GLOBAL VALUE CHAINS IN A POSTCRISIS WORLD

A DEVELOPMENT PERSPECTIVE

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GLOBAL VALUE CHAINS IN A POSTCRISIS WORLD: RESILIENCE, CONSOLIDATION, AND SHIFTING END MARKETS

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Setting the Scene

The world is recovering in a painful and halting manner from one of the most severe economic crises of modern history. There is no room for complacency or triumphalism: surging public debts and deficits, increasing global imbalances, and tensions in the monetary system are just a few of the challenges facing the postcrisis world economy. As the recovery unfolds, unemployment continues to rise in many countries, suggesting that the human chapter of the crisis is not closed. It is time, however, to draw some lessons from the turmoil of the past two years and take stock of changes that may profoundly affect the world economy for years to come. Was the recent crisis the first global recession of the 21st century or a more structural breakdown of globalization? Will global trade, demand, and production look the same as before, or has the crisis triggered or entrenched fundamental shifts?

This volume attempts to answer these questions by analyzing reactions to the global economic crisis of 2008–09 at the firm and industry levels through the lens of global value chains (GVCs). GVCs encompass the full range of activities that are required to bring a good or service from conception through the different

phases of production—provision of raw materials; the input of various components, subassemblies, and producer services; the assembly of finished goods—to delivery to final consumers, as well as disposal after use. In the context of globalization, the activities that constitute a value chain are generally carried out in interfirm networks on a global scale. While the expansion of international trade since the 1970s is typically cited as evidence of economic globalization, much of this trade is not arm's length in nature. Indeed, a large and growing percentage of international trade occurs within various kinds of coordinated networks, which are economic structures that lie *between* the conceptual poles of markets and hierarchies (see, for instance, Gereffi 1999; Gereffi, Humphrey, and Sturgeon 2005).[1]

The GVC framework has been developed over the past decade by a diverse interdisciplinary and international group of researchers who have tracked the global spread of industries and studied the implications for both corporations and countries. By focusing on the sequences of value-added, from conception and production to end use, GVC analysis provides a holistic view of global industries—both from the top down (for example, examining how lead firms "govern" their global-scale affiliate and supplier networks) and from the bottom up (for example, asking how these business decisions affect the trajectories of economic and social "upgrading" or "downgrading" in specific countries and regions).

This volume analyzes GVC dynamics in the postcrisis environment with a particular focus on the opportunities and challenges faced by developing countries seeking to enter and upgrade their positions within GVCs. It also suggests measures countries might take to facilitate a more sustainable recovery from the economic crisis. After a discussion of general trends in GVCs, the chapters in this volume assess industry-specific dynamics in diverse global industries: apparel, automobiles, electronics, information technology (IT)-enabled services, and two specific agricultural commodities (timber and cassava). These industries were chosen to include the three main sectors in the global economy—extractive/agriculture, manufacturing, and services—and within manufacturing to cover industries with varied levels of technological sophistication.

Responses to the Crisis: Shifting from a Policy to a Business Focus

Since the April 2009 London Summit, where the Group of Twenty[2] leaders committed to "not repeat the historic mistakes of protectionism of previous eras,"[3] governments have made significant efforts to monitor and analyze policy responses to the crisis. Less is known about business responses to the crisis, even though the primary objective of policy interventions is to support economic activity through measures such as fiscal stimuli, bailouts, or large infrastructure

projects—and sometimes to influence the location of business activity for the benefit of local production and employment. While it is impossible to examine every transaction in global industries, much can be learned from the actions of "lead firms," which include brand-name manufacturers, global marketers and traders, and large retailers that place orders with affiliate and supplier networks worldwide. How have lead firms responded to the crisis, the drop in demand, and policy interventions in major markets? Have they changed their supply chain strategies? Have they increased offshoring or outsourcing of production? Have they consolidated their supply chains?

Although economists have given considerable attention to measuring the effects of the crisis on industries in major developed countries, less is known about policy and business responses in developing countries, despite widespread recognition of their central role in the crisis and recovery. If major policy and business changes occurred during the crisis, what are the implications for developing countries that want to enter and upgrade within GVCs? What policy responses are appropriate?

At the Pittsburgh Summit in September 2009, the Group of Twenty leaders congratulated themselves and declared that the worst of the crisis was over: "It worked. Our forceful response helped stop the dangerous, sharp decline in global activity and [helped] stabilize financial markets. Industrial output is now rising in nearly all our economies. International trade is starting to recover."[4] It is unclear, however, whether there will be symmetry in recovery: Does a global crisis necessarily lead to a global recovery? Are there winners and losers emerging from the crisis and the recovery? Developing countries face opportunities and challenges as global growth returns. Now is the time to design policies that best prepare them for recovery and sustainable integration into GVCs in the postcrisis world.

The First Global Recession of the 21st Century or a Crisis of Globalization?

The economic downturn started with the bursting of the U.S. housing bubble in 2007, but quickly spread to the rest of the world through financial and trade channels. The crisis has clearly been the first global recession of the 21st century, often compared in its magnitude to the 1930s Great Depression. Some observers have suggested the crisis was not cyclical, however, but structural, calling it "a crisis of globalization."[5] There are diverse drivers and hence varied conceptions of globalization. In the 1970s and 1980s, globalization was driven to a large degree by the outsourcing of production by transnational manufacturers to low-wage countries and the corresponding expansion of international trade of both intermediate and finished goods However, events in the last two decades, most notably the Asian financial crisis of the late 1990s and the economic crisis of 2008–09, suggest

that the key component of the most recent wave of globalization has not been trade, but rather financial globalization. How has the face of globalization changed as a result of this crisis? Is the current crisis of globalization likely to lead to a repudiation of the policies of openness and export-led growth, with drastic and permanent changes in global production, demand, and trade patterns? Will international firms continue to use business strategies centered on GVCs?

This volume concludes that GVCs have proven resilient. They have become crucial and enduring structural features of the world economy. In the aftermath of the Asian financial crisis in the late 1990s, similar discussions about "the end of globalization" and the "retrenchment of global production arrangements" in the Asian context arose, but global supply chains bounced back more quickly than expected. The research collected in this volume suggests that the crisis has not reversed globalization, but accelerated two long-term trends in the global economy: the consolidation of GVCs and the growing salience of markets in the South. Not all developing countries face similar options in the context of these changes: The shift to Southern markets and the growth in South-South trade has created more possibilities for entry and upgrading in GVCs, but also has resulted in new challenges, in particular for the least-developed countries. GVC consolidation poses significant opportunities as well, especially for countries and firms with rising capabilities, but it threatens to leave many countries on the periphery. This volume suggests that international production and consumption have remained global. The role of the South has grown, but inequalities among developing countries threaten to rise, which could generate additional sources of instability and potential crises in the future.

The Crisis, Trade, and Global Value Chains

In recent decades, the world economy has been shaken by several financial crises, but most tended to remain regional in scope (for example, Asia in 1997 and South America in 2002). In this most recent crisis, major trade and financial imbalances, a liquidity problem, and a collapse of demand in the United States quickly spread to the rest of the world through financial and trade channels, resulting in a global slowdown of unprecedented scale. This crisis was felt globally (rather than in just some regions), and it spread as the result of the globalized nature of financial markets (see, for instance, Reinhart and Felton 2008). But this is also true for the trade and production side of the economy.

The crisis of 2008–09 is the first that clearly reflects the pervasive and sophisticated globalization of production. For example, the postponement of new auto purchases by U.S. consumers affected not only the U.S. automobile industry, but also the Liberian rubber sector that produces the material for the tires, and so on through the global automotive supply chain (Jansen and von Uexkull 2010). In the electronics industry, Ferrantino and Larsen (2009) observe that "the drop in U.S. imports for computers and cell phones leads indirectly to a drop in U.S. exports of semiconductors and components." This is because cell phone assembly plants in China and elsewhere in the developing world depend on parts and components manufactured in the United States and other industrialized countries. An analysis of the recent export decline in Japan suggests that the fall in U.S. demand for Japanese final goods was accompanied by a drop in demand for intermediate goods destined for final assembly in China and Southeast Asia for shipment to the United States (Fukao and Yuan 2009). Ma and Van Assche (2009, 35) find that "[D]ue to China's heavy reliance on imported inputs from within the East Asian region, China's economy is actually less export-dependent than is traditionally thought. . . China effectively transfers a large portion of its negative export demand shocks to its East Asian neighbors by reducing its demand for their processing imports."

These examples illustrate a number of lessons. First, the world economies are increasingly integrated, interdependent, and specialized: when the largest supermarkets of the world or other large companies have sudden and severe declines in sales, foreign suppliers have to close down factories, and these shocks are transmitted throughout entire regions. Second, trade openness is a double-edged sword: while it can help to buffer against domestic and regional shocks, it increases exposure to external shocks. Third, given that production processes in many industries have been fragmented and moved around on a global scale, GVCs have become the world economy's backbone and central nervous system (see, for instance, Gereffi 1994; Gereffi, Humphrey, and Sturgeon 2005). As Milberg and Winkler (chapter 2) contend, GVCs, which only recently have entered the purview of economists, have suddenly moved to the core of debates over the causes and consequences of the 2009 collapse of global trade (see, for instance, Baldwin 2009).

Trade as Both a Casualty and a Transmission Channel of Economic Crises

International trade has been a casualty of the financial crisis. According to the World Bank, for the first time since the Great Depression, the world's gross domestic product (GDP) dropped by 2.2 percent in 2009, with a sharp 3.3 percent decline in the rich countries and a deceleration in developing countries as well from 5.6 percent growth of GDP in 2008 to 1.2 percent in 2009 (World Bank 2010). Net private capital flows fell by nearly 70 percent from their record high in 2007. The International Labour Office (ILO) estimates that unemployment increased by

more than 30 million in 2009 to a total of 200 million unemployed (ILO 2010). On the poverty front, it is claimed that an additional 64 million people lived in extreme poverty at the end of 2009 as a result of the crisis (World Bank 2010).

The effect of the crisis on trade has been even more pronounced. According to the World Trade Organization (WTO 2010), trade volumes dropped by over 12 percent in 2009—the sharpest contraction in world trade ever recorded. Only services trade seemed to be relatively resilient to the crisis, as documented by Borchert and Mattoo (2009) and Gereffi and Fernandez-Stark (chapter 9). The sharp contraction in demand, which was larger and more widespread than in past crises, was identified by economists as the primary cause of the trade collapse. The magnitude of the overshooting of trade that occurred during the 2008–09 crisis has surprised economists, however, and a number of explanations have been put forward, including the shortage of trade finance and the amplification of intermediate goods trade in GVCs, a topic explored in detail in the first part of this volume (chapters 2, 3, and 4).

International trade was not only a casualty of the crisis, but also one of its main transmission channels. In recent decades, an increasing number of developing countries have relied on exports to sustain growth. This shift from import-substituting industrialization to export-oriented development strategies translated into a higher reliance on export revenues and greater exposure to external shocks. As documented by Milberg and Winkler (chapter 2), exports as a share of low- and middle-income countries' GDP grew from just 10 percent in 1970 to 33 percent in 2007. For China, the reliance on exports jumped from 3 to 43 percent of GDP over the same period. Similar patterns were observed in most emerging economies, including Argentina, India, Mexico, and the Republic of Korea. This increasing reliance on exports translates into a rising share of low- and middle-income countries in world exports of goods from 16 percent in 1986 to over 30 percent in 2008; in services the share grew from 13 percent in 1986 to 20 percent in 2007.

Many countries are still highly dependent on exports to the United States and the European Union (EU), which represented 13.4 percent and 14.2 percent (or 42.4 percent if one includes intra-EU trade), respectively, of world imports in 2008. At the onset of the crisis, Europe and North America still captured 60 percent of African manufactured exports (down from about 70 percent in 2000). By comparison, Asia and South America represented only 13 percent and 2 percent, respectively, of African manufactured exports (WTO 2009). These differences help explain the magnitude and geographical diffusion of the 2008–09 crisis: countries less dependent on imports from high-income economies were buffered from the crisis. In Asia, for example, regional trade and large emerging markets like China fared relatively well.

GVCs: From Macroeconomic to Industry Level of Analysis

The economic crisis underscored the importance of GVCs in the world economy. It is now widely recognized that the role of trade in the transmission of the economic crisis was heightened by the predominance of business models based on global production and trade networks. According to Escaith, Lindenberg, and Miroudot (chapter 3), GVCs introduce new microeconomic dimensions to the traditional macroeconomic mechanisms used to understand the transmission of economic shocks. Specifically, GVCs can partially explain the apparent overreaction of international trade to the financial crisis. Because of GVCs, adverse shocks affect firms not only through their sales of finished goods (final demand), but also through fluctuations in the supply and demand of intermediate goods via forward and backward linkages in GVCs. Thus, the globalization of production has raised the ratio of global imports and exports per unit of output. Sturgeon and Kawakami (chapter 7) document a 10-fold increase of world imports of intermediate goods in the last four decades (constant price data), which represented more than 56 percent of total world imports in 2006.

Using historical data, Escaith, Lindenberg, and Miroudot (chapter 3) show that the elasticity of global trade volumes to real world GDP has increased gradually from around 2 in the 1960s to above 3 in recent years, driven by production sharing arrangements in GVCs (see also Freund 2009). Milberg and Winkler (chapter 2) confirm that economic globalization has resulted in a steady increase in the income elasticity of world trade, and provide further explanations of the role of GVCs in the trade collapse. The magnitude and speed of adjustment have increased as GVCs have become a larger conduit for both real and financial shocks. Today, downturns in GDP result in not only larger but also more rapid declines in trade than previously because GVCs enable lead firms to make faster adjustments to changes in market demand.[6]

Shortage of trade finance is another factor contributing to the trade collapse. A series of surveys conducted in 2009 by the World Bank and others confirmed that trade finance was more expensive and less available than prior to the crisis, with banks becoming more risk averse and selective in their supply of credit. A recent update suggests that small exporters were the principal victims of this shortage and lost their credit lines when demand for their products declined (Malouche 2009). Milberg and Winkler (chapter 2) observe that a trade credit crunch has a more severe impact on international trade when such trade is organized in GVCs because of the interrelationship of firms and the rapid transmission of financial shocks. Credit market problems can cascade through GVCs as the denial of credit to importers in one country leads to credit problems for sellers in others, reducing their access to credit and in turn affecting their ability to import.

On the other hand, support from lead firms and large intermediaries within GVCs has in some cases helped to remedy trade finance shortages and to mitigate the credit crisis. According to Gereffi and Frederick (chapter 5), a number of retailers and buyers in the apparel sector offered financial support to their suppliers: Kohl's provided 41 percent of its suppliers a Supply Chain Finance program, and Walmart offered about 1,000 suppliers an alternative to their traditional means of financing and launched a Supplier Alliance Program for expediting payments. Li & Fung, a trading company based in Hong Kong, China, that serves as an intermediary between large retailers and sewing contractors in the apparel industry, became a lender of last resort to factories and small importers whose credit was cut off during the crisis.

Not all effects of the crisis on trade are necessarily negative. A fall in GDP in major markets has two main concurrent effects on trade: first, a drop in demand, where consumers postpone their purchases, and second, a search for cheaper goods, where consumers cannot postpone their purchases. The first effect translates into a contraction of imports. The second effect is one of substitution and its net impact on trade is less obvious: trade in certain higher-end goods drops when imports of lower-priced products increase. The overall net effect of the crisis on trade varies according to the relative weight of these substitution and demand effects for a specific country, industry, or firm. For example, the substitution effect could explain the record sales of Walmart and the vitality of Chinese and Bangladeshi exports during the crisis.

Lead firms that face declining profits and uncertain demand may also try to reduce costs and increase flexibility through additional offshoring and outsourcing to low-cost countries. Van Biesebroeck and Sturgeon (chapter 6) suggest that lead firms in the automobile sector in the United States and Western Europe will increase sourcing in Mexico and Central and Eastern Europe in the wake of the crisis. In the services sector, Gereffi and Fernandez-Stark (chapter 9) observe two opposing effects: some companies froze offshore contracts, while others outsourced additional services in order to lower their costs and remain competitive. The overall sharp decline in the volume of trade in 2009 suggests that thus far the demand effect has swamped the substitution effect.

The awareness of the role of trade and GVCs in the transmission of the crisis could have resulted in the rejection of export-led growth models and global production business strategies. Some murky protectionism and "buy national" stipulations to crisis-related legislation have surfaced, but governments by and large have respected regional and multilateral trade rules (Evenett, Hoekman, and Cattaneo 2009). The resilience and increased interdependence of the global economy probably played a key role in containing protectionism: governments quickly realized the futility of discriminatory stimuli and the cost of raising barriers on intermediate goods on which whole segments of domestic industries depend.

The Recovery: Its Opportunities and Challenges

Trade is not just a transmission channel for the crisis; it could also be central to the recovery. According to the World Bank (2010), global GDP is expected to grow 2.7 percent in 2010 and 3.2 percent in 2011. Recovery will be led by developing countries, with a projected 5.2 percent growth in 2010, and 5.8 percent growth in 2011. In wealthy countries, the pace of recovery is likely to be slower, with 1.8 percent and 2.3 percent growth rates projected for 2010 and 2011, respectively. While investment is expected to rebound, medium-term foreign direct investment inflows will probably remain at 2.8 to 3 percent of developing country GDP, compared to 3.7 percent in 2007.

On the trade front, the WTO estimates that the volume of world exports will grow by 9.5 percent in 2010, with developed-country exports expanding by 7.5 percent and the rest of the world's, by 11 percent (WTO 2010). Developing countries are therefore expected to be the main driving force of the recovery. If these estimates are correct and growth proceeds apace, it will take another two or three years to surpass precrisis trade levels.

A key question is whether the recovery is likely to be as globally pervasive as the crisis that preceded it. Should a symmetrical rebound of world trade and growth be expected, or will there be hysteresis effects and uneven recoveries across countries and firms? High trade elasticity implies a faster recovery of world trade compared to GDP as the recession ends. The WTO trade statistics for 2010 suggest a quick rebound of world trade. There is, however, an ongoing debate among economists on the shape of the recovery curve, which is summarized in Kaplinsky and Farooki (chapter 4).

Chapter 4 presents a number of possible outcomes to the current crisis. The first is the "V scenario"—a rapid downturn followed by a fairly rapid upturn. The "U scenario" suggests a similar outcome but with a more protracted dip. Less comfortable is the "W scenario"—a double-dip growth path but with a subsequent revival to past growth trajectories. The most pessimistic potential outcome is that the financial crisis will follow the same path as that experienced by Japan after its financial bubble burst in the early 1990s, that is, a sharp downturn followed by a protracted period of stagnation. This is the "L scenario." Somewhere between the L and the W scenarios is a "square root scenario" ($\sqrt{}$), that is, a sharp downturn followed by a small rise followed by a period of protracted stagnation. A recent study supports this last outcome for member countries of the Organisation for Economic Co-operation and Development (OECD) stating that "we expect growth to resume

by the end of [2009] in most countries, [but] the level of output in the OECD will remain permanently lower" (Holland et al. 2009, 9). Milberg and Winkler (chapter 2) suggest that because the recent downturn is deeper and different from previous downturns, there is a greater likelihood of a lag in the recovery of world trade—that is, the V-curve appears to be shifting to the right.

Change in Continuity: Accelerated Shifts in Global Demand and Production

Globalization after the 2008–09 crisis will not look the same as before. The observers who characterized it as a "crisis of globalization" had a reversal of global economic integration in mind, for example, through the abandonment of export-led strategies, the return of import substitution strategies, or the reinstatement of protectionism. In fact, Sturgeon and Kawakami (chapter 7) claim that globalization, measured by the rate of increase in intermediate goods trade, has increased its pace after every major recession and crisis in the past 30 years.

However, the research in this volume reveals that important shifts in global production and demand have taken place during the crisis that accelerated preexisting trends. On the demand side, the trend is toward diversification: South-South trade has increased along with the collapse of demand in the North, and emerging markets have become more attractive to domestic and foreign producers, both from the North and the South. On the production side, the trend is toward consolidation at the country and firm levels. These changes create opportunities for development, along with challenges.

Shifts in Global Demand

Excessive dependence on exports to the United States and the EU has long been identified as a problem for developing countries. Product and market diversification should be part of any trade or development strategy. The fall in demand in the United States and the EU triggered by the crisis made this problem even more acute, and made rapid adjustment a requirement. In an effort to lessen their dependence on traditional export markets, many companies have paid more attention to emerging markets during the crisis. For large emerging economies, this has translated into a greater focus on domestic markets. For smaller economies, it has meant a focus on exporting regionally. For the poorest countries, the shift in demand has resulted in the arrival of new brands and new investors from emerging countries. Kaplinsky and Farooki (chapter 4) put this into a historical perspective, detailing a major shift in

demand from Europe, North America, and Japan to China, India, and other emerging countries.

Shifting markets to the South

The shift in markets to the South has two components: the growth of South-South trade, including a greater focus on domestic markets in large emerging economies; and the increased interest of exporters in the North in emerging markets in the South.

Local producers in emerging economies, particularly in Brazil, China, India, and South Africa, have tried and increasingly succeeded in competing with foreign producers at home. As illustrated by Sturgeon and Kawakami (chapter 7) in the mobile phone sector, the lack of variety in low-end product lines, higher prices, incompatible standards, and restrictive regulatory requirements all contributed to the shift in demand from foreign to local handsets in China. The 2008–09 crisis has accelerated these trends.[7] In the apparel sector as well, leading suppliers like China, India, and Turkey, concerned about a slowdown in global exports, have begun to focus more on sales to their domestic markets. Gereffi and Frederick (chapter 5) show that, in 2007, the estimated value of sales of Chinese apparel producers to the domestic market totaled US$93 billion, with 56 percent of overall apparel production activities in China destined for local consumers (Clothesource 2008).

The crisis in advanced country markets has inspired export strategies to other developing countries. Milberg and Winkler (chapter 2) observe that the crisis has boosted South-South trade, which can be seen in the case of intermediate goods where South-South trade jumped to 50 percent of world intermediate goods trade in 2009 compared to about 25 percent in 2000. In the apparel sector, Gereffi and Frederick (chapter 5) find that China is lessening its dependence on traditional export markets while adding important new ones, such as the Russian Federation and countries of the former Soviet Union. These examples show that South-South trade involves trade in final products that are designated for end markets in the South, as well as trade in intermediaries where the final products may still end up in traditional end markets in the North.

Exporters in the North are also aware of these new opportunities, as they face the same drop in demand at home. As a result, the share of North-North trade in global trade has declined. The apparel sector provides an interesting illustration. The Spanish group Inditex (Zara) improved its performance in 2009 amidst the financial crisis by opening new retail outlets in emerging countries such as Bulgaria, China, Kazakhstan, the Republic of Korea, Poland, and Russia. India is next in line, and the share of Asia in the group's sales is expected to double between 2008

(10.5 percent) and 2012 (20 percent), rising to 40 percent of new store openings (*Les Echos* 2010).

Challenges for development

The shift in the center of gravity of global demand and the increasing share of South-South trade have major implications for GVCs. Kaplinsky and Farooki (chapter 4) state that although GVC-centered economic growth has largely been a story of rising supplier capabilities, there has been a growing recognition of the key role that final markets play in this process. While market size and growth are part of the story, the nature of final markets and the role of buyers in guiding the direction of supplier capabilities have been crucial.

The shift of end markets to the South presents several major challenges for firms in developing countries, which are discussed in chapter 4. First, consumer preferences in emerging countries are different from those in industrialized economies. While both emerging market firms and consumers are moving up-market, price remains an overwhelming consideration in developing countries. As a result, product differentiation based on variety and quality matters less. Exporters to these markets, therefore, need to "commodify" or standardize established products by dramatically reducing costs without sacrificing quality. Van Biesebroeck and Sturgeon (chapter 6) and Sturgeon and Kawakami (chapter 7) illustrate this process for the automotive and electronics sectors, respectively, with the growing importance of products like the $3,000 car and the $300 notebook computer.

Second, the importance of product and process standards can be significantly lower when the demand comes from developing countries—for both final and intermediate goods in GVCs. This could have significant consequences for developing countries that invest in complying with higher standards set by developed countries. Also, it has a potentially important impact on the negative externalities of global production on social and environment compliance and other public goods.

Third, emerging economies like China have a preference for relatively unprocessed products. This trend could affect less-developed countries trying to improve their position in value chains. Localization of value-added, such as processing at the source, has been an important strategy for developing countries trying to move up the value chain, and it has often been the first step in industrial upgrading. However, there is no guarantee of a win-win division of labor among emerging countries at different stages of development. By restricting imports to unprocessed products, a lead firm can confine its suppliers to the low end of the value chain and limit their upgrading path: in other words, the buyer has the power to either create a path to upgrading or kick away the development ladder.

Kaplinsky, Terheggen, and Tijaja (chapter 8) illustrate these challenges to developing countries caused by the North-South shift in the case studies of Thai cassava and Gabon timber. In the case of cassava, the shift in demand from the EU to China coincided with changes in the product composition of Thai cassava exports and a move down the technological chain, pushing Thai producers backwards into agriculture and away from manufacturing (a clear illustration of economic downgrading). A further consequence of this shift in demand was a reduced role of standards in production processes and in products. The story of Gabon's timber products is quite similar. While China's demand for wood has grown rapidly, its competencies in wood-using industries have also expanded, and the shortfall in supply has led to China importing logs rather than processed wood products. The shift in the end market from the EU to China also led to a collapse of standards. The authors of chapter 8 suggest that greater demands for quality require the capacity to improve quality and skill levels over time. With the market shifting to China, Gabonese timber suppliers can sell timber products to China irrespective of the quality, as long as the price is low and volumes are large. Virtually none of the environmental or labor standards required for export to the EU apply to products exported to China.

The shift of demand from the North to the South, at least when it comes to China, creates a bind for suppliers in the developing world. On the one hand, China and other emerging economies can boost the volume of exports to other developing countries in the short run, compensating for falling exports to industrial countries and opening up export opportunities for small-scale firms or firms with limited capabilities. On the other hand, the shift to more basic products and processes with lower standards could stall industrial upgrading in the medium run and long run. As chapter 8 shows, this shift in demand and decline in processing requirements have consequences for factor utilization and return on investment in exporting countries, which must forego the foreign exchange and substantial gains in employment and skill associated with downstream processing activities and face reduced incentives for capital investment.

Shifts in Global Production

Since the 1980s globalization has deepened, with an increasing number of developing-country firms participating in GVCs, typically by producing intermediate inputs or performing final assembly. GVCs expanded at different rates, with apparel and automobiles growing in the 1960s and 1970s in terms of the dispersion and complexity of the supply chain; the electronics industry leading the way in the 1990s and 2000s; and the services sector, and especially business process outsourcing, being the most recent example of dynamic GVCs. While it is difficult to generalize across all

industries, the 2008–09 crisis accelerated consolidation trends, under way since the 1990s, in several industries.

Consolidation of GVCs

Milberg and Winkler (chapter 2) provide evidence of geographic consolidation with the onset of the crisis. They find that consolidation is most pronounced in textiles, iron and steel, machinery, and transportation. In some sectors, including handbags, apparel, and footwear, consolidation began in the 1990s. The level of consolidation varies from sector to sector, and within each sector, depending on the structure of production and trade. For example, in the context of the crisis, the authors suggest that buyer-driven value chains, where large retailers like Walmart act as order-placing lead firms, have experienced higher consolidation than have producer-driven chains, where branded manufacturers and technology companies like Ford and Hewlett Packard lead GVCs. This could be because technology, capital, and skill-intensive value chain activities are harder to relocate and scale up in specific country locations than is labor-intensive work.

Nevertheless, the consolidation phenomenon has been observed across the spectrum of the sectors covered by this volume. Sturgeon and Kawakami (chapter 7) suggest that the crisis sped up a process of consolidation in electronics that had been under way since the bursting of the technology bubble in 2001. Production locations in electronics value chains have been less dispersed than in other sectors, such as apparel, but since the 2001 dot.com crisis and accelerated by the 2008–09 crisis, a shift to emerging countries, especially China, has accelerated.

Gereffi and Frederick (chapter 5) document a consolidation process in the apparel industry spurred by the phaseout of the Multi-Fibre Arrangement's quotas at the end of 2004. They show that large, low-cost Asian producers (China, Bangladesh, Indonesia, and Vietnam) have increased their export market shares at the expense of regional sourcing countries such as Mexican, Central American, and Caribbean suppliers for the United States, as well North African and Eastern European suppliers for the EU. The shift to large countries in East and South Asia has come at the expense of less-developed countries in Sub-Saharan Africa and smaller economies in Southeast Asia.

In the automobile sector, Van Biesebroeck and Sturgeon (chapter 6) observe the beginning of a historic market shift within the automotive industry to large developing countries, most likely accelerated by the crisis. The authors predict that the current decline in more mature markets is likely to be permanent and that China will soon occupy the top spot and keep it for the foreseeable future. In the automotive industry, production has tended to follow markets.

Consolidation is taking place not only at the country level, but also at the firm level. There is a tendency by lead firms to prefer larger, more capable, globally operating, first-tier suppliers. This can be observed in the apparel, automobile, and electronics sectors. This trend predates the crisis; however, lead firms used the crisis to consolidate their supply bases further and focus on big, well-established companies with whom they have ongoing strategic relationships. Thus, the elimination and shutdown of marginal suppliers during the crisis could exacerbate asymmetric buying patterns when demand recovers. Because large orders give them an advantage in credit markets, global suppliers will be in a better position to expand when the market rebounds, further reinforcing the consolidation of GVCs at the firm level.

Challenges for development

Developing-country firms seeking entry and upgrading opportunities in GVCs find that changing roles in export hierarchies is not an easy task. The consolidation of GVCs has allowed those developing countries and firms that have specific capabilities to remain in the game; they may find upgrading opportunities as their relationships with lead firms become closer and more strategic, or they may find their paths blocked as they get too close to competing with their customers. Clearly, market size is central to lead firms' sourcing and production decisions as the potential for local industrial growth often gravitates toward the largest developing countries. Van Biesebroeck and Sturgeon (chapter 6) provide an example of a virtuous cycle of development in large emerging economies in the automobile sector: lead firms sold final products in very large markets only, such as Brazil, China, or India; this led them to establish local design, engineering, and regional headquarters facilities, which provide opportunities for local suppliers.

Consolidation of GVCs has serious implications for those countries and firms with limited capabilities seeking to move up the value chain, and it may work to exclude potential new entrants entirely. If some countries and firms have a solid grip at the level of global first-tier suppliers, this could be an obstacle to new entry or upgrading for lower-tier countries and firms. For example, in the electronics and automotive industries, the emergence of powerful first-tier suppliers and the importance of strategic relationships with a handful of key component suppliers (or platform leaders) limit the entry and upgrading opportunities for lower-tier suppliers in supply chains. Van Biesebroeck and Sturgeon (chapter 6) conclude that small developing countries far from large existing markets have generally been unable to develop their automotive industries and will continue to have extreme difficulty doing so in the future. According to Sturgeon and Kawakami (chapter 7), countries and firms not yet involved in electronics GVCs appear to be out of the game for the foreseeable future. Gereffi and Frederick (chapter 5) argue that requirements for full-package services in the apparel industry (from design to

distribution) put countries providing only assembly services (cut, make, and trim) at a severe disadvantage moving forward.

Countries and firms that benefit from consolidation also face challenges. The constant competition for foreign investment and contracts with global brand owners and other lead firms leaves many developing-country suppliers with little leverage in the chain. The result is an unequal partition of the total value-added and rewards along value chains in favor of lead firms. This is the case, for example, in the apparel sector (chapter 5). In electronics, chapter 7 shows that even the world's major contract manufacturers have been trapped in low value-added segments of the value chain. In the personal computer industry, most of the profits have been captured by branded lead firms such as Dell and Hewlett Packard, and especially by platform leaders in software operating systems (Microsoft) and central processing unit chip sets (Intel).

A further question to be discussed is whether these shifts in production to the largest developing countries are permanent. As explained by Sturgeon and Kawakami (chapter 7), innovation remains a challenge for developing-country firms. On one hand, local firms may encounter problems as new technologies come along or local consumers begin to ask for more sophisticated products. On the other hand, it is likely that the learning curve for local firms will help develop deeper expertise (for example, design) and increase competitiveness vis-à-vis multinational companies over the long run. In the services sector, the sustainability question relates to the ability of developing countries to supply enough skilled personnel to continue to host offshore facilities (chapter 9).

Some observers suggest, however, that developed countries are losing their leadership in innovation. For example, Fortune 500 companies now have 98 R&D centers in China and 63 in India; IBM employs more people in the developing world than in America; and in 2008, the Chinese telecom giant Huawei applied for more international patents than any other firm in the world. Developing countries have taken the lead in products tailored to the need of their home markets and other markets in the South. So-called "frugal innovation" (for example, the $300 notebook computer or the $3,000 car) for low-income consumers has become a real factor in new market creation (*Economist* 2010). However, these successes may have a short life span; in any case, they involve only a limited number of developing countries, leaving others, particular the least-developed countries, out of contention.

Conclusions

The authors in this volume support the conclusion that the crisis of 2008–09 has not reversed globalization. GVCs have proven resilient and have emerged as a

long-term structural feature of the world economy. However, important shifts in global production and demand have taken place and the crisis has accelerated preexisting trends toward geographic and organizational consolidation. The crisis has also underlined the growing importance of markets in the South. These changes create opportunities for development, along with challenges, but the benefits and barriers are unevenly distributed among developing countries. This volume suggests that world production and demand patterns have remained global and that the role of the South has grown, but inequalities among developing countries threaten to rise.

In addition to the importance of these general patterns, industry dynamics matter. It is essential to understand conditions in specific industry value chains in the postcrisis world, and the opportunities and challenges they create for developing countries seeking to enter and upgrade within these chains. Accordingly, this volume initially provides a global perspective on the crisis and its impacts on global production and demand in the first three chapters, and then turns in the next five chapters to the specifics of GVCs in key industries that are driving integration of the world economy.

Notes

1. For more background on the global value chain perspective and related publications, see the Global Value Chains Web site: http://www.globalvaluechains.org/.
2. The Group of Twenty members are finance ministers and central bank governors of 19 countries (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, and United States of America) and the European Union.
3. Statement of the Leaders of the Group of Twenty, London, April 2, 2009, paragraph 22.
4. Statement of the Leaders of the Group of Twenty, Pittsburgh, September 25, 2009, paragraphs 5–6.
5. "This crisis is not just a global crisis. This crisis is not a crisis in globalization. This crisis is a crisis of globalization," Nicolas Sarkozy, President of the French Republic, World Economic Forum, Davos, Switzerland, January 27, 2010.
6. The authors also acknowledge a number of accounting and other problems that might exaggerate the effect of the crisis on trade.
7. However, two caveats are important in the Chinese mobile phone case. First, multinational company brands quickly gained back market share with the transition to more feature-rich 3G phones. Local brands could not make this shift without giving most of their profits up to buy MediaTek chip sets platforms. They did not have the internal expertise to move with the market. Second, local production in China is often not carried out by local firms.

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