

**GLOBALIZATION IN THE MOTOR VEHICLE INDUSTRY:**

**FINAL CONFERENCE SUMMARY**

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## **ABSTRACT**

On October 7, 1998 researchers from Asia, Europe, and North America convened for a one-day conference on globalization in the motor vehicle industry, sponsored by the Industrial Performance Center (IPC) at MIT. The conference included substantive sessions on globalization patterns and drivers, technology, product design, supply chain trends, employment, and the current financial crisis; and research planning sessions on the use of cross-sector studies and the development of a globalization research agenda. This paper summarizes discussion on these topics and offers a preliminary assessment of the major findings (and questions) that emerged from the conference.

## INTRODUCTION

On October 7, 1998 researchers from Asia, Europe, and North America convened for a one-day conference on globalization in the motor vehicle industry, sponsored by the Industrial Performance Center (IPC) at MIT.<sup>1</sup> Conference participants have substantial knowledge of the motor vehicle industry and share an interest in the larger questions that prompted and animated the gathering: Does globalization mark a new and distinct phase in the organization of economic activity? What is the relationship between globalization and changes in technology, market demand, and work organization? What are the investment and trade patterns that define current globalization trends? Are these new patterns reversible? Will the Asian financial crisis prompt such a reversal or will it require a worldwide recession to unravel current global arrangements? Finally, how does globalization affect the level and quality of employment in different countries? Have changes in the organization of economic activity across borders contributed to rising unemployment, growing income inequality, and the general weakening of industrial relations systems in advanced countries, as some claim? How has globalization shaped and how might it continue to shape the industrialization process in emerging economies?

To address these questions and to situate the conference in the context of on-going IPC research on globalization, conference organizers Suzanne Berger, Richard K. Lester, and Timothy Sturgeon arranged the day's discussion into seven substantive and two research planning sessions. The substantive sessions covered globalization patterns and drivers; technology; product design; supply chain trends; impacts on home countries; impacts on host countries; and the current financial crisis. The research planning sessions focused on the use of cross-sector studies and the development of a new globalization research agenda.

Although discussion was organized topically, a number of themes emerged early in the discussions and were echoed throughout the day's sessions. These themes included the *rapidity of change* in the local and international economies; shifting *loci of power* and how they shape relationships between producers and consumers, workers and employers, suppliers and assemblers, and firms and governments; the *importance of the firm* relative to other economic

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<sup>1</sup> See Appendix A for list of conference participants.

structures (e.g., institutions, governments) as both generators and mediators of change; growing *vulnerability* of workers, firms, and networks as changes affecting the supply side become both more rapid and less predictable; and the *mismatch* between existing social science categories and theories and the social and economic structures and relationships generated by growing internationalization of economic activity.

At the same time, the conference revealed how little researchers actually understand about the impact of globalization on some of the areas of greatest concern to citizens and governments. The existence of such vast gaps in our knowledge of the automotive sector, whose status as the symbol of industrial capitalism and the harbinger of industrial change has made it the subject of innumerable studies, highlights the need to examine fundamental questions regarding the nature of globalization and its effects on economic and social structures.

Based upon conference memoranda and discussions, which are summarized in the following sections, it appears that these fundamental questions fall into three proposed research areas. The first research area would focus on the evolution of global production and trade structures in the automobile industry and would aim to detail how the nature of globalization has changed over time. Although there is a long history of foreign investment and trade in the automotive sector, globalization today appears to be qualitatively different than even a few decades ago. These differences, we believe, might represent a fundamentally new system of cross-border production and mark a new stage in globalization in the automotive sector.

Through the early 1970s, automakers established foreign production sites primarily in response to incentives such as tariffs and in some cases, regulatory requirements like local content rules. In short, foreign investment was the price for gaining access to both established and emerging markets. However, with the saturation of consumer markets in advanced economies and the rise of Japanese firms, competition in the industry intensified and foreign investment became increasingly tied to cost-cutting strategies that promote national specialization within regional production structures. If liberalization trends continue and/or once-promising consumer markets disappear in the wake of the Asian crisis, foreign investment could become even more closely tied to rationalization strategies and regional production arrangements

could continue to supplant national structures. Because these changes represent a fundamental break with internationalization strategies of previous periods, current patterns of investment—and their implications for the location of research, production, and employment—need to be examined in light of a different set of assumptions about the role of globalization in corporate strategy.

The second proposed research area would compare changes in the automotive sector with globalization patterns in other industries. There are a variety of industry characteristics that could lead to unique patterns in the automotive sector: the political and economic importance of sector makes it an attractive and frequent target of government policy; large economies of scale push the industry towards concentration; capital requirements make it difficult for new producers to enter; and saturation of demand in advanced economies has forced producers based in these countries to seek out new markets and production sites. Current trends in the auto industry, then, might be the product of an “auto exceptionalism” that precludes use of the sector to draw broad conclusions about globalization in manufacturing; or these trends could mirror emerging patterns across manufacturing sectors. Cross-industry studies are critical for distinguishing between these two possibilities as they will allow us to distinguish changes unique to the auto industry from those that reflect secular trends, such as regionalization or automation, that are also shaping production and employment across manufacturing.

Finally, conference discussion underscored the need to study the effects of globalization on national economies. Globalization’s potential to reshape social and economic structures has become a source of anxiety for workers, citizens, and governments in advanced and emerging economies but conference discussions suggest that we might actually know very little about some of the areas of greatest concern. In advanced economies, some believe that investment in and trade with emerging economies has adversely affected employment and wage structures; and that diffusion of production to non-domestic sites could undermine the innovative structures that allow high-wage countries to compete in manufacturing. In emerging economies, anxiety centers on the relationship between foreign investment—and more generally, the absorption of local firms into regional and global production structures—and development. In particular, there is concern that foreign investment establishes islands of industrialization that generate little spillover into

the local economy. If so, even when foreign firms utilize sophisticated technologies or provide training for workers, the impact of foreign investment on local economies might be small.

These and other potential consequences of globalization are of profound concern to citizens and policymakers around the world. Yet throughout the conference, participants emphasized that there is insufficient evidence to substantiate or refute many of these claims. Evaluating these and other claims related to globalization, employment, and development, then, must be central to any globalization research agenda. Indeed, given the nature of the concerns raised and the stakes involved, investigating these claims could be the most important task ahead for researchers.

## SESSION OVERVIEWS

### I. Globalization Patterns and Drivers<sup>2</sup>

The opening session revealed general agreement that the effects of globalization on geographical patterns of production and employment are poorly understood. This weakness, speakers argued, is part of a fundamental mismatch between existing intellectual frameworks used to understand production and employment and the new forms of organization that govern global production. As Gereffi pointed out, the mismatch between conceptual categories and empirical categories is broad and deep. It includes, for example, the difficulty of employing older categorizations of economic organization (e.g., firms, industries, and countries) in a world in which firm boundaries are increasingly porous, as evidenced by the growing importance of networks and supply chains. It reflects also the mismatch between existing geographic designations (e.g., city, state, nation) and a world in which sub- and supra-national economic regions defy or transcend local and national boundaries.

The research community has not yet adjusted its framework to include or explain these new organizational and geographical patterns. Berger noted that in the 1980s, analyses of industrial performance like those in Made In America and The Machine That Changed the World, found that the strength of the best companies depended in part on the co-location of their key capacities. This understanding produced two somewhat contradictory recipes for industrial development—one rooted in the notion of organizational integration and learning, the other in the idea of productive arrangements as coherent systems embedded in national culture and institutions. Both prescriptions, however otherwise contradictory, reflected widely shared beliefs that geographical, cultural, and institutional proximity contribute to success in manufacturing.

The events of the 1990s have undermined this consensus or in Locke's view, exposed it as a scholarly construction. In particular, Locke noted that events in the 1990s revealed the co-existence in many regions of "low-road" strategies that rely on sweating labor and "high-road" strategies based on learning. These events undermine analyses from the 1980s that positioned

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<sup>2</sup> Session moderated by Suzanne Berger.

low- and high-road strategies as mutually exclusive, an idea based in part on the belief that high-performance enclaves eventually outperform “lean and mean” firms. Sturgeon noted that events from the past decade suggest that low- and high-road strategies might not be mutually exclusive. As the pace of required learning increased in the 1990s, lean and mean organizations developed “learning without trust” and network configurations—which promote exchange of information without requiring long-term relationships—became more important. As some participants noted, these changes create the possibility that firms and networks can continuously learn and relentlessly search for low-wage labor. That the search for low wages is the primary driver behind globalization, though, was challenged by most of the participants. As Camuffo expressed, auto assemblers would export from their home bases if they could.

The strategic focus in the 1980s on co-location has been supplanted by a new emphasis on locating research, production, and distribution facilities throughout the world. As Berger noted, this shift introduces new geographical possibilities for production. One possibility is that a dominant geographic logic of production will emerge in each industry and weaken distinctive firm- and national patterns. This might result in a world in which, for example, German and U.S. firms adopt similar patterns of production, investment, and trade. A second possibility is that reinforced by distinctive national strengths and weaknesses, significant parts of industrial systems will retain domestic links that preserve local characteristics. These fragments would then serve as building blocks from which governments could attempt to grow and upgrade manufacturing capability. A third possibility is that transplanted production units will be insulated from the local economy in which they operate and retain virtually exclusive links to home country centers. This would result in the emergence of national capitalisms articulated over a broad geographic area. A fourth possibility is that regional networks—which are already common in textiles and electronics—will become the dominant organizational form in other manufacturing sectors as well, thus marking a new and distinctive phase in the organization of production.<sup>3</sup>

Any new spatial patterns of production must grow out of existing productive arrangements in automobile production. Among conference participants, there is strong consensus that existing locational and organizational patterns currently cohere into distinct

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<sup>3</sup> See conference memos by Gereffi and Sturgeon for discussion of networks in textiles and electronics.

regions. As the memos by Humphrey and Lynch emphasize, production and trade are currently organized into regional blocs in Asia, Europe, and North America. Regionalization, in Gereffi's words, represents "the most powerful (geographic) trend" in autos and some other industries. As Gereffi also pointed out, these blocs share basic characteristics that support regionalism as a geographic and organizational form and promote a regional division of labor. In each bloc, there is a range of development levels, industrial capabilities, and skill levels—including at least one low- or lower-wage country with the capabilities to be absorbed into a regional production network— that make a division of labor possible. Each region is also home to one or a handful of major markets that serve as the primary outlets for vehicles produced within the region. These conditions lead Gereffi to believe that regionalism and regional divisions of labor are likely to be enduring.

Other participants expressed uncertainty about the resilience of these patterns in light of changes in the international economy and about the likely characteristics of future organizational and spatial configurations. The region appears to be a relatively resilient economic and political structure and as Humphrey pointed out, could be strengthened further if WTO liberalization measures pressure countries like India and China to join regional blocs.<sup>4</sup> Still, as the discussion on the current financial crisis highlighted (see Section VII), regional structures that were strengthened during previous crises might be undermined by the current crisis, particularly if firms in Asia are forced to enter markets outside the region in order to survive.

## **II. Technology<sup>5</sup>**

Technological innovation, diffusion, and adaptation profoundly shape firm capabilities, production patterns, and the quantity and quality of employment in a sector. During these discussions, participants distinguished between technological change, a force wholly exogenous to firms and partially exogenous to nations, and technological adoption, which is endogenous to both firms and nations. Because technological *change* offers the same new strategic possibilities

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<sup>4</sup> See Humphrey memo, "Memo for MIT/Industrial Performance Centre Meeting on Globalisation and the Auto Industry," October 1998.

<sup>5</sup> Session moderated by John Paul MacDuffie.

to each firm, it is a potential force for convergence across firms and nations. But because technological *adoption* determines the actual productive arrangements of firms, it can be a source of either divergence or convergence.

MacDuffie noted that it is uncertain whether technological innovation and development are pushed by underlying technical factors or pulled by corporate strategy and competition. These issues are particularly important for understanding recent changes in the automotive sector. Technological adoption associated with lean production techniques has been an important source of convergence but at the same time, remaining differences in production and organization across countries (and to some extent, among firms in the same country) can be traced to different patterns of technology utilization.

Discussants emphasized that technological adoption must be examined in the context of existing institutional arrangements, particularly those that shape incentives in the labor market. As Piore noted, labor market institutions provide incentives and pressures that shape firm decisions about technological adoption. The result, he argues, are “hybrid” models that reflect both the homogenizing force of technology and the centrifugal push from distinct national institutional arrangements. As Fujimoto added, labor market characteristics and ideas about the organization of work can also create divergent pressures between countries and across periods within the same country. For example, the push in Japan in the 1990s to “humanize work” was largely a response to tight labor market conditions and resembles movements in Europe in the 1970s and 1980s. Because of the range of potential influences, Fujimoto suggested that we view existing patterns of technological adoption as the outcome of a complex combination of convergence, country effects, and firm effects.

Because they have vastly different capabilities and histories, firms are important arbiters of technological change. As Gereffi argued, because technological choices are shaped by firm motivations and histories, utilization of technology will vary even across firms in the same industry and country. And as Fujimoto noted, differences in technological choices can arise even when firms possess the same level of manufacturing performance. For example, Honda and Toyota have similar levels of manufacturing quality, productivity, throughput time, and

flexibility, but have very different manufacturing practices. Honda concentrates all assembly-related processes in one building for better integration of processes while Toyota physically separates these processes and then attempts to optimize the interface between them. These practices, Fujimoto noted, have been influenced by company histories and strategic choices. Jürgens emphasized that firm technological capabilities in things like launch capabilities and time-to-volume can be important sources of competitive advantage.

Two other sets of factors shape the relationship between technology and convergence or divergence: the desire and ability of firms to reproduce technological and organizational models outside their home country; and host country requirements, capabilities and demands. Humphrey emphasized that some nationally-rooted differences in technology application at foreign sites can be traced to the level of confidence in the existing production model. Japan, for example, has great confidence in the strength and replicability of its model and aims to reproduce it at sites across the world. But firms based in countries that either do not have a model (e.g., the U.S.) or have lost confidence in their model (e.g., Germany) do not look to reproduce domestic technological arrangements at foreign sites. Instead, firms from these countries might utilize foreign plants for experimentation—as American and German auto firms have done in Brazil—in order to test ideas away from the critical eye of the domestic press. For this and other reasons, MacDuffie emphasized, plants built in developing economies are often far more advanced than would ever have been anticipated.

Local market conditions also shape technological adoption. Veloso pointed out that OEMs operating at foreign sites are careful to bring suppliers that have the necessary capabilities, but do not necessarily bring their most sophisticated suppliers. As Tewari pointed out, firms must provide goods that meet local quality standards at local prices in order to be competitive. These conditions push firms to meet but not greatly exceed local production standards. To illustrate, Tewari noted that the Indian automotive sector is comprised of firms that are competent but not world class. Overall, price competition in local markets means that foreign-owned plants do not necessarily use cutting-edge technology or develop world-class (i.e., export) capabilities at all local sites.

Market conditions, though, are only one factor that shapes technology adoption at foreign plants. As Thun noted, governments can significantly affect the economic and technological impact of foreign investment. In countries where governments exert substantial control over foreign investments, this power can be used to shape the technological trajectory of local firms. The Chinese government, for example, controls the types of technology employed at foreign-owned plants through its choice of partners and by imposing technological standards on firms operating in the country.

### **III. Market Homogeneity, Product Design, and Locational Patterns<sup>6</sup>**

Consumer preferences have long been recognized as an important factor shaping international production patterns in the industry. The prevalence of distinct national preferences in the 1960s and early 1970s, for example, served as an informal market barrier that forced automotive firms to establish production facilities in a large number of countries. Today, the level of homogeneity of preferences across countries still has the potential to shape trade and production dynamics in the industry. Greater homogeneity of preferences allows higher volume production and reduces the benefits of locating production sites near consumers, both of which promote the concentration of production at a small number of sites. But because preferences are not yet homogeneous across countries, there are still distinct local preferences that require even “global” cars like the Fiesta to be modified for individual markets.

Fujimoto suggested that the relationship between consumer preferences, product design, and global production patterns is complex in part because of an unpredictable relationship between consumer preferences and product design. After the second oil crisis, the European philosophy of car design came to dominate and companies converged in their choices of product architecture. At the same time, though, firms became more sensitive to inter-regional differences in market demand and became more likely to adapt cars for local markets. The failure of Ford’s global car, the Mondeo, highlighted the difficulty of adapting cars for local markets. So, while

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<sup>6</sup> Session moderated by Takahiro Fujimoto.

differences in consumer preferences have narrowed, firms have become more sensitive to these subtle differences, undermining the homogenization of products across markets.

Fujimoto illustrated how strategy for global product design can vary greatly depending upon the market segment. Both Honda's Legend and Toyota's Lexus have one product design that is used globally, an approach that is common in the high-end market where preferences appear to be more strongly influenced by income level than by local conditions. Honda's Accord is developed on a global platform but its exterior body modified to satisfy preferences in different regions. Honda's Civic is a global car with only minor variations in derivative models sold in different regions. In contrast, the Toyota Corolla uses a global platform that is modified for different markets, reflecting a particular corporate strategy towards localization. Finally, Honda's Logo and City, its smallest cars, have completely differentiated platforms for each local market (e.g., Japan, Thailand).

As Fujimoto noted, the range of preferences and income levels across countries creates tension between achieving economies of scale by producing homogenous products and "over-engineering" cars by including "fat design," i.e., features that local consumers will not (and do not) pay for. These conditions force firms to weigh the benefits of global economies of scale against the costs of providing cars that are over-engineered for certain markets. Faced with a range of costs and benefits, firms must make decisions about how much of a platform will be common across vehicle types; whether to develop a regional or global platform; and whether and when to absorb costs associated with over-engineering in order to realize the benefits of economies of scale.

Firm strategy, history, and philosophy also shape product design and approaches to serving local markets. As Fujimoto detailed, firms with similar manufacturing capabilities often adopt different approaches to product design; and Shimokawa added, firms that are otherwise similar might still have different philosophies about global platform issues and thus different approaches to globalization. There appear, for example, to be basic differences in globalization philosophies of American and Japanese firms. American firms see in globalization a chance—or perhaps even an imperative—to achieve global scale economies while Japanese firms focus on

localizing production so that cars can be modified to be meet local tastes and needs. National origin of firms, though, only explains the basic contours of globalization strategies—there exist great differences in globalization strategies among assemblers from the same country that can only be explained by reference to particular firm histories and philosophies.

#### **IV. Supply Chain Trends<sup>7</sup>**

Across manufacturing sectors, the organization of the supply sector influences a variety of important outcomes including industrial development in host countries; the vulnerability of host economies to changes in the international environment; and the location of forward and backward linkages including design and final assembly. In autos, the past decade has witnessed a growing role for suppliers as they take on a greater share of manufacturing, logistics, and design responsibilities. Globalization in the automotive supply sector, the discussion made clear, has not been driven by labor or transportation cost differentials but a complex combination of assembly location; host government policies; changing supplier roles, including new design responsibilities and modularization; and shifts in the relative power of workers, suppliers, assemblers, and governments. These changes are important both for their implications for production and employment patterns in the industry and also because they suggest that supply-chain management could become an important source of competitive advantage among assemblers.

Discussants identified two mechanisms, local linkages and learning, that are critical for transmitting changes in the supply sector into broader changes in local production and employment. These mechanisms, discussants suggested, might be more effective at transmitting positive benefits when suppliers are locally-owned. If this is true, displacement of local firms by global ones in the supply sector could reduce learning and linkages in developing and emerging economies. Humphrey cited the example of television production in Malaysia, where although fifty to sixty percent of inputs are purchased locally, only around three percent are purchased from locally-owned firms.

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<sup>7</sup> Session moderated by Tim Sturgeon.

Soto captured some of the concern about effects of foreign ownership when he remarked that ownership seems to matter and that his work in Mexico confirms this belief. Mexican-owned suppliers, he has found, are organized into conglomerates that purchase from related firms and generate higher spillover effects than global firms that purchase parts from non-Mexican sources. Veloso pointed out that ownership patterns can also affect the generation of skilled jobs in host economies. In Portugal, for example, domestically-owned firms are likely to utilize other local companies to perform high-end modeling and design work, tasks that foreign firms will not entrust to local companies.

Gereffi agreed that local linkages and learning are crucial to local economies but emphasized that the two might follow independent trajectories. In his memo, he emphasized that there are a variety of network configurations and that each is associated with different levels of learning for the firms and countries involved. Firms in “full-package” networks provide finished products to retailers and so generally create greater local linkages, broader skill development, and more high-value added activities than those involved in “apparel assembly” networks. As assembly networks demonstrate, learning and spillovers can be isolated within networks, with their benefits accruing to other firms in the network rather than to non-firm interests in the local economy. Learning and industrial upgrading in local economies, then, is strongly shaped by the types of networks local firms join.

The re-configuration of the automotive supply sector is intimately tied to the existence and use of power by different actors. Much as host governments historically have used their control over market access to force firms to assemble locally, assemblers are now using their power to force suppliers to establish production sites in a number of countries. In both cases, the power deployed is based not on the alignment of interests between actors but on the ability of governments and (now) assemblers to funnel demand to firms that concede to demands. As such, current geographic configurations might be unstable as they could shift rapidly if costs or pay-offs to suppliers, assemblers, or governments change.

In addition to their geographic implications, supply sector dynamics must be considered as part of a broader re-shuffling of capabilities within the industry. According to Sturgeon, the two major trends in the automotive supply sector—de-verticalization in assembly and the increase in the average size of supply firms—open two distinct possibilities within the automotive sector. The first is that assemblers are creating a supply sector strong enough to revise the balance of power between assemblers and suppliers. Indeed the complexity and scope of the tasks now performed by suppliers suggest that they can virtually make vehicles or at the very least, that their competence and range of customers attenuates their previous dependency. The second possibility, though, is that changes underway in the supply sector reflect the emergence of a more stable, de-verticalized industry structure in which suppliers take on more responsibility but do not perform key OEM functions: design, marketing, and in autos, assembly.

As Gereffi pointed out, the potential threat posed by supplier power is prevalent across network models of production where firms outsource low-margin manufacturing tasks to achieve financial benefits and organizational flexibility but also incur the risk of losing their competitive edge in high-margin activities like design and distribution. And in the automotive supply sector, Jürgens pointed out, mega-suppliers now face their own set of challenges: having grown rapidly in a favorable climate, they now must consolidate their production structures and research capabilities while simultaneously diffusing technological developments to plants located around the world.

## **V. Impacts on Home Countries<sup>8</sup>**

Much of the popular and political attention generated by globalization is based on the notion that growing interdependence of national economies poses a new set of threats to workers and firms in home countries. In particular, there is concern that globalization puts workers from home and host countries in direct competition and therefore harms low-skilled workers in high-wage countries. These concerns are salient not only for their implications for workers in advanced countries but because they constitute what is probably the politically strongest and

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<sup>8</sup> Session moderated by Ulrich Juergens.

most coherent argument against liberalization. The recognition that the rise of global production structures has been facilitated by and continues to rely on political acquiescence, suggests we need to consider carefully the political threats to globalization. And for now, at least, much of the opposition to globalization coalesces around issues related to employment and the quality of work in advanced countries.

Jürgens and Locke believe that the implications for labor go far beyond changes in employment levels and entail changes in labor market dynamics, skill and other job requirements, and the functioning of national industrial relations systems. Jürgens pointed out that the question of how to “internationalize” industrial relations is an important area of inquiry because it encompasses questions related to whipsawing; the portability of industrial relations structures across national borders; and transnationalization of unions. Moreover, as Locke noted, while international production capabilities can introduce the possibility of whipsawing, they also present opportunities for firms and managers to learn about alternatives to domestic industrial relations arrangements.

Despite the political and economic importance of home country employment effects, discussants agree that globalization researchers actually know relatively little about the effects of globalization on home country labor markets. What research does exist is inconclusive but suggests the emergence of a rather complex division of labor. Lynch pointed out that in North America a kind of complementary specialization has begun to take shape over the past decade, with important implications for employment in each of the three countries. With increased use of Canadian and Mexican affiliates by the Big 3, the U.S. share of North American assembly employment has declined. At the same time, exports of high value-added parts from the U.S. to Canada and Mexico have bolstered employment in these sectors while growing use of maquiladoras has reduced demand and employment in lower value-added parts production. Because the assembly sector pays significantly higher wages than the parts sector and has historically been a haven for workers with low levels of educational attainment, these changes have contributed to falling average wages in the sector and a decline in the proportion of workers without high school diplomas.

As Helper pointed out, though, these identifiable (and arguably quantifiable) changes represent only one potential effect of cross-border production on domestic labor. In particular, she argued, the “threat effect” introduced by the presence of foreign production sites is larger and qualitatively different than the direct employment effect. Although analysts often compare employment or wage effects from globalization with those brought on technological change, Helper argued that more attention should be paid to qualitative differences in the two types of effects. Unlike technological change, she noted, globalization has the potential to change the environment in which employment conditions are negotiated. The ability to use foreign production sites to produce for the domestic market, for example, allows management to refuse to negotiate with local unions, an outcome not associated with technological change.

Bafoil pointed out that because of the strength of the unions in Europe, there is not the same maquiladora effect and that it is unlikely that foreign investment will result in a wholesale shift of jobs to lower-wage countries in the region. Instead, he predicted, the incorporation of eastern sites into existing production structures is likely to foster a regional division of labor. Bafoil also reminded us that in the future, trade and investment are likely to become even more important influences on home country employment than they are today.

The size and implications of employment effects, though, have largely eluded researchers. As Berger noted, existing research does not provide a simple story about internationalization and employment. Although wage costs matter, it appears that the “stickiness” of some resources (e.g., research capabilities) acts as a countervailing force to the lure of low wages and keeps some types of activities embedded in the home country. By distinguishing between activities that remain at home and those that are relocated to low-wage areas in different industries, Berger suggested, we can begin to identify home-country advantages and map out the employment effects of globalization.

## VI. Impacts on Host Countries<sup>9</sup>

Understanding the effects of globalization on host countries requires mapping the current configuration of production and employment; identifying the major forces that might alter existing arrangements; and assessing the likely size and direction of these effects on assembly and supply sectors in host countries. All of these issues have become more complex because of the broad changes ushered in by the Asian financial crisis, the rise of industry-specific threats like overcapacity, and the general uncertainty that prevails in the international economy.

As Humphrey detailed in his memo, any discussion of host country effects must begin with the recognition of two distinct types of host countries: peripheral (or Type I) and stand-alone (or Type II). Peripheral countries, which include Mexico and east European countries, are characterized by their “increasing [integration] into the regional spaces of the Triad economies” while production in stand-alone markets like China and India is “oriented primarily towards the domestic market.”<sup>10</sup> Because of differences in market orientation, the prospects for industry growth and decline are tied to different factors in each type of country.

The fate of the automotive sector in peripheral countries will be closely tied to demand in Triad countries and the range and level of domestic *capabilities* relative to other countries in the region. In stand-alone countries, though, sectoral output will be most strongly shaped by domestic *demand* and assemblers’ long-term commitment to the market. From a home-economy perspective, countries that would appear to pose the greatest threat because of their large populations and low wages rates—countries like India and China—actually present little in the way of direct competition to workers in home countries. Instead, countries that appear to be in direct competition are those that are more geographically and developmentally proximate, such as Spain and Germany or Mexico and the U.S.

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<sup>9</sup> Session moderated by John Humphrey.

<sup>10</sup> Definitions taken from Humphrey memo, “Memo for MIT/Industrial Performance Centre Meeting on Globalisation and the Auto Industry,” October 1998. As Humphrey pointed out, his definitions of Type I and Type II markets mirror Sturgeon’s distinction between BEMs (Big Emerging Markets) and PLEMAs (Peripheral to Large Existing Market Areas).

Humphrey suggested that the capacity, confidence, and ideology of the government also shapes effects on host countries and that to understand the impacts of foreign investment, we must examine the motivations and capabilities of host governments. In Brazil, Humphrey noted, there has been a “loss of nerve” regarding how strictly and successfully foreign investment can be controlled. This contrasts with China, where the government has been willing and able to use its power to shape investment patterns, including the types of technology that are employed.<sup>11</sup> In India, lax regulation on foreign investment, including the types of technology utilized, reflects not a crisis in confidence but a shift towards a less interventionist stance on the economy.

Among conference participants, there was little agreement on whether and when jobs associated with foreign investment are “good” jobs. As Piore noted, there are two relevant measures for assessing wage and benefit levels in host countries—levels relative to the home country and levels relative to other jobs in the host country. Although no one argued that foreign investment characteristically generates “bad” jobs by the standards of host countries, Helper and others questioned whether and under what conditions jobs at foreign plants are actually better than other local jobs. Soto claimed that in the automotive supply sector in Mexico, locally-owned firms often provide higher-quality jobs and Helper detailed the methods used by foreign-owned auto plants to keep wages low in Mexico. Piore pointed out that foreign plants often “cream” the labor pool and that in the absence of these investments, these (often highly-skilled) workers would contribute to the local economy in other ways. Bafoil reminded us that although it is difficult to generalize about employment effects in host economies, job quantity and quality will depend in part on the political strength of labor in the host countries.

With respect to higher-skilled jobs, Camuffo pointed out that there is no evidence that assemblers need to perform design, research, or development activities where they sell or manufacture, which suggests that these activities are fairly “footloose”. Japanese automotive firms, for example, have located design near Los Angeles and research and development near Detroit, sites that are some distance from most of their U.S. plants. And as Helper noted, even in cases where manufacturing has been transferred wholesale to host countries, some related higher-skilled jobs often stay in the home country. For example, automakers have transferred all

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<sup>11</sup> See Eric Thun, “Memo for Industrial Performance Center Auto Meeting,” October 1998.

of the manufacturing capacity and design work for oxygen sensors to Mexico but have kept research and development activities in the U.S.

Under some conditions, participants noted, the effects of globalization on host countries might be limited to direct employment impacts and therefore be fairly modest. In stand-alone (or Type II) countries the effects might be most limited as direct employment is often small and investment is volatile. For example, Sturgeon noted that automakers in Vietnam undertake the minimum amount of production required for market access and generate few direct jobs and almost no indirect jobs. Moreover, if the market does not develop sufficiently, they are likely to abandon existing investments and eliminate the few jobs they have created.

Gereffi suggested that modest impacts on host countries might not be limited to the automotive sector. Based on his research on textiles, Gereffi found that with some network models of production, learning is not the norm and “happy endings”—such as the maturation of assemblers into full package providers—are the exception. Tewari expressed some optimism that foreign firms might generate learning by providing examples to domestic firms that produce for local markets. In addition, she noted, cooperation with foreign firms could generate enough learning to provide domestic firms with the confidence and capabilities to absorb risks themselves.

Overall, the discussion painted a rather bleak picture of the impacts of globalization on host countries, a finding that has not been reconciled with preliminary research that suggests home countries lose “good” jobs. Globalization could lead to a decline in job quality across both home and host countries if the added mobility of capital allows it to exploit labor more effectively, but these types of structural arguments were largely absent in the discussion of home and host country effects.

Taken together, the discussions on employment effects underscore the need to study home and host country effects jointly—to link, for example, changes in job quality or learning in host countries with changes in home country employment structures. With the exception of research on whipsawing, a phenomenon that can be observed but might be impossible to

measure, there is little research that examines international production as a system and explicates causal links between home and host country impacts.

## **VII. Current Financial Crisis<sup>12</sup>**

With the current financial crisis, Locke noted, each piece of the globalization picture is potentially “up for grabs.” As Locke detailed, although the crisis threatens virtually every aspect of globalization, three areas appear particularly important for understanding the potential impact on the automotive sector: the impact on demand in the hardest-hit countries, many of which had represented the most promising medium-term markets; the effect on regional structures that currently govern production and trade in the industry; and the possibility that crisis might lead to a resurgence of trade barriers, thus reversing some of the liberalization of the past decades and reshaping the environment in which supplier networks have emerged and flourished.

Participants agree that some of the causes of the current crisis can be found in the actions of the automakers themselves. Jürgens noted that many behaviors that fueled the crisis, such as hedging, are prevalent in the auto industry. Sturgeon argued that globalization always entailed huge risks for automakers and that decisions to go forward were often based on projections that were excessively optimistic. Shimokawa detailed how in many emerging countries in Asia, much of pre-crisis vehicle demand was supported by Japanese financing rather than created by endogenous demand. As Humphrey noted in his memo, even before the crisis, investment in emerging economies outstripped likely growth in demand. And, as he asked, if local demand depends on favorable credit arrangements, what happens when these dry up?

Participants expressed the belief that existing regional structures might be vulnerable in the current environment. As Piore noted, crisis has long shaped the structure of industrial production and was an important factor in the emergence of a regional system in North America. Because the “peso crisis” was accompanied by a plunge in consumer demand in Mexico, American-owned plants there were forced to begin exporting to the U.S. In the course of this

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<sup>12</sup> Session moderated by Richard Locke.

adjustment, managers began to see Mexico as a viable export site and firms accelerated investments there. Because the crisis acted to thwart domestic demand during the industry's maturation, it guaranteed that the industry would emerge from the crisis with a regional rather than domestic orientation.

Today, the possibility exists that crisis will instead undermine existing regional structures, particularly in Asia. As the gap between regional supply capabilities and consumer demand widens, assemblers might be forced to re-orient production towards markets outside of Asia. Whether this strategy is viable is unclear and will depend in part on whether existing capacity is flexible enough to serve enter new product lines and markets. The stakes are high. As Shimokawa and Fujimoto noted, without some reversal of strategy, the existence of suppliers with products tailored to Asian markets is threatened while those with markets outside Asia might actually profit.

The greatest effect of the current crisis, though, could be to reshape the environment that currently governs trade and investment including regulations that govern market access and capital flows. As Locke emphasized, existing arrangements grew up in an environment shaped by liberalization, a course that has come under siege with the deepening of the current crisis. A collapse of liberalization could lead to a restructuring of auto investments at a time when, as Berger noted, diminished market prospects in emerging countries could reduce host government leverage with automakers. To the extent that either of these changes materializes, many emerging economies will be forced to reconsider their place in international automotive production.

## **VIII. The Use of Cross-Sector Studies<sup>13</sup>**

Although the current crisis threatens to re-shape international production and trade relationships, globalization as a force in the international economy is unlikely to disappear. Because globalization has the potential to alter fundamentally a wide range of relationships, it

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<sup>13</sup> Session moderated by Gary Gereffi.

challenges social scientists to formulate a new research agenda; generate new methods of inquiry to assess the effects on social, economic, and political structures; and articulate the range of policy options available to governments. Participants largely agreed that these challenges will require the use of cross-industry studies as part of a new, broad globalization research agenda.

Gereffi suggested that questions best addressed by cross-industry studies include those pertaining to networks and learning; the organization of production; and product design. The first research area, networks and learning, focuses on transnational networks that generate learning and on the factors that promote this learning. Although networks can be characterized by type of lead firm (i.e., producer- or buyer-driven); national origin of the lead firm; or by region of operation, there has been little research on whether and how these characteristics correlate with different types of learning. In textiles, it appears that type of lead firm provides the best proxy for level and type of learning, but only with cross-industry studies can we generalize about the characteristics that promote learning in manufacturing.

The second research area focuses on the organization of production and includes the effects of firm strategy on de-verticalization and the role of de-verticalization in spatial and organizational change. Gereffi noted that textiles and apparel provide good case studies. For example, as branded clothing manufacturers have shed their production facilities, they have created space in which firms that have historically limited themselves to textile production can enter apparel manufacturing. In autos and other sectors, these forward and backward linkages and the incentives that give rise to them are less well understood.

The third line of cross-industry research would analyze trends in design and marketing. Gereffi's work on textiles highlights the key role of "manufacturers without factories," i.e., pure marketers like Nike, Disney, and Gap that control high value-added functions (e.g., design, marketing) but do not engage in manufacturing activities. Because design and marketing are among the "core" activities performed in high-wage countries, explicating the forces that shape their location is important for understanding the future of manufacturing in advanced countries. Moreover, these firms are interesting because of their particular vulnerabilities: because their

market power derives solely from their brand name, if the brand is tarnished, as has happened with Nike, their existence is threatened.

Discussants proposed that focused studies within these broad research categories might also be fruitful. Sturgeon argued that technology can trump other influences and that in some product segments in electronics, for example, automation is ubiquitous and homogeneous enough to create almost identical production structures at sites as different as the U.S. and China. Humphrey pointed out that explaining the motivations and behaviors of firms requires that we first identify the product segments and production locations that are most profitable for firms, as these factors shape organizational and spatial strategies. Veloso noted that cross-industry studies should examine differences in local sourcing patterns and identify the characteristics of parts that tend to be sourced locally.

Other participants pointed to larger questions that only cross-industry studies can address. Lynch suggested that with cross-industry studies, we can begin to assess whether locational patterns are similar across industries, findings that are critical for understanding the potential effects of globalization on employment structures in home countries. Tewari called for a similar examination of cross-industry impacts on host countries and in particular, whether there is a generic story about the impact of globalization on skill development and industrial upgrading in host economies.

Camuffo and Berger expressed interest in the use of cross-industry studies to illuminate the role of different actors in shaping industrial patterns. Camuffo argued that firms lead the process of globalization and that trends in production are intimately tied to firm capabilities and histories. Berger contended that to date, we have paid too little attention to politics in shaping industrial patterns and that we need to examine its role in generating and sustaining spatial patterns. Regionalization, she argues, is not necessarily a “natural” geographic outcome but may instead be a political construction.

## **IX. A New Globalization Research Agenda<sup>14</sup>**

Conference memos and discussions built on the recognition that globalization requires a re-examination of the questions, terms, and methods of research on industrial structures and their impact on social, political, and economic life. Understanding globalization requires the construction of a research agenda that reflects on-going changes in the international economy and utilizes terminology, methods, and theories that are consistent with these changes. In order to capture this common challenge to the work of social scientists but still recognize the plurality of issues and interests represented at the conference, each participant was asked to identify a promising question for future research.

Camuffo and Piore urged us to re-examine fundamental questions concerning the role of globalization in shaping economic outcomes. Camuffo pointed out that we lack solid measurements of globalization and have yet to develop a globalization index for individual products. Piore encouraged us to keep in mind that with any research approach or topic, we will need to revisit the question of how factors such as technology and liberalization shape globalization and then examine the likely future trends of these factors.

A number of participants focused on questions related to employment and wages. Helper asked how, in the age of globalization, we can construct high-wage innovative production structures in developing, emerging, and advanced economies. Sugiyama asked how the standardization of technology might shape the organization of production. Lynch asked whether differences in regional architectures affect employment outcomes in Germany, Japan, and the U.S.

Some participants argued that a closer examination of power is necessary in order to understand globalization. Jürgens noted that there has been a tremendous shift in power between assemblers and suppliers and assemblers and mega-dealers and asks how these shifts create forces that promote standardization or divergence. Gereffi articulated a view of globalization as a

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<sup>14</sup> Session moderated by Suzanne Berger and Richard Lester.

global-local process that shapes the location and concentration of power and raises questions about the types of space/work/power that can be claimed by smaller local firms and networks.

Thun and others believe that governance structures are an important subject for future inquiry. Thun noted that although host countries face a common set of challenges and are all motivated to maximize the benefits associated with foreign investment, governments construct different policies and thus realize different outcomes. Understanding the variety of political responses generated across and even within countries, Thun believes, can help us understand the effects of foreign investment. Bafoil raised questions about the relationship between local power structures and the effects of globalization, noting that the level and types of inequalities generated within host economies are shaped by existing local distributions of power.

Studying the relationship between globalization and learning was also mentioned as a promising area for further research. Veloso asked us to define learning more carefully, to examine the conditions that promote learning, and to compare the characteristics of learning dynamics in different regions of the world. Okada has studied learning in the context of the supply chain and wants to explore further how “difficult” learning can be fostered by sub-national governments. Tewari and Soto both believe that we need to understand better how manufacturing capabilities generate spillovers through learning and the development of skilled workers.

Humphrey and Wittke believe that the dynamics of upgrading is worth further study. Humphrey noted that the presence of value chains allows firms, if admitted to these chains, to access global production structures. Entrance into these structures presents opportunities for firms to upgrade the types of production they perform but also poses a danger that firms get trapped in low value-added activities, as Caribbean Basin producers did. Wittke extended this research agenda and proposed that we examine the dynamics of upgrading within regions; the extent of differences in regional learning; and the sources of these differences.

Sturgeon and Lester suggested new methodological approaches that should accompany a research agenda. Sturgeon claimed that because so many functions are being outsourced, in-

depth study of a few major firms that service other firms—e.g., contract manufacturers, logistics and transport firms, financial services, and temp agencies—can provide insight into a number of industries and may be a more efficient way to study globalization than looking at a few key lead firms in a range of industries. Lester proposed that industry studies include more differentiated treatment of design, development, and engineering tasks, functions that are separate and prone to further separation in the future.

Berger suggested that any globalization research agenda must reintroduce the notion of politics and recognize the extent to which things like location of production and design are shaped politically through trade and investment regimes. She reminded us that the current liberal environment is fragile and support for it contingent upon outcomes that are acceptable to a political majority. Because of this, we need to examine the role of politics in shaping and reshaping the international economy.

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