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IPC CONFERENCE SUMMARY ON GLOBALIZATION

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Introduction

On October 8, 1999 researchers from Asia, Europe, and North America convened for a one-day conference on globalization sponsored by the Industrial Performance Center (IPC) at MIT, with support from the Alfred P. Sloan Foundation.[1] This meeting, which gathered researchers from a wide variety of disciplines and industry expertise, aimed to broaden the discussions held at last year's IPC meeting on globalization in the motor vehicle industry. The day's discussion was arranged around four sessions: new issues and methods in globalization research; globalization and product development; supply-chains; and globalization and the fate of national models of capitalism.

At last year's session, a wide range of themes were in play, including 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 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 generated by growing internationalization of economic activity.[2]

At this year's conference, although a range of distinct issues emerged, most have their roots in the same set of concerns, namely the relationship between changes in the local and global environments. During many of the discussions, participants emphasized the dynamic between local developments, including things like firm strategies and regional development initiatives, and the global patterns that emerge from or are strengthened by these seemingly isolated local events. In other cases, participants focused less on

[1] See Appendix A for list of conference participants.

the dynamic between local and global structures and examined instead the conditions under which local, rather than global, factors are responsible for observed changes in economic and political structures. In sum, then, the question of the relationship between the global and local involved two distinct sets of questions. First, how do local conditions feed global changes and vice versa, i.e., what are the *dynamics* between local and global phenomena? Second, under which conditions does one set of factors *dominate* the other, i.e., when will outcomes be driven primarily by local economic, political, institutional or cultural factors rather than global economic and political structures?

Conference discussion illustrated how these local-global themes are played out within organizations, between institutions, across geographic space, and within the political arena. Organizationally, local-global tension reveals itself in a variety of ways, including in firm decisions regarding the location of activities. As Fujimoto pointed out, in determining the optimal location of design, firms must balance factors (such as distinct consumer preferences) that push towards the establishment of multiple design sites with those (such as economies of scale) that favor the establishment of one, global design center. Regarding geographical patterns of economic activity, Sturgeon noted that whereas in the past, local clusters have evolved primarily through intra-cluster relationships, their future development will be shaped, in part, by the global linkages that emerge between local clusters. Politically, Boyer noted, domestic actors have pursued a two-pronged strategy for dealing with globalization: on the one hand, they attempt to use their political power to change domestic regulations; on the other, they use their economic power to move resources in and out of national regulatory environments. Finally, while all participants agreed that economic outcomes are shaped by the intersection of industry requirements and institutional strengths, there was disagreement about the relative importance of sub-national, national, and supra-national institutions in this process.

[2] For a summary of last year's discussions, see Teresa M. Lynch, "Globalization in the Motor Vehicle Industry: Final Conference Summary." MIT IPC Working Paper #98-010, Cambridge, MA. January, 1999.

Session I: New Issues and Methods in Globalization Research[3]

The opening session of the workshop centered on some basic methodological issues yet to be resolved in globalization research: What should be the working definition of "globalization"? Where can researchers observe globalization at work? What is the proper unit of analysis? And, finally, why should social scientists be interested in globalization?

Boyer argued that globalization deserves attention because of its potential to alter existing national regulatory frameworks and to unravel existing social compromises. Because these are the likely battle sites, researchers can best observe the effects of globalization by focusing on changes in domestic institutions and regulations. A parallel process of transformation, he suggested, was played out in the introduction of mass production, which was not introduced as *fait accompli*, but evolved in every economy within the context of particular social compromises that structured the burdens and benefits of growth and change. The results of this compromise were different in every nation, but can be categorized into four general types: market-led but with some government intervention, as in the US, UK, Canada, Australia, and New Zealand; corporate-led but aided by informal sources of innovation, as in Japan; repeated and on-going social negotiation, as in Sweden and the Netherlands; and state-led, as in France. With its characteristic floating exchange rates and mobile financial capital, globalization seems to favor the market-led approach to economic governance, as it is the most flexible, especially with regard to labor and financial markets.

Regardless of the nature of the social compromise, Boyer noted, globalization means that national actors can escape domestic regulation by going abroad. As a result, we observe multinational corporations and international financial institutions attempting to remake the rules that govern both their domestic and

[3] In this session, Robert Boyer offered leading remarks; Michael Piore served as chair; and William Lazonick acted as the discussant.

international conduct. These attempts have, to date, been relatively successful. For example, across the European Union, corporate taxes have fallen while taxes on the working class have risen; in the US, the wage portion of value added has fallen; and in Germany, businesses are beginning to go abroad in order to avoid domestic regulations. Globalization, therefore, is not necessarily an *international* game, but one in which domestic actors use their political power to try to change domestic regulations and their mobility to move in and out of regulatory environments. As a result, although every national regulatory framework is exposed to similar pressures, each country's response will depend upon its domestic politics, including the legacy of past regulations and institutions. Thus, we should not expect convergence but, rather, increased diversity of domestic systems.

Lazonick, like Boyer, believes that the world's economies are unlikely to converge upon one "ideal" system. As evidence, Lazonick pointed to research on national innovation systems by Richard Nelson, Chris Freeman, and others. This work suggests that characteristics of national regulations and conditions strongly influence domestic economic growth and innovation. These influences can be observed on three levels: institutional arrangements, including the structure of labor and financial markets; organizational factors, including the cognitive and behavioral conditions within enterprises; and the industrial composition of the economy. The critical area for globalization research, Lazonick suggested, is at the organizational level. Many researchers have focused on the importance of industrial districts as a basic unit of analysis, with an emphasis on the interaction of firms within the districts in the development and utilization of productive resources. But much of the move to globalization is driven by major corporate enterprises with employment in the tens or even hundreds of thousands. Industry-level research on the process of globalization must therefore analyze the interactions among people in the hierarchical and functional divisions of labor within these corporate enterprises, as well as interactions across companies, be they large or small.

As Lazonick pointed out, both the state and the firm shape industrial districts. Because firms make decisions about resource allocation and the integration of strategic decision-makers, they, in effect, shape the cognitive and behavioral environments in which learning does or does not occur. As such, we should examine more closely the integration of organizations and institutions; and in particular, the impact of institutions on firm success. Of particular interest is the question of why institutional structures that function well in one period, fail to do so in another.

Lazonick also proposed an examination of the "skill-base hypothesis", the idea that there is a bias in the American economy toward investing in a narrow and concentrated skill base of highly educated and specialized workers, while neglecting the upgrading of the skills of most of the workforce. Lazonick observed that the actual set of skills in the US constitutes a rather narrow base and Glasmeier questioned whether basing an economy on such a lean foundation is either sustainable or equitable. Piore observed that while there is some evidence of a strong concentration on particular skills in the US, he does not believe that there has been a general increase in skills across the broader American labor force. Moreover, he pointed out, the disparity of skills within the economy has pulled more women and immigrants into the workforce. This shift in workforce composition has, in turn, generated further change, including the near elimination of the domestic social safety net (because men no longer need to support women financially) and an increase in the demand for services such as child care and public transportation.

Finally, participants turned to the definition of "globalization". Lazonick recalled that in the past, use of the term "globalization" prompted debates about floating exchange rates and monetary policy independence. Over time, though, industrial competition, finance, and national systems of savings have come to constitute the substance of the discussion. Boyer noted that, in the course of his research, he had come across several definitions of globalization, none of which seem appropriate. Surprisingly, the most prominent and common aspect among these definitions is not the idea of a single world market, but rather the internationalization of the firm's value chain. His own definition is that globalization is "the

realization of new and unexpected interdependencies linked to the fact that foreign events impact the domestic economy." For example, the financial crises of 1997 and 1998 revealed that international risk allocation can (but need not) create new risk domestically (i.e., 1997 was not "our" problem, 1998 was).

This increase in and reallocation of risk has helped to reshape domestic institutions. The history of the European Union (EU), for example, should be interpreted not as an element of globalization, but as a set of domestic reactions to it. The EU was originally formulated to keep France and Germany at peace, but gained further acceptance when it seemed to offer protection from the vagaries of the dollar after the fall of the Bretton Woods framework in 1971. Over the course of its development, each of its members has perceived the EU differently and joined for different reasons. Thus, the EU should not be viewed as a market phenomenon or as a product of globalization, but as a military, then political, response to the integration of world markets.

Boyer notes three phenomena which he has observed in attempting to define "globalization". First, there appears to be an artificial boundary being drawn between globalization as a political concept and globalization as an economic concept. Second, the changing role of prices in competition has changed the rules of the game. Finally, financial capital, the most mobile of all factors, has emerged as the factor that demands the greatest premium. In sum, Boyer suggested, globalization is not a story about only domestic institutions, but it must be seen as always conditional upon domestic politics and institutions. The transition to any new regime, including a global one, is never seamless or rapid. Only wars can synchronize institutions; in peace, transition is always full of tension, struggle, and compromise.

Session II. Product Design[4]

[4] In this session, Takahiro Fujimoto and Nitin Joglekar offered leading remarks; Koichi Shimokawa served as chair; and Richard Lester acted as the discussant.

As Fujimoto outlined, product development is a process of knowledge creation and transformation, the key process of which is the bundling of problem-solving activities. Developing a new vehicle model, for example, involves thousands of problem-solving cycles culminating, finally, in a new design. From the perspective of globalization, two main questions regarding product development arise: How do local market requirements affect the solution reached in a given problem-solving cycle? What are the factors that determine where problem-solving activities are carried out?

The development team, Fujimoto noted, must simulate the interactions among production, sales, and consumption of the product under development. If this simulation activity is being carried out in a locale other than the one in which consumption is to take place, certain issues can arise. For example, to the extent that certain information is found only in the local market, development activities that require access to this information are best undertaken in that market. In general, a number of facets of production, sales, and consumption are specific to the local environment, a "stickiness" that requires design to be adapted to that environment. In isolation, these factors suggest that all design should be local. Product development, however, benefits from significant synergies and exhibits certain economies of scale and scope. Operation of a prototype operation, for example, requires a significant volume of work in order to justify the required number of highly-skilled craftspeople involved in the process. Counteracting pressures such as these create tension between localization and centralization of design activities.

In addition to analyzing design and development as problem-solving processes, one can also view them as processes of co-evolution involving strategy, organizational capabilities, and the environment. Even within the same region, consumers in different markets have very different needs and preferences that must be considered. In Indonesia, for example, minivans are the most popular vehicles; in Thailand, it is pickup trucks; in Malaysia, sedans. At the same time, though, market preferences themselves are not fixed and in some cases, through introduction of new products, manufacturers themselves contribute to the

diversity of the demand. This makes design an on-going, dynamic learning process, rather than an attempt to find an equilibrium position in a static environment. Design capabilities evolve over time as companies learn, are surprised, and then attempt to respond to the changing environment.

Joglekar suggests that some of the critical questions in design have parallels to questions raised in the first session, namely: Why are nations so important? What makes some countries more effective at product development than others? On an operational level, more questions arise: What are the major technology trends that have emerged in recent years? How have these affected the product development process? How have design and development contributed to changing market structures? And, to complete the circle, how has globalization affected product development and markets?

Joglekar argues that two recent important changes involve the adoption of new technologies and the increased importance of "small 'i'" infrastructure. Starting in the late 1970s, the widespread availability of CAD and CAM software tools changed the structure of product development. In the last five to seven years, though, the focus has shifted to the importance of communication and the problem of integration, within and across supply chains, a trend reflected in the increased use of groupware, and enterprise resource management tools etc. With rapid growth in the underlying technologies, the "small 'i' " infrastructure will continue to change over the foreseeable future. Hence product development organizations have will continue to invest in "small 'i'" infrastructure, with approximately twenty percent of product developers' time being spent developing this infrastructure. What is the connection between the investment trends in "small 'i' " infrastructure investments made by individual firms and the "big 'I' " infrastructure put in place by individual nations?

A portion of the "small 'i'" infrastructure investment goes towards the development of generic platforms on which specific products are based, an activity that is very time-consuming. After platform development, the designer must then invest additional time learning about the design capabilities the new

infrastructure supports. Product design itself does not really begin until the third phase. Because of this phased nature of design, it is difficult to measure the productivity of product development activity or to measure the value of the learning that usually accompanies it.

Product design capabilities continue to evolve, generating a set of on-going issues regarding the division of labor in product development and the geographical distribution of talent. Consider, for example, the implications of recent advances in semiconductor production technology that have increased the number of gates per chip roughly ten-fold. In response to these advances, semiconductor firms have been forced to hire circuit-design experts who can show customers how to utilize these new capabilities. At the same time, product development organizations are outsourcing the development of sub-designs that utilize these capabilities, thus replacing in-house design of sub-systems.

As is well-documented, the types of highly-specialized workers required for these activities tend to cluster in "design districts" such as Silicon Valley and Route 128. As local governments attempt to create their own districts, it is worth considering whether there are national institutions and policies that can support this attempt. Singapore's government, for example, spent significant amounts of money to attract foreign companies willing to locate their product development activities there. Like all governments, though, they are having difficulty attracting designers, a group that tends to be very particular regarding where they will work and live. These issues illustrate, perhaps, the types of limitations inherent in attempts to "create" design capabilities and districts. Ultimately, it seems, there could be a circular pattern at work: different national institutions result in the creation of different kinds of infrastructure which, in turn, shape national capabilities and perhaps, the effectiveness of domestic policies.

Sturgeon raised the issue of standards, in particular how the emergence of certain software tools as *de facto* standards affects industry dynamics. In the semiconductor industry, for example, Cadence has become the *de facto* standard tool for design, while in the automobile industry, firms continue to use

different and often incompatible design systems. The major reason for this, Fujimoto suggested, is that passenger cars are based on a “closed” architecture, in which vehicle and component design is company-specific. This has resulted in the emergence of only a few common parts (e.g., batteries, spark plugs, and tires) and the prevalence of company-specific designs. Although most European auto manufacturers use the software tool CATIA, in the US and Japan each company uses different tools. Against this backdrop, though, is increasing pressure from supply firms on assemblers to develop common design standards and tools. These contradictory pressures have resulted in two developments: a push to establish CATIA as the industry standard; and the development of translation tools that allow suppliers to standardize the variety of data produced by the different software systems.

According to Fujimoto, firms based in different regions also tend to have different patterns of outsourcing. Across Europe, for example, independent design and engineering houses have traditionally played a significant role in vehicle and component development. In Japan, on the other hand, independent design capabilities are far less developed. Instead, suppliers play an important role in design, a role they have had since the 1960s, when the proliferation of vehicle models forced assemblers to outsource engineering tasks to their suppliers. This reliance on suppliers continued to grow and today, suppliers are responsible not only for supplying significant modules but also for engineering them. In the US, where most design work is still done in-house, a shift toward adoption of the Japanese model is underway.

These discussions raised a set of questions regarding whether developing economies will develop true design capabilities or whether most of these capabilities are likely to remain in the Triad economies. Participants suggested that developing economies are more likely to be able to develop design capabilities in modular, rather than integrated, products. In personal computers, for example, a component such as the disk drive can be produced and then designed as a separate module. Once the production of disk drives is moved, as it was to Singapore, the existence of well-defined interfaces between the different modules

allowed design activity itself to move to Singapore. With integrated products such as automobiles, though, major design activity is likely to remain at the headquarters of the car companies.

The evolution of software capabilities in Bangalore (India), Piore noted, demonstrates that the development of software design centers relies on certain interactions between industry and the educational system, as well as factors like immigration patterns between key countries (here, India and the US). Are these patterns relevant to the automobile industry? There seems to be something that takes place in these districts that doesn't take place in the case of design in the automotive industry. What is it?

Fujimoto suggested that the key difference is that in autos, there is a "virtual" district that links all suppliers and OEMs. Because the development of cars involves close coordination between product design and certain processes, such as the design and manufacture of dies, the automobile sector does not generate "pure" design districts. Instead, product design activity tends to follow key capabilities, such as die design. In garments, Berger pointed out, markets help disperse design capabilities. Districts that specialize in adapting designs for the local market have emerged in several areas, although with mixed success. Efforts to develop "local" designs for the Hong Kong market, for example, have not been successful perhaps because, as some industry experts believe, there are few actual distinct "local" preferences, only differences in the physical size of consumers in different regions.

Sturgeon and Sodini drew a parallel between the automotive industry today the electronics industry twenty years ago. Today, electronic products are developed using common design systems, which allow design functions to be organizationally and geographically separated from production, and production tends to be modular. One question is whether the automobile sector is on a similar evolutionary path. Fujimoto suggested not: as long as automobiles retain their current architecture of 0.8 mm (thickness) steel for bodies and an internal combustion engine, he said, design will remain at assemblers. If the industry shifts to the use of fuel cells and a more open architecture, then design could travel from

assemblers to specialized regions. As another participant noted, though, assemblers will probably try to maintain integral architecture in order to keep high value-added activities in-house and avoid the fate of the computer makers who lost much of their profitability to component manufacturers.

Lester noted that the discussion demonstrates that relocation of innovative capabilities can take place within the firm or can involve a relocation of activities across firms within the value chain. In the latter case, relocation could be accompanied by a change in the relationship between large and small firms, including a shift of design responsibilities from large to small firms. Two innovations in the telecommunications sector illustrate these changes. Years back, the shift from analog to digital switching was undertaken within large firms, which had built up internal capabilities in design. In the recent shift from circuit switching to packet switching, though, large firms relied on small firms to perform the design work.

Finally, Lester noted, when we view product development as an optimization problem involving three parameters (i.e., location of problem information; location of solution information; location of skills), it suggests that product development can be dispersed across geographical areas. However, when information about the problem, markets, or resources is not available and "innovation" relies on interpretation rather than optimization of information, geographic proximity again becomes important. Moreover, as the ambiguity surrounding the situation to be interpreted rises, innovative activity should be even more strongly fixed in one place. This suggests that differentiating between types of innovative activity—especially between optimization and interpretation--should help us to analyze or predict the spatial distribution of innovative activities.

Session III: Supply Chain Globalization Session[5]

Weil opened the session with the question of whether globalization is really a new phenomenon and if so, what factors lie behind the emergence of a global production system. For example, although the apparel industry has always been somewhat global in nature, the current system of production in this industry might have emerged for a number of reasons, including the use of new information technology; the promulgation of international product standards; the emergence of new strategies for the distribution of consumer products; or the proliferation of products.

What is evident is that many industries, including textiles, have undergone profound changes in a short period of time. For example, in 1984, 63 percent of US apparel came from Hong Kong, Korea, and Taiwan. By the mid-1990s, however, delivery time had become a key factor in competitiveness, undermining the advantages once held by these three countries. As a result, by 1997, only 23 percent of US apparel was sourced from Hong Kong, Korea, and Taiwan, with the bulk of the remainder sourced from the Caribbean and Mexico. Because supply chains vary so much across industries, though, it is difficult to sort out whether these (and other) changes are driven by requirements of national production systems or by general economic forces.

Humphrey raised several issues related to the three types of value networks--obligational contracting, flexible specialization, and turn-key production--discussed in the memorandum prepared for this conference.[6] First, Humphrey asked, is it possible for firms to establish true partnerships or are these simply arrangements aimed at reducing risk? In horticulture, for example, the perishability of products, as well as liability issues regarding things like pesticide use, means that supermarkets cannot be indifferent

[5] In this session, John Humphrey offered leading remarks; David Weil served as chair; and Charles Sodini acted as the discussant

[6] See Berger, Suzanne, Timothy Sturgeon, Constanze Kurz, Ulrich Voskamp, and Volker Wittke, "Globalization, Value Networks, and National Models." Memorandum prepared for IPC Globalization Meeting, October 8th, 1999.

to the production, distribution, and handling of products. Instead, they are required to intervene in the supply chain in order to specify outputs, regardless of whether they want to vertically integrate into production. Second, there are several governance issues related to the three forms of organizing value networks, including the viability and stability of relationships, as well as the necessity of vertical integration associated with each form of organization. For example, if a multinational food company vertically integrates into retailing, other buyers (i.e., the supermarkets) could be forced to do business with it. Third, what are the disadvantages and losses associated with turn-key production networks, particularly with regard to product development? Fourth, is the industrial district method of organizing production drastically different from the other two forms? Clusters seem to work because of the relationships developed within the cluster; what, if anything, prevents reputation and other mechanisms from having the same effect for firms outside of the cluster?

In collaboration with his colleagues, Humphrey investigated the shoe industry in Brazil and found that firms wanted to upgrade the cluster in order to compete more effectively against the Chinese and upgrade into shoe design, a higher value-added activity. Their major buyers in the US, however, did not want them to upgrade, as they were afraid that the resulting competition would drive shoe prices down to marginal cost. This example highlights the powerful interaction between private and public governance, as well as the importance of non-governmental organizations and international standards in shaping outcomes. It also suggests that globalization can both beneficial and deleterious effects on clusters.

Sturgeon suggested that the categorization of production systems into obligational contracting, flexible specialization, and turn-key production, though idealized, is a useful way to segment the systems; and that this categorization does not preclude the existence of hybrid forms. Berger added that the categorization is an attempt at merging two different literatures and processes that seem to (but perhaps do not) work together: re-organization of firms and re-location of activities. Analyzing production networks seems to be a constructive way to examine both phenomena.

Regarding governance issues, Berger suggested that one method for assessing whether industrial districts are stable types is to look at their origin. Current researchers have argued that industrial districts function as a result of trust or by historic tradition. These explanations, however, are often imposed on phenomena *ex post*. In reality, development of districts was laden with conflict. The current challenge is to examine how, historically, the districts were able to overcome problems with conflict. Lazonick suggested that conflict and exploitation can eventually lead to cooperation. In the process of trying to establish trust, he argued, firms sometimes recognize their interdependence, a recognition that fosters a variety of positive outcomes, including less poaching of workers and increased investment in worker training.

Hall suggested that certain institutions can govern production relationships that require trust. Modified obligational production relationships, for example, are mediated by trust but are also susceptible to opportunistic behavior of participants. In the presence of certain institutions, however, actors can make credible commitments, thus facilitating transactions. Piore suggested that a different mechanism might govern industrial districts. He argued that these districts might be sustained not because of trust or enabling institutions, but because they facilitate communication within the network. If this hypothesis is true, presence in an industrial district facilitates firm flexibility and strongly influences organizational design. This communication-based theory of industrial districts, Piore noted, is not necessarily inconsistent with a trust-based explanation--it is because firms within the cluster "speak the same language," that communication is less likely to generate mistrust.

The subject of geographic clusters of production was a major source of interest among the discussants. Sturgeon commented that turn-key production is facilitated by the characteristics of certain key industrial areas, including for example, the prevalence of small firms in Silicon Valley. In addition, although the existing literature emphasizes the stand-alone nature of industrial districts, Sturgeon stressed that further evolution of clusters will be driven, in part, by the linkages that emerge across clusters, such as those in

Scotland and Singapore. Wittke agreed with this point, but observed that most clusters have traditionally been home-country based and wonders whether and when home clusters can rely on foreign clusters. When a company moves operations abroad, he suggested, they will rely on foreign clusters only if there are complementarities between the firm's operations and the local clusters.

In summarizing the session, Sodini observed that the new models of production allow smaller firms to compete in industrial settings in which they have traditionally been excluded. For example, in the application-specific integrated circuit (ASIC) industry, the ability to outsource manufacturing to companies like Taiwan Semiconductor Manufacturing Company (TSMC) means that semiconductor companies can survive even if they cannot afford the huge costs associated with building a foundry. Regarding trust, Sodini noted that it is particularly important when the organizational interface for production is not clear. Despite the ability to codify and share increasingly complex information (via e.g., the Internet), human contact is still important in some production settings, so the geography of location matters. Finally, Sodini noted that the question of where power resides in the supply chain depends, in part, on how we construe the value chain. For example, in electronics, it might seem as if Intel monopolizes power, but if we look at a longer chain, it becomes clear that Dell, which is adept at distribution, and TSMC, a leader in wafer fabrication, hold substantial power.

Session IV. National Models[7]

[7] In this session, Peter hall offered leading remarks; Michael Freyssenet served as chair; and Amy Glasmeier acted as the discussant.

In introducing the session, Freyssenet suggested that researchers should attempt to connect micro- and macroeconomic factors, which up to now, have been analyzed separately. Understanding the historical evolution of individual firms requires tracking their profit strategies, but also tracing the macroeconomic environment in which firms operationalize these strategies. The national macroeconomic environment shapes the level and distribution of income, as well as market conditions and labor relations. A firm's profitability will be determined largely by how its profit strategy interacts with national income and distribution, and whether the national capital-labor-government compromise allows the firm to find and apply coherent means to apply its strategy through product policy, productive organization, and employment relations.

To examine the impact of globalization on levels and composition of productive activity in an economy, Hall, too, looks to broad social structures and in particular, the institutions that govern productive relationships in the economy. Since Ricardo, Hall noted, trade theorists have recognized that factor endowments confer upon nations comparative advantage in the production of different types of goods. Similarly, Hall argued, the domestic institutional configurations that govern a nation's economy confer upon it a set of comparative institutional advantages. These, too, shape the types of products and processes in which a country can excel and by extension, the type of international investment it will attract and its likely role in international production networks.

The formulation of institutional comparative advantage, Hall noted, has certain operational and theoretical problems, including difficulty in identifying the key institutions and the advantages they create; the possibility that firms are more important than rather than governments in shaping their operating environment; and the possibility that the critical institutional structures are those that operate on the sub-national level. Still, he argued, to the extent that comparative institutional advantage matters, it can help explain the emerging configuration of productive activities across countries. In addition, it can be used to assess the coalitions of interests that have arisen around issues of trade and investment. Unlike previous

analyses of interest formation, the theory of comparative institutional advantage suggests that globalization will create cross-industry and even cross-national political alliances, a prediction that challenges conventional notions that regulatory and distributional battle lines are always drawn between nations or between classes within a nation.

A number of participants commented upon the importance of the state as a seedbed for the development of industrial capabilities. Sometimes, as Lazonick pointed out, the state acts in ways that defy our conceptions about the characteristics of a country's political economy. He noted that in many innovative activities, such as the development of the Internet, the success of firms in the "liberal" American institutional setting can be traced to huge government investments; and that highly organized government structures associated with defense spending have provided a host of opportunities for innovative firms in the US.

Participants also discussed the range of active models of capitalism and the source of enduring differences between the models. Hall noted that for some analytic purposes, industrial economies can be fruitfully divided into liberal market economies (LMEs), in which relationships between firms are governed largely by the market mechanism, and coordinated market economies (CMEs), in which institutions support informal, non-market relations between firms. Boyer, though, asked "Why only two models?", pointing out that exclusive reliance on the extent of market relations as a means of categorizing models of capitalism tends to obscure the variety of coordinated market economies. In some CMEs, like Japan, the firm is the locus of investment and innovation; in others, such as France, the state has lead development efforts; and in others, like Norway, capitalist arrangements are largely the outcome of bargaining among well-organized social groups.

Other participants focused on the importance of regional institutional structures. Regional development patterns in China, Thun noted, are the result of the intersection between regional institutional advantages

and the requirements of different industries. In autos, for example, industrial policies established by the Shanghai government proved successful at drawing foreign capital and developing technological capabilities in the automotive sector, a success story not replicated in other regions in China. However, in Shanghai, the same policies that promoted success development of autos, failed to attract high-tech investment or development. Not surprisingly, the story is just the opposite in other regions in China, where policies that failed to generate successful development in the automotive sector provided an environment conducive to growth in high-tech sector. Tewari pointed out that in India, distinct regional cultures and institutions have given rise to different capabilities and industrial trajectories. In regions which place a high value on manual work, local governments have been able to develop strong technical and vocational training programs and promote industries that rely on these skills. In regions where there is great social distance between those who conceive and those who perform productive tasks, though, vocational training programs have been far less successful.

Hall suggested that there are a number of key differences between regional and national institutions. In many countries, he noted, national institutions are not as fragile as regional institutions. In fact, he continued, the notion of distinct and durable national institutional structures lies at the core of the idea of comparative institutional advantage. History suggests that the difficulties inherent in transplanting institutions and institutionally-driven innovations into new spaces will carve a crucial role for national institutions in shaping distinct industrial patterns in an internationalizing economy. And it is the ability of these institutions to create advantages that survive beyond the ephemeral advantages generated by markets that ensures that national differences will endure.

What, though, are the sources of durability of national institutions? As Berger argued, durability cannot be divorced from national legacy and in particular, distinct national ideologies that legitimate certain types of authority. National models of capitalism require some degree of consensus regarding the legitimacy of certain behaviors, sanctions, social groups, and economic organizations. Beliefs about these

matters are the products of historical legacies of countries, a genesis that ensures a limited variety of capitalists models. In addition to defining sources of legitimacy in an economy, Boyer added, historical factors have yielded distinct constructions of social groups and identity. All actors and groups are, to some extent, defined by past compromises; and through the operation and actions of these groups and organizations (such as e.g., the police or schools), identities and ideologies are constantly reinforced or reinvented.

Piore suggested that there are two views regarding the relationship between legacy and evolution of individual national models of capitalism. In the first view, the future is always constructed from pieces of the past and legacy is operationalized in the building blocks it provides. In the second view, pieces of the past merely constrain how an economy can be organized in the future; rather than establish what is possible, legacy defines what is not possible. As Hall noted, the types of constraints imposed by the past depend on which organizations and structures survive, a question that overlaps with those concerning both the legitimacy of institutions and their durability in the face of globalization.

As Glasmeier summarized, conference discussion suggests that globalization can co-exist with heterogeneity in models of production and organization of economic life. At the same time, though, critical questions remain about how globalization processes play themselves out spatially. As such, the current discussion needs to be extended beyond examination of the varieties of advanced capitalism to examine the different experiences of developed and developing economies; of countries schooled in gradualism and those prone to Draconian policy responses; and of countries with weak and strong institutions.