMF's managing director, Horst Köhler, has

conceded that "the disparities between the world's richest and poorest nations are wider than ever."³¹ Of the world's 6 billion people, almost half (2.8 billion) live on less than two dollars a day, and a fifth (1.2 billion) live on less than one dollar a day, with 44 percent of them living in South Asia. In East Asia the number of people living on less than one dollar a day fell from 420 million to 280 million between 1987 and 1998, largely because of improvements in China. Yet the numbers of poor people continue to rise in Latin America, South Asia, and sub-Saharan Africa (World Bank 2001, 3). What forces might be able to ameliorate these problems in both governance and development in the global economy?

In the 1990s, there was a sharp escalation in social expectations about the role of corporations in society, both in developed and developing nations (Ruggie 2002b). One reason is that individual companies have made themselves, and in some cases entire industries, targets by engaging in abusive or exploitative behavior. As a result, trust in the corporate sector has been eroded. In addition, there is a growing imbalance in global rule-making: on the one hand, the rules favoring market expansion have become stronger and more enforceable (such as intellectual property rights for software and pharmaceutical companies, or the restrictions on local content provisions and export performance requirements in the WTO); on the other hand, rules that favor other valid social objectives, such as human rights, labor standards, environmental sustainability, or poverty reduction, are lagging behind. These perceived problems and others have provided the fuel for anticorporate campaigns worldwide.

Government policy alone is inadequate to handle these grievances: they are transnational in scope, and they deal with social demands in areas where regulations are weak, ill defined, or simply absent. A variety of new "private governance" responses or certification institutions are emerging (Gereffi, Garcia-Johnson, and Sasser 2001), such as individual corporate codes of conduct; sectoral certification schemes involving nongovernmental organizations (NGOs), firms, labor, and other industry stakeholders; third-party auditing systems, such as SA 8000 for labor standards or the Forest Stewardship Council (FSC) certification for sustainable forestry practices; and the United Nations' Global Compact, an initiative that encourages the private sector to work with the United Nations, in partnership with international labor and civil society organizations, to move toward "good practices" in

human rights, labor standards, and environmental sustainability in the global public domain. While skeptics claim there is little evidence to show that these codes have significant impact on corporate behavior (Hilowitz 1996; Seidman 2003), proponents generally argue that new systems of certification, enforced either by global consumers or by institutional actors such as the United Nations, can provide the basis for improved regulatory frameworks (Fung, O'Rourke, and Sabel 2001; Williams 2000).

Although there is enormous variation in the character and purpose of different voluntary regulatory schemes—with some schemes created by activists in response to global concerns, and others implemented by corporations as a preemptive effort to ward off activist pressure—certification institutions have gained a foothold in both Europe and North America. In the apparel industry, a variety of certification and monitoring initiatives were established in the latter half of the 1990s.

Clean Clothes Campaign (CCC), a consumer coalition in Europe that aims to improve working conditions in the worldwide garment industry

Social Accountability 8000 (or SA 8000), a code of conduct verification and factory certification program launched in October 1997 by the New York-based Council on Economic Priorities

Fair Labor Association (FLA), which includes major brand merchandisers such as Nike, Reebok, and Liz Claiborne

Worldwide Responsible Apparel Production (WRAP), an industry-initiated certification program designed as an alternative to the FLA and representing the large U.S. apparel manufacturers that produce for the discount retail market

Workers Rights Consortium (WRC), developed by the United Students Against Sweatshops in cooperation with apparel unions, universities, and a number of human rights, religious, and labor NGOs (see Maquila Solidarity Network 2002)

In Mexico, the FLA and WRC collaborated in settling a strike and gaining recognition for the workers' union in the Korean-owned Kukdong factory, which made Nike and Reebok sweatshirts for the lucrative U.S. collegiate apparel market (Gereffi, Garcia-Johnson, and Sasser 2001, 62–64). In the coffee sector, the Fair Trade movement has worked with small coffee growers in Costa Rica and elsewhere to get above-market prices for their organic and shade-grown coffees distributed by Starbucks and other specialty retailers (Fitter and Kaplinsky 2001; Ponte 2002).

Private governance in multistakeholder arrangements seeks to strengthen oversight in global supply chains by charting a course that goes beyond conventional top-down regulation based on uniform standards, on the one hand, and reliance on voluntary initiatives taken by corporations in response to social protest, on the other. Some argue that a continuous improvement model based on "ratcheting labor standards" upward would work well in a highly competitive, brand-driven industry such as apparel (Fung, O'Rourke, and Sabel 2001). Others propose a "compliance plus" model that pushes beyond the basic floor of minimum standards set by most codes, and seeks an "inside-out" approach to ethical sourcing based on training and empowerment initiatives that address the needs and interests of factory-based stakeholders (Allen 2002). In either instance, sustainable and meaningful change requires a shift in organizational cultures and expectations regarding improvement of social and environmental conditions.

Governance has become a central theoretical issue in the global economy. Institutional paradigms and local or regional frameworks centered on the nation-state are being superseded by approaches that emphasize transnational governance structures, with an emphasis on power, networks, and the uneven distribution of gains from globalization. Much still needs to be done in this area. The inability of the neoliberal agenda to redress the most serious development problems in the world is leading to fresh thinking on the role of the state and civil society institutions in developing nations (Wolfensohn 1998; IDB 1998, 2000; Garretón et al. 2003). Transnational corporations are being pressured to comply with a broad range of social objectives in multistakeholder institutions of private governance that can have an impact on public policies in the developed as well as the developing world. The challenge in research on the global economy is to create theory and carry out insightful empirical studies that provide tools to understand the constantly changing reality we seek to apprehend and change.

NOTES

I am grateful to Giovanni Arrighi, Fred Block, Frank Dobbin, Mark Granovetter, Evelyn Huber, Larry King, Victor Nec, Gay Seidman, Neil Smelser, and Richard Swedberg for their helpful comments on an earlier draft of this chapter.

1. Another key actor in the contemporary global economy is the state. While the role of the state is an important as-

pect in many of the institutional perspectives we will review, a more comprehensive discussion of this topic can be found in the chapter "The State and the Economy" by Fred Block and Peter Evans (this volume).

2. Because the services component of GDP in industrial countries has grown substantially relative to "merchandise" trade like manufacturing, mining, and agriculture, the merchandise component of GDP is shrinking. Thus Feenstra (1998, 33-35) uses the ratio of merchandise trade to merchandise value-added to measure the significance of trade for industrial economies between 1890 and 1990. He finds that this ratio doubled for France, Germany, Italy, and Sweden between 1913 and 1990, and nearly tripled for the United States.

3. Organization for Economic Co-operation and Development.

4. The maquiladora program in Mexico, initially called the Border Industrialization Program, was created in 1965 after the United States terminated the bracero program, whose main objective had been to bring in Mexican workers to fulfill the demand for agricultural labor. The end of the bracero program left thousands of unemployed farmworkers in Mexican border cities, and the maquiladora program was set up to alleviate the resultant unemployment and growing poverty. The growth of the maquiladora program has been spectacular, especially in the 1990s. In 1991, Mexico's maquiladora industry generated \$15.8 billion in exports and employed 466,000 Mexicans; by 2000, it had grown to \$79.5 billion in exports with nearly 1.3 million employees. Around 15 percent of Mexico's GDP corresponded to maquiladora exports in 2001, and the main destination for these products is the United States (Cañas and Coronado 2002).

5. These three motives for investing abroad subsequently became popularized as distinct forms of foreign direct investment: resource-seeking FDI, market-seeking FDI, and efficiency-seeking FDI (Beviglia Zampetti and Fredriksson 2003, 406).

6. The debt crisis hit all of Latin America very hard. The high external debt burden required the allocation of 25 percent to 30 percent of the region's foreign exchange proceeds merely to cover interest payments, which prompted scholars to refer to the 1980s as Latin America's "lost development decade" (Urquidí 1991).

7. The World Bank's (1993) overview of the East Asian development experience attributes the region's sustained international competitiveness largely to the application of market-friendly policies, including stable macroeconomic management, high investments in human capital (especially education), and openness to foreign trade and technology. For a critique of this "Washington consensus" model, see Gore 2000. For a detailed comparison of the import-substituting and export-oriented development strategies in Latin America and East Asia, see Gereffi and Wyman 1990.

8. UNCTAD's *World Investment Report, 2002* contains a table of the largest 100 "economies" in the world in 2000, using a value-added measure for firms that is conceptually comparable to the GDP calculation used for countries. There were 29 TNCs in the top 100 entities on this combined list of countries and nonfinancial companies. The world's largest TNC was ExxonMobil, with an estimated \$63 billion in value added in 2000; it ranked forty-fifth on the country-company list, making the company approximately equal in size to the economies of Chile or Pakistan (UNCTAD 2002a, 90-91).

9. For OECD countries, falling tariffs were twice as im-

portant as falling transport costs in explaining the growth of trade relative to income between 1958 and 1988 (Feenstra 1998, 34).

10. The European Union is a case in point. Taken individually, European Union economies are very open, with an average trade share of 28 percent in 1990, but more than 60 percent of their trade is with each other. Taken as a unit, the European Union's merchandise trade with the rest of the world is only 9 percent of GDP, which is similar to that of the United States (Krugman 1995, 340).

11. SITC refers to Standard International Trade Classification, which is the United Nations' system of trade categories. One-digit product groups, such as SITC 7, are the most general. Components are reported at the level of three-, four-, and five-digit product groups.

12. Feenstra's focus on linkages between the integration of trade and the disintegration of production in the current trade-based era calls to mind a similar duality in Osvaldo Sunkel's classic article "Transnational Capitalism and National Disintegration in Latin America." Writing 25 years before Feenstra in a TNC-based world economy, Sunkel (1973) argued that vertically integrated TNCs were generating international polarization as they used direct foreign investment (rather than trade) to integrate the global economy and simultaneously disintegrate national and regional economies. Thus, we have a curiously reversed image of TNCs moving from being highly integrated to disintegrated actors in the last quarter of the twentieth century, while the economic context shifts from transnational capitalism (based on closed domestic economies) in the 1970s to global value chains (based on specialized economic activities in relatively open economies) in the 1990s.

13. Actually, the disintegration of production through outsourcing of specific activities by large corporations itself leads to more trade, as intermediate inputs cross borders several times during the manufacturing process. This is part of the boundary problem in measuring international trade noted by Krugman (1995).

14. Kogut (1985, 15) defines the value-added chain as "the process by which technology is combined with material and labor inputs, and then processed inputs are assembled, marketed, and distributed. A single firm may consist of only one link in this process, or it may be extensively vertically integrated."

15. The main sources of a firm's competitive advantage that can be transferred globally are several economies that exist along and between value-added chains: economies of scale (related to an increase in market size); economies of scope (related to an increase in product lines supporting the fixed costs of logistics, control, or downstream links of the value-added chain); and learning (based on proprietary knowledge or experience). "When these economies exist, industries are global in the sense that firms must compete in world markets in order to survive" (Kogut 1985, 26).

16. A firm's value chain is nested in a larger stream of activities Porter calls a "value system," which include the separate value chains of suppliers, distributors, and retailers (Porter 1990, 40-43).

17. There are two distinct dimensions in how a firm competes internationally: the *configuration* of a firm's activities worldwide, which range from concentrated (performing an activity, such as research and development, in one location and serving the world from it) to dispersed (performing every activity in each country); and the *coordination* of value chain activities, which range from tight to loose structures (Porter 1987, 34-38).

18. Reich (1991) says that core corporations in the United States at the end of the twentieth century have moved from high-volume production of standard commodities to high-value activities that serve the unique needs of particular customers. This requires an organizational shift from vertical coordination (represented as pyramids of power, with strong chief executives presiding over ever-widening layers of managers, atop an even larger group of hourly workers) to horizontal coordination (represented as webs of high-value activities connected by networks of firms).
19. The GCC approach adopted what Dicken et al. (2001, 93) call "a network methodology for understanding the global economy." The objective is "to 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."
20. 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. A GVC research network has formed to study these issues (see <http://www.globalvaluechains.org>).
21. Several international organizations have featured the global production networks perspective in recent reports, including UNIDO (2002, chap. 6), UNCTAD (2002a, chap. 5; 2002b, chap. 3), the World Bank (2003, 55–66), and the International Labor Organization's program "Global Production and Local Jobs" (see the April 2003 issue of *Global Networks* for several articles from this project).
22. These distinctions are not ironclad. Often they reflect primary versus secondary research orientations. The scholars who adopt an institutional perspective at the national level can still look at the diversity of firm strategies within national contexts (e.g., Morgan, Kristensen, and Whitley 2001). Similarly, those who use organizational perspectives to understand the evolution of firm strategies and interfirm networks within global industries may ground their generalizations in diverse institutional contexts at the regional, national, and local levels of analysis (e.g., Bair and Gereffi 2001; Gereffi, Spener, and Bair 2002).
23. Guillén (2001) offers a very insightful sociological perspective on the limits of convergence in his systematic comparison of organizational change in Argentina, South Korea, and Spain since 1950. Guillén uses a comparative institutional approach to show that "the emergence of a specific combination of organizational forms in a given country enables it to be successful in the global economy at certain activities but not others" (2001, 16).
24. Indeed, companies from the same national business system may show contradictory patterns as they confront global markets. A careful study of seven German transnational companies in three of Germany's core industries—Hoechst, Bayer, and BASF in the chemical/pharmaceutical industries; Volkswagen, Mercedes-Benz, and BMW in the automobile industry; and Siemens in electrical/electronic engineering—reveals that strikingly different strategies exist within and between these industries, resulting from a mixture of traditional German ways of doing business and bold global moves (Lane 2001). This departs markedly from Whitley's classification of firms in the German business system as "collaborative hierarchies."
25. This analysis of industrial upgrading in apparel draws mainly from Gereffi (1999) and Gereffi and Memodovic (2003).
26. However, a number of OBM companies have returned to OEM because it capitalizes on East Asia's core competence in manufacturing expertise. Some East Asian companies pursue a dual strategy of doing OBM for the domestic and other developing country markets, and OEM production for the United States and other industrial country markets.
27. By contrast, the popular "flying geese" model of Asian development assumes that countries industrialize in a clear follow-the-leader pattern (Akamatsu 1961), and no attention is paid to the kind of international production networks that may emerge between the lead economies and their followers.
28. A prime example is sub-Saharan Africa, which, under the African Growth and Opportunity Act of October 2000, has been granted quota-free and duty-free access to the U.S. market for products that meet specified rules of origin (see <http://www.agoa.gov>).
29. See Dolan and Humphrey 2000 for the facts relevant to this case.
30. The one exception to this high level of concentration is organic produce, for which there is both a price premium and a significant unmet market demand in the United Kingdom because local production is very fragmented. Smaller African exporters still have an opportunity to penetrate this market because organics do not presently require the scale and investment of more exotic forms of produce.
31. "Working for a Better Globalization," remarks by Horst Köhler at the Conference on Humanizing the Global Economy, Washington, D.C., January 28, 2002. Cited in Ruggie 2002a, 3.

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