Tales From the 'Global' Economy: Cross National Production Networks and the Re-organization of the European Economy

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This essay develops the optic of Asian cross-national production networks to provide an alternative perspective on the story of the economic transition of the former communist countries and as a means to examine the character of integration of Central and Eastern Europe into the broader European economy. East Asia is the regional case that we use to illustrate how cross-national production networks operate in practice and their implications for countries integrating now into the world economy. These networks have emerged as part of a reorganization of competition and production best characterized as "Intelism".[1]

The discussion begins from the vantage that the foundations of the new "global" economy remain national. National models of growth in the advanced countries are not collapsing, but rather they are undergoing a transition along distinct trajectories. Government is not much being squeezed out of the economy, but rather the points of its leverage are shifting.[2] At the same time the emerging "global" geography will be regional. That three regional economic groups exist is not in dispute, but what the character of the political and economic relations among the three regions is and will become is contested. Will, for example, an open liberal regionalism develop or will the economic groups take on the character of rival political blocs?[3] These stories are connected: national developments and regional trajectories will be inter-tangled. Indeed, one organizing proposition of the essay is that national developments--expressed variously as the distinct capacities of the entire economy to sustain productivity increases, as the distinct technological capabilities and trajectories, and as nationally distinctive firm approaches to market strategy and production organization--must be situated in the context of a home region's market dynamics and political relations. The notion is that the regional context, a regionally defined set of constraints and possibilities, sets distinctive tasks and solutions--hence encourage specific routes for economic development. We specify that context using a series of concepts. The "Regional Architecture" is the institutional house built up around

[1] Michael Borrus and John Zysman, *From Fordism to Intelism: The Foundations of Corporate Competition in the 21st Century*. BRIE Working Paper in progress.
[2] John Zysman, "Behind the Myth of a 'Global' Economy: Enduring National Foundations and Emerging Regional Realities," *New Political Economy*, Issue 2, 1996. John Zysman, "The National Roots of a Global Economy" *La Revue d'Economie Industrielle* 71, no.1 (1995). Jonah Levy, Robert Kagan and John Zysman, "The Twin Restorations: The Political Economy of the Reagan and Thatcher 'Revolutions.'" Presented at the East-West Center Conference "A Comparative Study of the System of Market Economy" August 1995, and forthcoming as an East-West Center Publication.
[3] Steve Weber and John Zysman, "The Risk that Mercantilism Will Define the Next Security System," in *The Highest Stakes: The Economic Foundations of the Next Security System*, Wayne Sandholtz, Michael Borrus, John Zysman et al., eds. (London: Oxford University Press, 1992).

the bare bones of power relations.[4] That institutional house is constructed with both political/security arrangements and economic institutions. That architecture, together with a more traditional notion of industrial organization, represents a "Regional Framework of Incentives and Constraints" that confronts economic actors. The interplay of the actors within the "Framework" creates in its turn a distinct market "logic" or dynamic. Just as the distinct structure of national political economies produces distinct patterns of political behavior and economic development that can be usefully compared, so do variations in regional architectures, frameworks, and dynamics.[5] This essay suggests that developments in one region, Asia, serve as a means to understand developments in another region, Europe. The changing European Regional Architecture suggests a new "Framework" that may induce cross-national production networks of the form observed in Asia. Significant features of the present European situation are clarified by looking through a comparative regional lens.

Part I of the paper sketches our interpretation of the emerging "global" economy as a story of regions, nationally rooted corporations, and the changing terms of competition and development characterized as "Intelism". **Part II** specifies the Asian architecture and develops the optic of cross-national production networks that have emerged in Asia as distinguishing features of many corporate strategies and third tier Asian development policies.[6] An analysis of cross-national production networks is ineluctably the tale of that entire region's trajectory of industrial development. **Part III** proposes that as Europe's Regional Architecture has changed. The resulting shifts in the " framework of constraints and possibilities" opens the possibility that the market dynamics typical of the Asian region will emerge in Europe. Those possibilities, in our view, are not easily evident either in an examination of the Eastern transition or the present developments of Western Europe. Rather they are best and perhaps only discovered in a comparative regional perspective. The optic of cross-national production networks provides an

[4] This phrasing is taken from work on Europe with Steve Weber that is in progress, "Economy and Security in the New European Political Architecture." This work is undertaken for the BRIE-Kreisky Project on the Reorganization of the European Economy.

[5] John Zysman, "How Institutions Create Historically Rooted Trajectories of Growth," *Industrial and Corporate Change* 3, no.1 (Oxford: Oxford University Press, 1994).

[6] This interpretation is based on research ongoing at BRIE being conducted by a group of collaborating researchers that includes Michael Borrus, Pei-Hsiung Chin, Stephen Cohen, Eileen Doherty, Dennis Encarnation, Dieter Ernst, Stephan Haggard, Greg Linden, Tim Sturgeon, Dennis Tachiki and John Zysman. That work consists of a series of national, industry, and firm level studies. The data includes a large number of firm interviews that have been assembled into several databases. That material have been published as standalone papers and conference volumes. A final book manuscript will be forthcoming in 1997.

alternative perspective on the story of East European economic transition to that of the literature on Central/Eastern European firm-building and state-building.

The Regional and National Foundations of a Global Economy

"Globalism" has become an emblem of dramatic changes in the international economy. The international economy has changed, there is no doubt. But a borderless world in which money, companies, product and technology move freely is for tomorrow, and indeed it is not evident when that tomorrow will be. The suddenly pervasive intrusion of the notion of "globalism" reflects the effort of governments and companies to apply a label to a diverse package of changes that they find difficult to understand and to justify strategies to adjust to a new economic world they cannot clearly specify. The fact of expanding market ties is not itself in question; at issue is the character of those ties, the pattern they form, and their significance. The competing versions of the globalism story, or the particular tales told about its features, in fact dispute what the core features of the emerging economy are. Let us identify the core elements of the new pattern as we see it.

First, measures abound of expanding market interconnections in the form of investment, financial networks and trade. While the intensity of interconnection, the volumes of trade and investment set against GDP, have grown dramatically since World War II, we are now only returning to the "intensities" of 1914 after the disruptions of two World Wars and a trade shrinking Great Depression.[7] Noting that we are only now returning to earlier intensities guards against the hyperbole of many discussions of the "new global economy".[8] Nonetheless 1996 is, quite evidently, a very different era than 1914 and the character of the economic connections among countries and firms in 1914 and 1996 are quite different as well. Foreign Direct Investment grows up alongside Portfolio Investments, and portfolio investments become more diverse and connected in new ways. The scale of wholesale global financial markets now matches in significance that of national financial markets, though they differ in form and purpose, thereby changing the relation between global financial transactions and national financial markets.

[7] This is presented by Paul Hirst and Grahame Thompson in several places. *Globalization in Question* (London and New York: Polity Press and Blackwell, 1996); "Globalization and the Future of the Nation State," *Economy and Society* 24, no.3 (August 1995); "The Problem of Globalization," *Economy and Society*, 21, no.4 (November 1992).
[8] Ibid.

"Globalization" as the code word for the present era must then be distinguished clearly from the code words of earlier eras, internationalization and multinationalization.[9] International firms sold abroad. They were distinguished from multinational corporations that produced abroad in a variety of locations. The British era of industrial pre-eminence was one of trade; the American era by contrast has been one of direct foreign investment. Internationalization and multinationalization had in common two things: first, the spread of a single dominant style of production organization out from a single dominant core country, and second, the imitation by foreign countries of the advances emanating from that core. In each case--internationalization and multinationalization--a single pre-eminent industrial power projected its industrial power abroad and other countries struggled to imitate and adapt.

Second, diversity and uncertain objectives gives this current era, whatever its label, a distinct logic and feel.[10] It is a world economy of multiple centers. It is not just that the terms of corporate competition have been altered; but rather that *a multiplicity and competition of corporate and national strategies to capture advantage in shifting markets characterizes this "global" era*. Price, quality, speed, and differentiation all mark the new phase of corporate competition. Speed to market, corporate downsizing, networked automation and network design for manufacturing, software based advantage are all code words themselves that point to different elements in a search for new strategies. Indeed, in the auto industry, competition remains centrally a battle among final product design/ integrators /assemblers such as Toyota, GM, and Renault. But in electronics the fight is more diverse. Component firms such as Intel that control distinctive technologies often define the terms of competition and the pace of technological advance, not the assemblers such as Compaq or Gateway or even now, IBM in most segments. Within particular component sectors multiple bets, strategies, are possible. Even as Intel drives forward its dominant micro-processor line, the Koreans bet on billion dollar semiconductor fab facilities for memory and more generally on the giant Chaebol and scale production; while the Taiwanese bet on smaller firms and network management of mid-technology. Distinctive electronics architectures, not the same thing as product design, become a

[9] Robert Gilpin, *US Power and the Multinational Corporation: The Political Economy of Foreign Direct Investment* (New York: Basic Books, 1975).
[10] This material is drawn from the forthcoming article by Borrus and Zysman, *From Fordism*. Other parts of this were drawn from Zysman et al., *Globalization and Production.* BRIE Working Paper #45 (Berkeley: BRIE, 1991).

central instrument of competition for companies such as Apple, and later Sun and Silicon Graphics.[11] The variety is deeply rooted.

Fundamentally, the character of competition is shifting, and it is not simply a matter of the emergence of software, of the Virtual Corporation, or the reorganization of production labeled post-Fordist manufacturing. Let us trace the confusion for a moment. Up until the last few decades there was a volume mass production strategy that in the earlier part of this century became the emblem of "modern times" and which all tried to emulate. That emblem was labeled Fordist. Now there are not only successful challenges to mass production, such as the flexible volume production of Toyota, which has been labeled "lean", but responses to the responses.[12] And many of the responses are not rooted in the problems of metal bending volume production sectors, such as automobiles where the reality of mass production and the slogan of Fordism emerged, but rather have their roots in new technologies and quite different market problems. The link, both in practical and analytic terms, from these responses to the original notion of Fordism is increasingly attenuated and often simply misleading. Flexibility based on digital code in an era of "virtual" private information/telecom networks has a different meaning than that flexibility rooted in general purpose machine tools. Problems of scale in software rooted competition are completely different in character and kind from that in the complex assembly of consumer durables with machine tool makers struggling between flexibility and low cost of long production runs.

"Intellism" is the code word or emblem that best captures the characteristics of one of the dominant industrial and business practice of the new era. All those advertisements of the varied computer manufacturers that read, "Intel Inside" suggest that the competition over value added and market control has shifted away from assembly, the base of competition in such consumer durables as autos and refrigerators and even for a period television and radio companies. Henry Ford's innovation was the implementation of mass production; Toyota's innovation was a reorganization of production to create flexibility and volume. Both production assembly innovations created decisive market advantage and both influenced consumer durable industries and indeed, broadly speaking, thinking about industrial societies. In this "Intelist" era, in which

[11] Francois Bar, Michael Borrus, and Richard Steinberg, *Islands in the Bit Stream: Charting the NII Interoperability Debate,* BRIE Working Paper # 79 (Berkeley: BRIE) 1995.
[12] James P. Womack, Daniel T. Jones, and Daniel Roos, *The Machine That Changed The World* (New York: HarperPerennial, 1991).

electronics is now the expanding and driving industry group, competition has moved away from assembly to the rapid evolution of components and subsystems, systems architectures and product design, and proprietary market created, not government established, standards. The creative use of intellectual property rights define defensible market positions as much as, and in some cases instead of, manufacturing cost as the basis of competitive advantage. The willingness of Sun to license its Java architecture or of an alliance led by Oracle to define and widely distribute an Internet machine architecture is their effort to define standards and architectures that are not controlled by Microsoft or Intel. Manufacturing and production do not vanish in significance, they shift location in the story. It remains true that one cannot control what one cannot produce.[13] But the ways of implementing production systems are now often different, with more standard elements or products being handed off to sub-contractors or contracting manufacturers. There remains a core production skill which, in most industry segments, is required both to defend position today and to facilitate continuing product and process innovation. Cross-national production networks, which we discuss below, are a distinctive element of the new competition, and while they have some characteristics of earlier arrangements, the industrialists creating them believe they are doing something new and innovative precisely because they are using a new kind of production system in a new kind of competition.[14] The new paradigm of competition is emerging in electronics and these distinctive elements of competition over position and value added are evident there. A question yet to be answered is how far this new paradigm, once it is consolidated as an understandable intellectual whole, spreads beyond electronics into sectors such as autos or other consumer durables. Will on the one hand established firms and the enduring metal in products such as autos maintain existing forms of industry organization and business strategies. Or, alternately, will the growing percentage of electronics in the value of a car or any consumer durable begin to force these industries to reflect the dynamics of the source sector, electronics.

Not only does innovation and competition come from varied corporate strategies, but from multiple geographic directions. There are new competitors and the position of established players has been reshuffled. From one vantage the global era began when in a long list of sectors

[13] Stephen Cohen and John Zysman, *Manufacturing Matters: The Myth of the Post Industrial Economy* (New York: Basic Books, 1987).
[14] William Miller, Professor Emeritus, Stanford University, and Former President SRI. Comments at the BRIE Working Meeting on Globalization, March 8, 1996.

Japanese firms, made dramatic competitive entries into Western, principally American markets. Globalism seen in this fashion is the arrival of the Asian challenge, the pace of Japanese development in its "rapid-growth years" and now the extraordinary rates of Asian growth in the second tier (Korea and Taiwan) and third tier (Thailand and Malaysia amongst others) of development. That growth, as we consider further on, has been accompanied was accompanied by a trade imbalance, an asymmetry in trade and investment; that is the trade flow has been largely out of Asia to final markets in Asia and Europe. *Thus increasingly global marketplaces and enduring national foundations of distinctive economic growth trajectories and corporate strategies are part of the same story.*

The character of the business and policy connections to the increasingly global market place is changing, but the national home base continues to matter. The foundations of national political economy are enduring. The vocabulary of deregulation which suggests withdrawal of government from intimate management of economic activity whether, for example, by reregulation, such as of financial systems, or by privatizing once nationalized firms, blurs the real shift in the goals and mechanisms of state authority in the economy. The political strategies of deregulation have often turned out to be simply tactical deregulation, that is a shift in the purposes of government action. More, perhaps, than any liberalization that removes government from the economic arena, what is changing is who holds power, how they exercise it, and what their purposes are.[15] Critical case analysis of financial systems and technological or innovation systems show that national differences endure, and indeed remain the basis of global competition, rather than be washed away.[16]

Finally, while these national systems endure they are evolving *in a world economy that increasingly has a regional architecture*. Three regional groupings have emerged: North America, Europe, and Asia (consisting principally of Japan, Taiwan, Korea, and the associated countries that are now forming part of the cross national production networks that concern us here). Together the three regional groups constitute 70% of the world economy. The growth of trade and investment has been concentrated in the region of origin, investors within a region have

[15] See Steven K. Vogel, "The Bureaucratic Approach to the Financial Revolution: Japan's Ministry of Finance and Financial System Reform," *Governance: An International Journal of Policy and Administration* 7, no.3 (July 1994); See also, Vogel, *Freer Markets, More Rules: The Paradoxical Politics of Regulatory Reform in the Advanced Industrial Countries* (Ithaca, NY: Cornell University Press, forthcoming).

[16] See for example, Zysman, "National Roots"; and Zysman, "Behind the Myth." Benedicte Callan, *Why Production Technology is not a Measure of Competitiveness in the Biotechnologies,* BRIE Working Paper 86 (Berkeley: BRIE, 1996).

been the principle source of investment within that region. MNC's tend to invest in their home regions; that is, it is more accurate to say that French firms have become European even more than that they have become global. For each region "foreign" or--defined here as extra-regional trade or trade outside the region--makes up only a small part of GDP, less than 10%.[17] Take the example of the United States where foreign trade as a part of the GDP has grown in the last quarter century, but Canada and Mexico are still its first and third largest trade partners respectively.

The three regions have distinct origins, architectures, and dynamics. *North America* is a de facto region defined by American economic weight and politically led by the United States. Though Canada and Mexico are the first and third largest trading partners for the United States, and Mexican migration and financial turmoil create persistent policy problems for the United States, American foreign and foreign economic policy are dominated by its relations with Asia and Europe.[18] In *Europe* economic or market "gravity", the attraction of proximate markets to trade with each other and hence for trade within the region to expand as countries grow, has been amplified by explicit national political choices, and, once created, the institution of the European Economic Community encouraged the radical expansion of trade and later investment among the member countries as a European market emerged. The EEC, relabeled the European Union, of course, emerged as a political solution to a security problem; economic integration was an instrument of that larger goal, integrating Germany into Europe and avoid internecine warfare. While political leadership is often ambiguous, always shared among the major countries and the European Commission, and exercised by coalition and alliance, the European Union has succeeded in that principle security goal. For *Asia*, the expansion of economic ties is best accounted by economic "gravity", that is the economics of proximity, but such notions hide the central Asian story.[19] Asian trade and investment ties have expanded as part of a complex regional production organization in which components and subsystems are shipped within the region but the critical final product markets have been in North America and Europe. As we will see in a moment, that regional "factory", if you will, reflects heterogeneous production

[17] Zysman, "Behind the Myth."
[18] Peter H. Smith, *Talons of the Eagle: Dynamics of U.S.-Latin American Relations* (New York: Oxford University Press, 1996).
[19] Jeffrey A. Frankel, "Is Japan Creating a Yen Block in East Asia and the Pacific?" in *Regionalism and Rivalry,* Jeffrey A. Frankel and Miles Kahler, eds. (Chicago: University of Chicago Press, 1993).

capabilities and diverse national policies, and rival national strategies seem to generate rival production networks. The emergence of these Asian production networks have in fact been driven by and facilitated changes in corporate strategies and the balance of competitive advantage.[20] Weak informal agreements, not really institutions, arrange Asian political and economic relations. The regional dynamics of competition become a significant factor in understanding national policy choices and corporate strategy options. As we proceed in this essay we will propose, through use, a set of concepts aimed at a comparative regional analysis.

In sum, for us, this "global" era is characterized by:

I. *Expanding market interconnections* in the form of investment, financial networks and trade;

II. *A multiplicity of and competition among corporate and national strategies* to capture advantage in shifting markets which involves:

A. *The emergence of new competitors and the reshuffling of the position of established ones.*

B. "*Intelism" not Post-Fordism* as the industrial metaphor for the era

III. *National foundations of distinctive economic growth trajectories and corporate strategies endure*;

IV. *A regional architecture* in which:

A. *Three regional groupings* together constitute 70% of the world economy.

B. *The internal "architecture"* of each region, defined by the political/security arrangements and economic institutions, shapes the choices of the particular countries and firms.

C. Increasingly *distinct regional market dynamics* influence national options and corporate strategies;

Cross-National Production Networks and The Third Tier of Asian Development

The heterogeneity of the Asia region has encouraged production arrangements in the Third Tier of Asian development that we label here "cross national production networks". These networks represent compelling firm options, market dynamics and development possibilities that,

[20] Michael Borrus, "Left For Dead: Asian Production Networks & the Revival of US Electronics," forthcoming in *The China Circle* (San Diego: IGCC, 1996).

so far, have not been evident or exploited in Europe. The addition of Central and Eastern Europe to the "economic space" creates conditions of political and economic heterogeneity that may permit and indeed encourage similar firms strategies and market possibilities. These European possibilities are seen more clearly or perhaps can only be seen at all through an Asian lens.

The Architecture of the Asian Region

The first step is to characterize more fully what we will call "regional architecture". Consider Asia. The Asian region is driven by political and economic rivalry with four tiers of rapidly developing nations following on each other's heels in the post WW II period. The constant political rivalry and tiered development entrench the competitive economy heterogeneity, a diversity of production functions if you will, on which rest the production networks that we consider in a moment.

Lines of Fracture; Webs of Cohesion[21]

The Asian region is characterized at once by lines of political fracture created by security confrontation as well as economic rivalry and webs of economic cohesion spun principally by production interdependencies. The cold war may have ended in Europe, but it is certainly not over in Asia. The security confrontations as well as risk of outright military conflict from miscalculation or strategic calculus are diverse and widespread. They were evident in North Korean nuclear ambitions, the Chinese-Taiwanese stand-off threaded with military threats, and the continuing Russian Japanese tensions over the Kuril Islands which limit the development of commercial relations between those countries.

The webs of economic cohesion are evident both in the rising levels of trade and investment within the region and the complex cross national division of labor represented by the production networks. Certainly those market ties might increase the stakes that each country has in the continuation of peaceful relations. "This vantage looks on the mutual absolute gains from trade. This is the world in which each country will be a winner if only it has the nerve to make the adjustment that competition will compel. The possibilities of these gains will induce

[21] This argument is drawn from John Zysman and Michael Borrus, "Lines of Fracture, Webs of Cohesion," in *Power and Prosperity: The Links between Economics and Security in Asia-Pacific,* Susan Shirk and Christopher P. Ywomey, eds. (New Brunswick: Transaction/Rutgers, forthcoming, 1996).

governments and private firms who reap profits to support expanded trade and avert wasteful, unprofitable, and inconvenient political conflicts."[22]

Yet, alternatively, "political rivalries may be reinforced by market rivalries, or indeed the security tensions certainly contribute to the intensity of the market competitions because relative gains that trade produces can influence the political position of the various governments."[23] Here the shift in position of different countries motivates action. Governments concerned by the growing economic and technological resources of a rival or the risks of dependency--either real or perceived--may become fixated on the possibility of a loss of position and power. " Substantively this involves the efforts by the middle power mid tech countries such as Korea to break loose from their position in the technological hierarchy and move toward higher value added products built on more advanced technology. Korea wants to make both semiconductor logic chips (they already make memory chips) and fighter planes. That is a market imperative to find defensible positions between high tech giants and ambitious low wage rivals. It is also a political imperative to limit dependence for critical military technology on even trade partners and military allies. Asia we should note, is a very dangerous place. The real political and military conflicts in Asia that set nations against each other are likely to intensify the market conflicts.

The region's overall international competitiveness rests on its intense internal competition, a competition and rivalry that is both in the marketplace and in national security politics. Both the pace and content of development is spurred by security risk and political rivalry that reinforce economic competition.

High Speed Growth and The Four Tiers of Development in Asia

The pace of Asian growth, and the exports that have accompanied and facilitated it, have brought the region as a whole from the periphery to the core of the world economy. Indeed it has become conventional to note that this growth has been a defining feature of the world economy in the late 20th century. In 1994 growth rates in every Asian country except Japan exceeded four percent.[24] Even more impressively, several countries in the region--China, South Korea, Malaysia, Singapore, Thailand and Vietnam--experienced real growth of over eight percent. If

[22] Ibid.
[23] Ibid.
[24] For the numbers see *Pacific Economic Cooperation Council Pacific Economic Outlook: 1995-96* (San Francisco: The Asia Foundation, 1995) See especially Table 1, p.63.

projections to the year 2000 (which average seven percent) are correct, Asia's share of world income will soon surpass that of North America. In other words, Asian countries constitute a set of late industrializers that have successfully entered the international trading system--and on terms that so far appear sustainable. This is a level of economic success that other late industrializers do not even begin to match.

There is no single Asian "miracle"; Asian development is certainly not one story. Certainly, there have been multiple pathways from the periphery, to use Stephan Haggard's phrasing, that is a series of nationally specific policy strategies and political arrangements that have supported growth.[25] But as important as the variety of strategies represented at any one moment is the historical sequence. These countries did not develop at the same time, but in an historical sequence. The timing of industrialization, Alexander Gerschenkron contended in considering Europe, set historically specific routes for economic development.[26] In his remarkable argument he proposed that both the international context, defined by security and market competitors, and the domestic tasks, defined by the requirements of leading industries at the moment of development, set in each era in Europe a range of development options. The tasks for government, and the capacities required to undertake those tasks, are defined by that range of options. There is not, in this logic, a universally proper role for the state but rather a need to match the capacities and policies of the state to the tasks posed by specific problems of a particular era. The policy interventions that work in one set of historical or institutional circumstances may fail miserably in a different set of circumstances. Gerschenkron's analysis suggests that the enterprise of the Asian Economic Miracle is inherently flawed. The Asian development experience (that is the several national stories that compose it) does not constitute a single data set of parallel and comparable phenomena. Rather, the Asian development stories must be segmented into four tiers, each tier representing a different range of market options and state tasks. Concretely, the Southeast Asian countries that are booming now do not have the option of embracing a largely autonomous "Japan-style" or "Korea-style" development strategy. Rather, Southeast Asian countries have embraced a "regionalized" development strategy that hinges on joining the cross-national division of labor established by multinational corporations

[25] Haggard, Stephan, *Pathways from the Periphery: The Politics of Growth in the Newly Industrializing Countries* (Ithaca, NY: Cornell University Press, 1990).
[26] Alexander Gerschenkron, *Economic Backwardness in Historical Perspective*, (Cambridge, MA: Belknap Press of Harvard University Press, 1962).

(MNCs) operating in Asia. Moreover, the networks first emerged in electronics as an "Intelist" form of competition unfolded. The latest round of development, the emergence of the third tier, has been facilitated by and entangled with cross-national production networks and has both contributed to and benefited from the Asian region's industrial competitiveness.

Consequently, rather than focusing on "East Asian developers", it is more useful to segment the region's development into four historical tiers, four steps in a sequence. Note that in our analysis it is the third tier that will be the focus.

Asian Tier One , "Early Late Industrialization", is the case of Japan and its 19th century industrialization. Modern Japanese politics is a story of the political creation in relative international isolation of a market system intended to assure continued autonomy.[27] The policies to support the creation of this system not only facilitated industrial development, but also reinforced the indigenous capacity to sustain technical development. Japan entered its industrialization phase in the nineteenth century--later than some countries in the West (such as Great Britain), but very early compared to the rest of Asia. While Japan actively borrowed from the West throughout its development, the Meiji Restoration of 1868 established a set of institutions and policies that were based on domestic innovation, the generation of indigenous technological know-how, and autonomous industrialization.

Asian Tier Two might well be labeled "Cold War Late Industrialization" and consists of Taiwan and Korea. As analysts consider East Asian success stories, it is often tempting to argue that Korea and Taiwan adopted a development strategy similar to that of Japan. And indeed, some similarities are striking. Like post-war Japan, the Korean and Taiwanese governments played an active role in allocating the levels and composition of private sector investment, as well as by granting industry subsidies to the "winners" of domestic contests (as measured by export success). Like post-war Japan, Korean and Taiwanese growth was linked to aggressive export policies in an open international environment. Like post-war Japan, both benefited from U.S. economic and military assistance, as well as easy access to the U.S. market. But differences are also clear. In contrast to Japan, Taiwan and South Korea did not enter the 20th century with a strong industrial base or indigenous technological capabilities; their economic development dates

[27] Richard Samuels, *Rich Nation, Strong Army* (Ithaca: Cornell University Press, 1994).

from the post-war period. Unlike Japan, these countries began the industrialization process with only one major competitive advantage: low wages. Because neither country had strong indigenous capabilities, they achieved export competitiveness through low-wages and on learning rather than indigenous innovation.[28]

As we remarked above, late-industrializers such as Germany, Japan and (to some extent) South Korea were able to follow largely autonomous "catch-up" policies of national development. By autonomous development strategies, we are not trying to distinguish between import substitution and export-based production strategies. Rather, we mean to highlight the particular national strategy of capturing and dominating larger portions of the value-added and technology chain by national producers. This is the strategy of capturing, as the French socialists argued in the 1980s, the entire 'filiere', that is the entire chain of production. The Asian Tier One and Tier Two countries that pursued autonomous development policies, particularly Japan and Korea, simultaneously promoted export industries and established a competitive domestic environment by creating internal "contests" that substituted for pure markets.[29] They sharply limited foreign imports and capital inflows, but at the same time promoted domestic competition and facilitated technological transfer through licensing agreements.

The international and technological circumstances have, however, changed dramatically. Japan and then later both Taiwan and Korea benefited from U.S. economic and military assistance, as well as easy access to the U.S. market. The United States is no longer as willing to tolerate merchandise trade imbalances; nor is the U.S. government flush with foreign assistance as it was during the Cold War. Moreover, the technological requirements for competitive success have changed. For example, in the Cold War years, it was possible to follow a development trajectory that combined second-generation technology, that is "second generation technology" or non-state-of-the-art machinery, with low domestic factor prices and low cost subsidized capital, to be internationally competitive. Korea and Taiwan utilize less than cutting edge technology because the advantage of low labor costs outweighed the disadvantage of less modern machinery. (In some cases such as the steel industry in the post-war years when the

[28] Note that there were important differences in the two countries' trajectories, but those differences are not of concern here. Alice Amsden, *Asia's Next Giant: South Korea and Late Industrialization* (New York: Oxford University Press, 1989).

[29] *The East Asian Miracle: Economic Growth and Public Policy* Published for the World Bank by Oxford University Press, 1993. Also, John Zysman and Eileen Doherty, "Leader or Strategic Follower: What Role for the Japanese State?" *Journal of Japanese Studies* January (1996).

innovators were the Austrians, cutting edge production technology could be purchased.) Today, it is no longer possible to rely on second-generation technology. Most developing countries see the electronics industry as key to their development. The technological learning, economic spillovers, and large export markets associated with electronics have propelled that sector into the center of national development policies all over the world. Yet the industry requires huge initial capital investments. Mistakes in capital allocation can be fatal for a firm. To make matters worse, technology is changing so rapidly in some key competitive industries that capital outlays in one time period may be useless in the next. In such a competitive environment, "go it alone" strategies are at best highly risky and often virtually ensure failure. Moreover, we have argued, the emergence of an "Intelist" focus on components, architectures and standards makes MNCs willing to contract out parts of or in some cases entire production systems.

Asian Tier Three: "Late Late Industrialization: The Regional Strategy of Cross-National Production Networks" The Southeast Asian countries constitute yet a different "third tier" of late-developers. The defining characteristic here is the central role of cross-national production networks. These countries do not have the history of domestic manufacturing that developed indigenously in Japan and that was created through successful learning in South Korea and Taiwan. This lack of historical manufacturing experience renders Southeast Asian countries more dependent on MNCs for their industrial development.[30] They believe that the best national production strategy is insertion into a cross-national division of labor. Japanese, U.S., Taiwanese, Hong Kong, Korean, European and other overseas Chinese multinational corporations establish multiple, partially overlapping or competing cross-border networks.[31]

The Southeast Asian host countries have encouraged MNCs to locate operations within their borders, and by doing so, have inserted themselves into regionally based cross-national production networks. We consider the definitions and character of these networks in a moment. For now, we note that the leadership of these countries in Government and Industry have found that the managerial, technological, financial, and know-how requirements are prohibitively high if the goal is to emerge and compete as market rivals with Japanese, Korean, American or other

[30] See Mitchell Bernard and John Ravenhill, "Beyond Product Cycles and Flying Geese: Regionalization, Hierarchy, and the Industrialization of East Asia," *World Politics* 47, no.2 (January 1995), especially pp. 195-200.
[31] See Dieter Ernst, *Carriers of Regionalization: The East Asian Production Networks of Japanese Electronics Firms,* BRIE Working Paper 73 (Berkeley: BRIE, 1994).

better-established firms. A strategy of "autonomous" learning based on second generation technology and low labor costs, the route followed in South Korea and Taiwan, is difficult for them to envision.[32] With global export markets clogged by the presence of Japan, Korea and Taiwan, and the series of other Southeast Asian countries clambering up the development ladder, a point of market entry for final product is not evident. For Southeast Asian countries dependent on MNCs for sophisticated technology and production know-how, the alternative has been to encourage the development of complementary relationships with these firms. The result is less autonomy for host governments; to a large extent, the decisions of multinational firms (not host country governments) create and transfer technological innovation, marketing linkages and other beneficial spillovers throughout the region.

Low labor costs, expanding regional markets, and political/economic stability initially lured both Japanese and U.S. MNCs into these countries. The Japanese came for the local market and to export to third countries; the Americans came for the local market and to re-export back home.[33] Japanese firms tended to set up overseas affiliates that produced low-end products--with production of more sophisticated, higher value-added products remaining in Japan. U.S. firms (as discussed below) tended to encourage technical specialization and the production of high-end products within the region.

The success of this "regionalized" development strategy depends, ultimately, on the kinds of linkages that are created by local producers with foreign firms. If MNCs merely take advantage of low labor costs, they are unlikely to transfer significant technological capabilities to the host country. The result might be a "maquiladorization" effect of low wage factories and little value-added production--hardly the best route to national industrial development. By contrast, if inter-firm linkages create a trajectory that allows subsidiaries to move up the value-added production chain, the result is more economic dynamism and beneficial spillovers for host countries.

In fact it appears that the integration of local producers into broader production networks has generated advantages both for MNCs and for local firms. The American MNCs, particularly, have discovered the competitive advantage of relying upon local producers, both as efficient

[32] Bernard and Ravenhill, "Beyond Product Cycles."
[33] Ernst, *Carriers*. See also Dennis Encarnation, *Rivals Beyond Trade: America Versus Japan in Global Competition* (Ithaca, Cornell University Press, 1992); Encarnation, "Bringing East Asia into the U.S. Japan Rivalry: The Regional Evolution of American and Japanese Multinationals" in *Japan's Investment in Asia,* Eileen Doherty, ed. (Berkeley: BRIE, 1995).

suppliers and often sources of product and process innovation. Largely in response to the competitive challenge posed by Japanese electronics firms in the 1980s, U.S. electronics firms gradually deepened the technological capacity and autonomy of their Asian affiliates. With this shift of more value-added production from the United States to Asia, regional affiliates began to produce more sophisticated components and complex subsystems. By the early 1990s, U.S. firms had implemented a regional production strategy based on technical specialization within Asia. The result was the creation of an alternative supply base for U.S. firms, hence allowing U.S. firms to avoid dependence on their Japanese competitors for critical components and technology.[34] Even Japan--considered by many analysts to have the most exclusionary overseas production networks (as discussed in the next section)--has begun to consider the strategic value of supporting the emergence of small- and medium-sized enterprises in ASEAN countries.[35]

Asian developing countries, increasingly, perceive their insertion into a cross-national division of labor as their best development option, and have embraced a broad range of policies to make their business environment attractive to multinationals as part of a broader strategy to develop domestic capacity. This means opening domestic markets and easing restrictions in trade and investment laws. Taken together such policies make it more difficult to shape the kinds of investments that enter the country--and to ensure that the investments generate value-added production and technology transfer rather than simply utilize low-cost labor for final assembly. In theory, imposing export ratios or domestic content requirements on MNCs would give governments greater ability to shape industrial formation and to encourage technology transfers. In practice, such policies have not been very successful. The environment among Asian host countries is one of ever-fiercer competition for investments; government restrictions on multinationals run the risk of pushing MNCs to locate elsewhere.[36]The consequence of the cross-

[34] Borrus, "Left for Dead." Note that Borrus defines the "supply base" as the "local capability to supply the components, machinery, materials, and control technologies (e.g. software) and the associated know-how, that producers use to develop and manufacture products."

[35] MITI, with ASEAN leaders, is exploring options to nurture competent host country SMEs that can provide components and lower-value-added production for MNCs operating in that country. According to one influential Japanese policy analyst, this cooperation is aimed at ensuring that SMEs are competitive not only in price but also in quality and delivery so as to be integrated in international specialization. Ippei Yamazawa "Promotion of SMEs for Industrial Upgrading in ASEAN: A Japanese Proposal for Industrial Cooperation," *ASEAN Economic Bulletin* 11, no.1 (July 1994).

[36] This is especially true where subsidiaries are being established in order to re-export to third country markets. Investors who hope to gain a foothold in a large or untapped domestic market may be more willing to accept restrictive host country policies. For example, China has been able to maintain heavy restrictions on FDI precisely because its large domestic market continues to attract overseas investors.

national networks and the host government policies to support them is that MNCs are playing a critical role in the economic development of the region: as MNCs expand their activities in Asia, they are at the center of technology creation and transfer. They are increasingly making production and strategic decisions that not only transcend individual countries but often require the interlinking of country strategies.

This regional division of labor orchestrated by the MNCs in collaboration with indigenous firms has hinged on a distinct pattern of "triangular" regional trade.[37] Asian host countries have relied heavily on Japan for components and technology, and on the United States for markets. This pattern has created enormous deficits: a U.S. trade deficit with the Asian region; and bilateral imbalances between most Asian host countries and Japan. In other words, the trade patterns on which Southeast Asian industrialization rests (at least so far) depends on upstream support from Japanese firms and continued access to the U.S. and, secondarily, European markets. Can this regional logic of "triangular trade" logic, products built with Japanese components and shipped to European and American markets, be sustained or indeed be surpassed? To the extent that Southeast Asian countries are used primarily as export platforms, the deficits associated with triangular trade are likely to create political tensions. Moreover, if Southeast Asia is foremost an export platform, at least some MNCs are likely to place a premium on the region's labor cost advantages rather than the need to transfer greater technological capabilities to local firms. But the region's demand for final product has been expanding dramatically. Certainly, incomes have been rising in second and third tier countries. But the beginnings of real development in China and perhaps India, their integration into the region's economic story adds a scale and dimension that has not been there before. To the extent that MNCs begin targeting more of the production for the local market, they will have greater incentives to conduct more sophisticated activities (such as product customization and R&D) in the region.[38]

Asian Tier Four: From Exports to Endogenous Growth, the Question of China It is likely that the highly populated countries such as China, and perhaps later India, may be able to follow largely

[37] See Stephen S. Cohen and Paolo Guerrieri, "The Variable Geometry of Asian Trade," in *Japan's Investment in Asia,* Eileen Doherty, ed. (Berkeley: BRIE, 1995).
[38] According to a MITI survey, nearly 70 percent of the firms investing in East Asia are now doing so in order to secure and expand the local or regional market. *MITI White Paper on International Trade*, 1994, p.234.

autonomous, or more autonomous, development strategies. They may be able to define a distinct route, establish a fourth tier, of their own that is a blend of regional divisions of labor and domestic autonomous development. This has several consequences. First, the sense of cross-national networks as part of an inevitable globalization that limits national authority will wane. Rather the networks will become clearly what they in fact are, part of a broader regional development story. Second, of course, the participation of China and other populous Asian countries, adds dimension to the phenomena. It provides both a regional source of final product demand reducing dependence on the availability of European and American markets. It also adds an enormous set of producers and potential producers to the pool of network participants.

Foreign Direction Investment and Cross-National Production Networks

Cross-national production networks are the threads that have woven webs of cohesion through this region that has otherwise been divided by political fractures and often military confrontations. The Four Tiers of Asian development, each with its own particular market and security context, have created a diverse pool of production possibilities, shall we say a heterogeneous set of production functions. These networks constitute a clever division of labor amongst these production elements or possibilities by the MNCs and the Production Service Companies (PSC) that have emerged to contract production to the MNCs.

Cross-National Production Networks, as Dieter Ernst has written, are relationships among firms that organize, across national borders, research and development activities, procurement, distribution, production definition and design, manufacturing and support services in a given industry.[39] What principally interests us are the emergence of intricate divisions of labor that become possible when quite heterogeneous mixes of technology capacity and wage costs are woven together. More is at issue than simply lower labor costs that permit particular components to be built or assembly processes to be conducted at an off-shore production location. Trade and investment, then, link together very diverse production functions represented by Japan and Malaysia, for example, to create complementary production arrangements, which neither country would be capable of maintaining independently. Consequently, both may be advantaged; and indeed production within the Asian region may be advantaged against producers in other regions.

[39] This definition can be found in Dieter Ernst "Mobilizing the Region's Capabilities? The East Asia Production Networks of Japanese Electronics Firms" in *Japan's Investment in Asia,* Eileen Doherty, ed. (Berkeley: BRIE, 1995).

It is the regional division of labor in Asia that has recently begun to alter thinking about development policies and corporate strategies.

What is distinct about this set of "new" Asian production networks? Cross-national production networks are organized for dramatically different purposes and in a variety of ways. To clarify our concerns, we must first distinguish these arrangements by the purposes for which they are established. There are at least four such purposes.

1. *First*, multinational corporations may invest in a particular country *to gain access to natural resources*. Multinational firms from the United States and Japan historically invested heavily in East Asia to obtain access to resources such as oil (Indonesia), iron ore (India, Malaysia and the Philippines), copper ore (Malaysia and the Philippines) and natural gas (Brunei). On the surface, such investments seem positive for the host country. These projects expand trade relations, since in the course of these projects natural resources are necessarily shipped back to the home country. They may even may promote infrastructure development in the host country. However, from our point of view, these relationships are of limited value since they rarely result in the transfer of advanced technology or know-how necessary to develop the host country's manufacturing base.

2. *Second, to obtain access to a new local market*, a corporation may decide to expand overseas in order to circumvent host country barriers to trade. In the 1960s, US firms invested in Philippines and India in order to supply the two countries' heavily protected local markets. This type of investment generally substitutes for trade.

3. *Third, to take advantage of lower factor prices*, typically lower labor costs, a corporation may choose to invest overseas. Products can be manufactured first in the host country at a lower cost, then later re-exported to the home country (a pattern historically typical of US multinationals in Asia) or for export to third country markets (a pattern historically typical of both US and Japanese multinationals in Asia). This type of investment serves to expand trade. On the other hand, to the extent that MNCs invest because of low labor costs, there may be little transfer technology to the host country.

4. *Fourth, cross-border firm relationships may evolve to take advantage of a more intricate division of labor*. Certain MNCs have expanded their activities to include more technically sophisticated activities--including research and development activities, production definition and design. In practice, the linkages created by MNCs need not be exclusively

manufacturing linkages, but can include activities throughout the entire production chain which may in fact result in the desired transfer of skills and technology from the home to the host country.

To truly locate our concerns much more carefully, we need to consider this category of cross border production relations much more carefully. Such firm relationships to create a more intricate division of labor seem to take two forms. *First*, or Four A, one division of labor will aim at creating economies of scale, hence grouping particular component or assembly activities. This first division of labor may result from the integration of a set of relatively homogenous economies. When a region such as Europe began to generate a single market or when the United States and Canada reduced auto barriers, firms sought to capture newly possible economies of scale. The second division of labor, Four B, the one we are interested in, may result from the linkages among diverse and heterogeneous economies. This East Asian story is one in which the *regional*, that is *cross-national dynamic* of economic development, built complex divisions of labor, possible in that very heterogeneous region. In the Asian case the market demand was largely external to the region, while production activities aimed at those American and European markets became increasingly complex as Japan was joined by the subsequent tiers of producers. This fourth category of cross-national investment, then, divides between divisions of labor among homogenous regional economies aimed principally at economies of scale and divisions of labor in heterogeneous regional economies.

It is this fourth category, of fine divisions of labor among heterogeneous countries, that interest us here. Post war development and politics in Europe has driven toward regional homogeneity, of course this is an economic direction not an end-point, while Asian development entrenched heterogeneity. Or at least that was the story until Western Europe abruptly regained its past. That European past consists of a set of countries that are dramatically less developed than the core of Europe and which must now reorient and restructure their production. The "third tier" Asian development, characterized by the explosion of these cross-national networks, has considerable implications for those Central European countries that cannot plausibly imagine entirely autonomous development strategies but must find their place in a new production relation to Western Europe.

To finally locate our notion of cross-national production relations, this sub-category of cross-national relations among firms from heterogeneous production locations requires, itself, an

examination. The sub-categories we propose here are a sequence, that is they emerged in an order for good and clear reasons. Empirically these phases overlap, not only in particular countries, but in the experience of particular MNCs that are at least initially at the core of the process. That is each step requires capacities on the part of the MNCs and the country hosts as well as endogenous firms that are created at least in part in the prior step.[40]

Form One: Outward processing and Branch Production. In this first phase firms established production for two reasons. With outward processing firms established production units or contracted with production units for narrowly defined activities that required extensive low cost labor. Branch plants were established to jump walls of protection to gain access to local markets. The local learning and associated investment possibilities depend heavily on the particular functions assigned to local producers. There is no, or at least little, local innovation or entrepreneurship.

Form Two: Contract Manufacturing. Firms are created by local or regional entrepreneurs to perform a range of tasks and produce a range of components or sub-systems defined by MNC final product producers. These firms are continuously striving to extend the range of production and to integrate forward and backward from specific assigned points in the production chain.

Form Three: Cross-national Production Networks: These networks involve the reweaving of the varied individual activities into entire production systems. Those networks have largely been organized by MNCs. Increasingly the MNCs contract with Manufacturing Service Organizations such as Solectron, who provide key in hand production systems. For example, Hewlett-Packard's personal computer business is increasingly provided through arrangements with these service providers.

While the form almost certainly evolved sequentially, it is awkward to refer to them as stages. The emergence of the more elaborate arrangements do not replace the earlier ones. In some industries (most notably garments, footwear, furniture, toys, home appliances, and electronics) it has become accepted practice for "brand name" companies to depend on outside suppliers for large shares, if not all, of their manufacturing requirements. US brand name apparel and footwear companies, for example, have been utilizing a disaggregated industry structure to create non-equity-based production networks on a world scale since the 1970s. In the electronics

[40] This discussion is drawn from the work of and discussions with Tim Sturgeon, a research associate at BRIE completing his dissertation in Geography. Tim Sturgeon, "The Rise of the Global Locality: Turnkey Production Networks in Electronics Manufacturing" (University of California at Berkeley, 1996).

industry, however, industry disaggregation and production outsourcing did not begin in earnest until the mid-1980s, a trend that has increased dramatically as the 1990s have progressed. It is the emergence of these contract production and cross-national arrangements in consumer durable sectors such as electronics and automobiles that gives that makes the phenomena so significant and so interesting. Instead of essentially labor intensive low or middle skill products in a mature or at least declining sector, we are talking about production arrangements in the core elements of the industrial economy - consumer durables - and in the most rapidly expanding set of sectors, electronics. More than ever before, US electronics firms are using independent suppliers to perform specialized production functions normally carried out "in-house" by wholly-owned facilities. To the extent that such suppliers have emerged in a wide range of localities, are highly capable, and have developed an open, "merchant" character, an infrastructure for the implementation of global production strategies *without* FDI has been put in place.

These several forms depicted above co-exist, representing different corporate production strategies. The question, not addressed here, is which types of firms adopt which form for which purpose. [41] In any case these final two categories, contract manufacturing and cross-national production networks, are expanding rapidly throughout the world, but particularly in Asia and particularly in electronics. [42] Some estimates suggest that they now represent 10-20% of total product-level electronics manufacturing, (up from less than 5% in 1982) and 40-50% of highly volatile electronics industry segments, such as PCs and modems. Firms that provide global scale manufacturing services such as SCI Systems and Solectron now produce on the scale of the MNCs themselves and are growing extraordinarily quickly. For example, in 1986 Solectron generated $60M in revenues and had all of its production capacity in Silicon Valley. By 1995, the company had grown to more than $2B in revenues and had plants in North Carolina, Washington State, Texas, Malaysia, Scotland, France, and Germany. Between 1992 and 1995 the company grew at an annual rate of 73%! Solectron, like other large contract manufacturers, has supported its recent expansion (of both its sales and its capacity) by purchasing its customers' facilities. Companies such as IBM, Hewlett-Packard, and Apple have disposed of production facilities to these "contract" manufacturers, choosing to buy back from them product on a contract basis. IBM gave nearly $800 million in business to Solectron and SCI alone in 1994. HP

[41] Sturgeon does some of this in his dissertation. See also John Stopford, "Building Regional Networks: Japanese Investments in Asia," London Business School, May 1966, unpublished.
[42] Ibid. The material in this paragraph has been prepared with Sturgeon and is based on his dissertation research.

increased its business with SCI from less than $200M in 1993, to $436M in 1994, to more than $1B in 1995. In 1994, 50% of HP's 20 million circuit boards and 11% of its 4.5 million final products were being assembled by contract manufacturers. Or consider Apple which reportedly gave 50% of its production to contract manufacturers last year. As Kwok Lau, Apple's Director of operations put it, Apple is moving to a "variable cost position" vis-à-vis its manufacturing operations.[43] This means more of the company's manufacturing assets will be held by outside companies. Instead of using fixed assets, namely production facilities owned and operated by Apple, to manufacture computers and peripherals bearing the Apple nameplate, the company will be using the assets of specialized outside suppliers, such as SCI. This arrangement allows Apple to change the volume of its production, upward or downward, on very short notice and with less cost. As recent events at Apple proved, inability to meet demand can prove just as devastating in a fast-moving marketplace such as PCs as being stuck with excess capacity. These moves both provide flexibility to rapidly respond to market changes and conserves capital. According to Gilbert Amelio, Apple's new CEO, the company's strategy was to outsourcing production to companies such as SCI in order to reduce some of Apple's manufacturing overhead and inventory carrying costs while positioning Apple to concentrate more intensively on marketing and design. The trend is powerful. Some companies had no internal manufacturing at the board level in 1994. Examples include: Dell (PCs), Telebit (modems), Cisco Systems (networking), Diebold (automatic teller machines), Digital Microwave Corporation, Hal Computer Systems, LAM Research, Octel Communications Corp., Silicon Graphics, Xyplex. In sum, these moves allow firms to concentrate on design and marketing while conserving capital and gaining production flexibility.

But, the reader may properly ask, have we not heard this story before? What is distinct about these phenomena. Are not Italian industrial districts that have represented flexible specialization or Japanese vertical Keiretsu that have underpinned a revolution in flexible volume production simply a different version of the network story? The world wide production arrangements of auto companies, whether organized in the World Car version with responsibilities spread across the globe or in the global version of regionally based supply

[43] *Electronics Buyers News* (1996).

systems, are, they correctly might add, evidence of different forms of the global reach of MNCs.[44]

Several comments are necessary to distinguish our story from others. First, the Italian industrial districts are represented as horizontal linkages among roughly equivalent firms operating under equivalent legal and market conditions with roughly equivalent technical skills that continuously swap roles, from suppliers to final designers. These cross-national production networks involve linking heterogeneous nationally distinct producers, indeed nationally separate production districts. Indeed, it is precisely the variety of production circumstances that provides the network its flexibility. Particular producers or districts must absorb technology and skills to alter in any meaningful way their position in the chain of value. Second, there is a closer analogy to vertical chains that exist in places as diverse as Japan and Italy, particularly in the auto sector. Here the lower tier producers operate under legally or organizationally distinct rules that create a distinct production environment. A final assembler, such as Toyota, can off-load risk and capital costs onto its "subordinates" in the chain. But the range of cost and skill packages available within a particular country, even in Japan, is restricted by labor market and exchange rate conditions. Third, the bulk of contract manufacturers and manufacturing service companies have emerged within Asia.[45] Not only is this a matter of the entrenched heterogeneity of the region, creating the possibilities for the fine division of labor, but also the characteristics of the electronics industry and the emergence of "Intelism" which is the instrument of Third Tier Asian Development. As argued, this relocation of the value added facilitates if not actively encourages these new production arrangements.

Production Networks in Asia

The Significance of the New Networks

Asia is increasingly characterized by multiple, partially overlapping, partially competing cross-border networks established by Japanese, U.S., Taiwanese, Hong Kong, Korean, European and other overseas Chinese multinational corporations. Investment began with American, Japanese, and (to a lesser extent) European firms, but they have been joined since the late 1980s by companies from South Korea, Taiwan, Hong Kong, Singapore, and even Southeast Asian

[44] Winifried Ruigrok and Rob Van Tulder, *The Logic of International Restructuring* (New York: Routledge, 1995).
[45] Sturgeon, "Rise of Global Locality."

countries investing in each other. The quantity of the networks suggests their significance to the region's devilment; their diversity suggests that the particular form of the networks may have considerable significance for the host country.

To assess the significance of these networks for the countries in the region, consider Malaysia. By the end of the 1980s, wholly- or majority-owned MNCs made up 99 percent of the country's electronics exports, 75 percent of textile and apparel exports, over 80 percent of rubber products and more than 90 percent of machinery and electrical appliances.[46] Singapore's economy is similarly dependent on the activities of multinationals. Given the dominant role that MNCs have in Southeast Asian industrial production, host countries must also rely on foreign technology transfers (rather than domestic R&D, for example) in order to sustain economic development.

Diversity in Networks and Linkages

The cross-national networks in Asia vary significantly. Some of the variations reflect the home base of the MNCs that stand at the core of the networks. This suggests, accurately or not is open to debate, that though the networks are cross-national they in fact are part of nationally based market competition. Market rivalries are evident among networks organized differently and rooted in different national home environments. That is, the competition of the networks can be viewed as a form of extended national competition. A second consequence is that because variations in cross-border networks reflect different organizational strategies, and therefore, different kinds of trans-border linkages and technology transfer to host countries, the variations in the types of investments have provided Asian host countries with diverse opportunities for technology transfer and industrial upgrading.

The proposition that the variation in the network structure is systematically accounted for by the national origins of the core multinationals is, then, quite critical. The weight of the evidence, we conclude, is that variations are rooted in unchanging or only slowly changing national features; consequently evolution of the several international production systems will be on separate nationally distinct trajectories. We must ask ourselves: first, why should such national variation appear; and, second, will the national variation endure? *First*, the

[46] Data are from the *Bank Negara Malaysia Quarterly Bulletin* 6 (March-June 1991); and *World Bank Tables 1991* (Washington DC: World Bank, 1991).

organizational and production strategies of the cross-national production networks generally appear to reflect the home country corporate structures, systems of corporate governance to phrase that differently, and the domestic incentives of the MNCs at the core. That is the network strategy, how to organize and how to use the capacities of the various actors be they subsidiaries or independent companies, is rooted in the structure of the national political economy. Most alternate explanations are not convincing. *Second*, Ernst and others show clearly that the central competitive problems within industries or within industry segment influence what a firm must control in the network to be successful and consequently what effective organizational structures must do. The consequence is that optimal management of international production networks should vary across sectors and, of course, over time as the competitive problems shift. Significantly, the several national economies are rooted in different industrial bases and even when superficially in similar sectors are usually in different industry segments. Thus the fact that the American strength has been in computing and the Japanese strength in consumer electronics influences the type of networks. These basic industrial foundations do not shift quickly and are thus likely to continue over long periods to contribute to national differences in network management. that different foundations of competitive market advantage shift.

We must note that the interplay among these differences in organizational approach, industrial base, and firm market position have had significance for the competitive rivalries we see in Asia. Let us propose that the decisive Japanese competitive advantage in consumer durables rested at its core in the revolution of flexible volume and lean production. The key is the orchestration of the production process. That could be done in Japan through the vertical Keiretsu that involve semi-market relations that maintained initiative in the local nodes or supplier firms. That capacity for orchestration had to be maintained abroad; and, correctly or not, led to tighter control abroad than may have existed in Japan. In the American case, we propose by contrast, the vertical structure is created by domination of product definition, of the product creation process, embodied either in product design or intellectual property. Precisely because the Americans were weaker in production than their Japanese competitors and in fact competing on product definition, they have been open to outside participation and innovation in the production subsystems, non-critical components, and assembly of the final product systems.

Third, to return to our core narrative here, the basis of this diversity in the linkages does not appear to result from differences in the host country's industrial base or political strategy.

The links that are forged between host countries and foreign investors are not, as some interpretations of classical liberal economic theory would suggest, merely a reflection of the host country's comparative advantage. If it were, we would expect to see MNCs of various nationalities behaving in similar ways in a given host country. This has not been the case in Asia, and in our view almost nowhere. Nor are the international production networks a reflection of political decisions taken in Asian host countries. In a context of economic liberalization host country governments have not had much success in controlling the kinds of investments--hence the kinds of firm linkages--that have been established within their borders. The expansion of FDI in Asia has been facilitated, for example, by shifts in Asian government policies toward greater liberalization during the past ten years or so. *Fourth*, as MNCs move from home country bases to overseas locations, some organizational, managerial and production evolution does occur. The differences in the MNCs have diminished, but there remain critical differences in the organizational form of cross-national production networks. But the core difference in national patterns are not in our view based simply on the "stage" of internationalization, multinationalization, or globalization of the country or the companies**.** In sum, the evidence suggests to us that even after other factors are considered, these differences generally reflect home country governance structures, corporate structures, and domestic incentives.[47] *Fifth*, and finally, there is firm variation within each national set of networks. This has not undermined the sense of national types, but the variation is considerable. Some of that is explained systematically by industry segment or market conditions faced by the core firms, but some does seem to rest on distinct firm specific features.

Two broad dimensions structure the comparison of the national variations in the networks in the electronics industry in Asia.

Horizontal versus vertical networks. Are firm relationships structured among networks of peers who cooperate to forge long-term relationships? Or are they networks in which one principal firm dominates tiers of suppliers who in turn dominate their own suppliers?[48]

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[47] See Dieter Ernst, "Globalization, Convergence and Diversity: The Asian Production Networks of Japanese Electronics Firms" BRIE, June 1996, unpublished. Dennis Encarnation.

[48] See, for example, Masahiko Aoki, *Information, Incentives and Bargaining in the Japanese Economy* (New York: Cambridge University Press, 1988). It is easy to confuse vocabulary. Aoki would call the Japanese arrangement a "horizontal hierarchy" better able to process information than the more typical American business arrangements he would label as "decentralized hierarchy" The horizontal networks of peers represent a distinctly different arrangement.

Open versus closed networks. Are networks are easily penetrable by outsiders, with shifting transactions based on exchange relations? Or are networks generally closed to outsiders, based on tight, not-easily-penetrable long-term relationships rather than exchange relationships?

The function of the typology is to highlight the issues of significance, not to locate precisely the several national networks. We suggest a stylized representation of the several nationally based networks that is based on the differences suggested by the vertical/horizontal and open/closed distinctions. The countries are located in the typology based both on our own interview and case study efforts and secondary literature. The position in the typology points to two inter-linked issues. One is the *function* assigned to the network "participants". The second, which turns in part on the function assigned, is the *transfer and learning* possible for the local firms and the host country.

Let us then first present the typology and then justify the location of the several countries in it. The evidence for both the typology and the particular national positions is based on both empirical work at the firm level conducted at BRIE and on a set of secondary studies.

Table I
Varieties of Asian Production Networks

	Vertically-Integrated	**Horizontally-Integrated**
Open	U.S. networks	Taiwanese networks
Closed	Japanese/Korean networks	Overseas Chinese networks

Vertical, Closed Networks: Japanese and Korean Networks:

Japanese overseas subsidiaries traditionally have been hierarchically organized to ensure that Tokyo retains the lion's share of decision-making authority and technological capability. This hierarchical organization has resulted in tight control over foreign affiliates as well as the creation of fairly "closed" production arrangements that have tended to exclude business ties with non-affiliated local and foreign suppliers.[49] In production terms, the model had assembly

[49] See Ernst. "Globalization, Convergence and Diversity"; Mitchell W. Sedgwick "Does Japanese Management Travel in Asia?: Managerial Technology Transfer and Japanese Multinationals," Conference Paper for "Does Ownership Matter?: Japanese Multinationals in Asia" September 20-21, 1995. MIT-Japan Program, Massachusetts Institute of Technology.

and low-end manufacturing being done in Asia, with higher-value added final production remaining in Japan. Japanese affiliates in Asia sourced sophisticated components from Japan-based subcontractors, often within their Keiretsu family. The tight, vertically-integrated networks of Japanese firms are less likely than those of other countries to transfer technology to the host country. However, subsidiaries of Japanese firms are more likely to gain access to the Japanese market. According to our typology, then, Japanese networks tend to be vertically integrated and closed.

Like Japan, Korean networks are vertically integrated and closed. Korea's FDI activities, which have averaged a 72 percent annual growth rate during the period 1986-90, are organized in a manner that reflects the bias toward firm size in its domestic industrial base. Like Japanese firms, Korean MNCs have invested overseas to take advantage of lower prices. Their overseas affiliates have focused on assembly of final products, rather than higher value added production. This division of labor creates difficulties for Japanese MNCs attempting to meet local market demands and to do effective product customization. But unlike Japanese firms, Korean firms have attempted to resolve this problem with ever-greater diversification.

Vertical, Open Networks: U.S. Networks:

U.S. firms have organized their overseas affiliates differently than Japanese or Korean MNCs. U.S. firms have transferred more management authority and more value-added production to their Asian affiliates than Japanese firms. This has created a complex regional division of labor by which largely autonomous affiliates engage in sophisticated manufacturing activities. As U.S. firms shifted more value-added production from the United States to Asia, regional affiliates began to produce more sophisticated components and complex subsystems. By the early 1990s, U.S. firms had implemented a regional production strategy based on technical specialization within Asia. The result was the creation of an alternative "supply base" for U.S. firms, hence allowing U.S. firms to avoid dependence on their Japanese competitors for critical components and technology.[50]

The greater autonomy and technological skill of Asian affiliates has made the U.S. production model faster and more flexible than Japan's model. As noted in the previous section, during the 1990s this flexibility has been the key to competitive preeminence in the U.S.-Japan

[50] Borrus, "Left for Dead."

electronics rivalry. U.S. firms have focused their resources on product development, systems integration, and software (areas that have allowed U.S. firms to define de facto standards and maintain market leadership). At the same time, their Asian affiliates specialize in manufacturing components and final products, which not only creates low-cost, efficient production, but has also created new Asian competitors to Japanese firms in such areas as semiconductor, displays, and consumer electronics. According to our typology, U.S. networks are vertical and open.

Horizontal, Open Networks: Taiwanese Networks:

As opposed to the hierarchical structure of Japanese and Korean firms, and as discussed in the previous section, Taiwanese firms have flexible firm networks. The firms in the networks are largely entrepreneurial firms specializing in one or two product lines. Supplier relationships are not vertically integrated, but rather consist of complicated, shifting relationships among firms. The focus of these networks on speed-to-market considerations necessitates multiple, short-term linkages based on exchange relationships and "temporary spider web" arrangements that endure only for the duration of a given contract.[51] In stylized terms, Taiwanese networks are horizontal and open.

Horizontal, Closed Networks: "Overseas Chinese" Networks:

Ethnic Chinese-owned businesses in Taiwan, Hong Kong, Singapore and other Southeast Asian countries have created firm networks that are based on personal relationships rather than arms-length transactions. These networks have been particularly effective in conducting business in China, where cultural and linguistic affinities give them an advantage. For example, the emphasis of overseas-Chinese networks on personal relationships (guanxi) has been an effective means of dealing with imperfections in China's legal system that would otherwise make contract enforcement difficult. While it is impossible to measure "overseas Chinese investment" in Asia, there is mounting evidence that the formal and informal economic relationships among China, Taiwan and Hong Kong continue to deepen. These networks are horizontal, and closed (although the network boundaries may shift as personal relationships expand.

[51] Dieter Ernst, *New Opportunities and Challenges for Taiwan's Electronics Industry: The Role of International Cooperation.* BRIE Working Paper No. 78. (Berkeley: BRIE, July 1995) p.3.

Two comments are required. First, note that we have not, by intention, included the Europeans here. They do not appear to be a significant player in our story. Ernst reports that while the leading American and Asian firms compete for the use of the region's resources, the Europeans have somewhat belatedly, defined Asia (exclusive of Japan) as a primary investment priority. And so far there is a huge gap between this declaration of intent and reality.[52] Sturgeon in a separate project at BRIE has found similar results, though European networks emerged slowly, there has been a recent surge in such the use of contract cross-national production networks. The European networks that have emerged reflect political imperatives of jumping over trade restrictions and have the form of American companies of two decades ago. That is the local producers provide a capacity to expand production to during peak periods. The full-blown version in which contract producers in essence substitute for in-house core production has appeared only slowly.

Second, these networks are not fixed and rigid, but are in each case evolving over time with changes in the competitive problem. Consider the Japanese case.[53] When in the era of import substitution, the Japanese were leaping trade barriers, the network management was often loose and decentralized. When shifts toward export oriented national strategies in Asia combined with pressures on Japanese firms to contain costs, the more centrally controlled export oriented networks characterized above began to be developed. Now, in a third phase, tensions between competing objectives have emerged, straining organizational strategy. Asia becomes a critical expanding market which makes adaptation to local markets essential, but ever greater cost pressures for exports throughout the region make central control all the more critical. At the same time just as smaller Japanese suppliers which have maintained tight central internal control over their operations have moved abroad following principal clients, emerging capacities in Asia make local nodes more competitive supply sources. The result is optimal strategies and management of product development and procurement are ever less evident. Consequently, we are likely to see greater variety in Japanese firm strategies. .

[52] Ernst, in a presentation of ongoing work, suggests that strategic, organizational and recruiting problems have slowed their ability to exploit either markets or production opportunities. Even companies like Philips and Siemens which have had a long history of investing in this region still seriously underexploit the opportunities there. The situation is clearly worse for medium-sized companies, let alone smaller specialized suppliers.

[53] Ernst, "Globalization." Dennis Tachiki, "Japanese Foreign Direct Investments and Production Strategies in the Pacific Region" in Japanese Investment in Asia, Eileen Doherty, ed. (Berkeley: BRIE, 1995).

What the firms in the networks do, that what the functions assigned to the several nodes of the network are, we believe, reflected in the network architecture issues. The critical feature is, arguably, how open the networks are to outsider firms, whether or not the organizing central company excludes firms it does not control. The question may be better put, open to what kind of outsiders? Are firms from other " business groups" allowed in, firms from other countries, or firms of other nationalities? The significance of the Chinese business community in Asia, of course, raises this latter issue as a political question in many Asian countries. Open networks encourage firms at the nodes to be innovative and entrepreneurial since they permit them to build independent market positions. Critically the independent firms seek to extend the range of their activities up and down the stream from their initial offering. Investment and learning can, in turn, drive local development through the accumulation of skills and know-how, and an expanded position within the chain of activities. Opportunities and learning by the local firms that first enter these arrangements create markets and learning opportunities for other related host country companies.

Some of the architectural conditions that evoked network production in Asia are suddenly present in Europe. Hence we ask next whether this optic of cross national production networks provide clues and insights into development in the European Region. Is this network story significant only for Asian Third Tier development and hence simply one regional story to be compared to the others?

Cross National Production Networks and The Reorganization of The European Region

The political-economic architecture of Europe changed with the dissolution of the Soviet Union and the end of the cold war. We speculate here that the experience of Asia provides clues about one dynamic in the transition of Central and Eastern Europe and the reintegration of the European Economy. As different as they are on many dimensions, the Central and East European countries find themselves in a position analogous to that of the countries constituting the "Third Tier" of Asian development. They are small and middle sized countries who will not be able to pursue autonomous national development strategies, but rather will need to insert themselves into a regional division of labor. Consequently we suggest that our analysis of cross national production networks in Asia suggests that one of the determinants of the future trajectory of

these former Communist countries is where their firms become inserted, not only into the regional division of labor, but into cross national production networks.

The analysis is, quite evidently, speculative. Our task is to provide an analytic lens through which to view the integration and transition and to demonstrate the materials from which cross-national networks might emerge.

Developments in Asia

We approach this in two ways. First, we consider how the changing European regional architecture creates the heterogeneity that seems necessary for the fine division of labor critical in the cross-national production networks. Significantly, the new European heterogeneity introduces a new political tension, prying apart the consonance of security and economic purposes that has characterized Post-War Western Europe. Cross-national networks may represent not only an economic development, but a reconciliation of that new tension between previously complementary objectives. Second, we provide a vantage on the transition economies that allows us to consider the role of these networks. That vantage hinges on the notion of the Regional Framework of Incentives and Constraints.

The Changing European Regional Architectures and Political Bargains[54]

The Post-war Architecture of Western Europe rested on a European bargain that is well understood and often vividly depicted. A set of once great powers and recent enemies found themselves between two new superpowers. They used an economic instrument, the European Community and its Common Market, as a device to accomplish a security purpose. The security purpose is flippantly but accurately summarized in the phrase "keep the Germans down (that is inside but controlled within the Western community), the Russians out, and the Americans in".[55]

The institutional "house" that accomplished these purposes consisted centrally of NATO and the EC.

The economic and political objectives were complementary; better still they reinforced each other. If an economic instrument served a security objective, the security purpose, the

[54] This section is based on an article in progress Steven Weber and John Zysman, Europe's Changing Political Architecture: The Shifting Relation of Economy and Security

[55] Wolfram F. Han reider, *Germany, America, Europe: Forty Years of German Policy* (New Haven: Yale University Press, 1989).

necessity of anchoring Germany in Europe, served to build Christian Democratic led coalitions in the critical countries--Germany, France, Italy, and Belgium--of the European Community. The fact of the Common Market and the coalitions in support of it were part of the politics of growth, the creation of growth oriented political coalitions throughout Europe. Europe, particularly since it was under the American nuclear and military umbrella with the dollar acting as economic anchor, did not have to pay an enduring economic price to achieve its security goals. Rather, pursuing one goal, security, helped achieve the other, economy, and conversely the new objectives and institutions of the economy were instruments for security policy.

The creation of the Common Market facilitated an expansion of intra-European trade and symbolized the linking of national markets; while the Single Market Act facilitated an expansion of intra-European investment as well as trade and symbolized a commitment to a sufficient convergence of domestic rule and to an arrangement in which national structures did not in themselves constitute obstacles to trade and investment. Certainly, national frameworks of incentive and constraint remain; and national differences in production profile that result at least in part from those national market differences are likely to endure. Nonetheless, the definition of common social policies, environmental policies, let alone rules of competition and state aid all aim at muting the range of elements in competition. The fine division of labor suggested by quite diverse national locations representing varied production functions has not been at the core of the European story. The resolution of the security problem within Western Europe has likewise meant, in stark contrast with Asia, that competitions for position in military and aerospace industries are largely about jobs and technological position, not about weapons that might, in an imaginable security crisis scenario, be used in a confrontation with each other. Put differently, the several steps of the European construction served to create an ever more homogeneous economic space, one that sought to compress the range of national differences along a range of dimensions. Jean Pisani Ferry puts it well. "The underlying philosophy is that over the medium term all EU countries will eventually converge towards the same degree of integration and the same development level, and that they will implement the same policies. The standard Community solution to the problems raised by the existence of disparities among member states

is to accommodate them through temporary derogations and to aim at reducing them through budgetary transfers."[56]

The result of this drive toward a homogeneous single economic space has meant that firms could pursue the scale economies captured in that larger single market and later the consolidation of a large number of national players into a more limited number of groups. Fredrique Sachwald puts it well when she writes that: "The rationale (of the Single Market) was to provide European firms with a unified market so that they would be able to exploit large potential economies of scale."[57] Hence at least through the creation of the Single Market the character of the European production regroupings and the motivations of the policy makers driving for institutional reorganization is quite different from the Asian case. In the Asian case, as we have just seen, the distinctive feature has been creating connections among heterogeneous national production sites.

The Post Cold War Architecture of Europe, the new architecture, is being constructed. But the external threats against which it would protect are ambiguous and the domestic strategies for growth that it might facilitate are unclear. It will for some time be unclear, for the Russian election does not settle the issue, whether the change involves removing the security threat of Russia with a Europe that sweeps to the Urals or rather simply moving the tank defense line to the Eastern border of Poland with Central Europe's admission to Western Security arrangements. In one case Central Europe will be a bridge to the East, in a second case it will become a buffer zone between East and West, while in the third case the border between East and West will simply have shifted to the Eastern side of Eastern Europe.[58] In any case there is an ambiguous range of threats running from migration through environmental disaster. It is certainly not automatically evident that sustained growth will provide political stability and limited migration or the surplus to invest in environmental protections. However, the failure to achieve growth will certainly aggravate all the security problems that Europe confronts.

As important for our purposes, European security strategies now have a visible economic cost. The complementarity of security and economic means and objectives is ended. Indeed, the

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[56] Jean Pisani Ferry, "Variable Geometry in Europe," Paper presented at the Conference "Reshaping the Transatlantic Partnership: An Agenda for the Next Ten Years" at the College of Europe, Bruges, March 20-22, 1996.

[57] Fredriqie Sachwald, *European Integration and Competitiveness: Acquisitions and Alliances in Industry* (Brookfield, VT: Edward Elgar Aldershot, 1994).

[58] Our thanks to Manuel Castells, whose insightful comments have influenced our thinking.

rush to Maastricht, or the particular Maastricht Treaty, was almost certainly the effort to anchor a now unified Germany to the Western Alliance. The decisions to move to the EMU and to rapid expansion of the Union to the East have likewise been given a powerful new impetus by purely security concerns with economic consequences seen as the price for those security objectives. The Maastricht Treaty opened a new phase in the ongoing debate about the political governance of Europe, about the balance of political and economic power, and the place of national identities in a European community. Nonetheless, one difficulty in achieving broad popular political agreement on that Treaty, or a clear and sustained inter-governmental commitment to its varied purposes, is precisely because there are now economic prices to pay for security objectives. Consider the German case where unification will prove enormously expensive. Perhaps a trillion dollars will have been spent in the Eastern *Lander* during a decade after the fall of the Berlin Wall, but even that will not have solved the task of assuring self-sustaining competitive companies rooted in the East or the integration of the two German communities.

Certainly Europe's objectives toward the East will be more modest than Germany's toward its integration and hence less costly. There is no need to create a single social community, institutional arrangements and rules can remain distinct, and exchange rates affected by political arrangements will not immediately drive wages to German levels. Nonetheless the price of securing Central Europe will be very substantial.

One indicator of the costs that will be borne is the dramatic disparity in incomes between East and West. Such disparities create costs that will be felt directly in the budget of the EU through costs such as the structural funds and felt indirectly from pressures of migration through wage based competition to significant disparities of interest on matters such as environment and social policy and complications in European Union governance. Apart from the direct financial costs, one consequence of incorporating significant disparities within the Community would be abandoning the notion that, except for temporary delays, the European countries would move forward together. Variable Geometry, the notion that countries would move with distinct but different packages of integration, would be a necessity. But Variable Geometry risks an endless series of ad hoc arrangements that ultimately fragment the overall European bargains. A second consequence would be that a European priority is likely to be accelerating Eastern development, and hence convergence. If one believes that a) growth is essential to the institutionalization of democracy and the enduring commitment of the former Central Europe to the West, and

seemingly, most European policy makers do or b) that that rapid growth and convergence of interests is essential to the broader European program, then the European community becomes, then, of necessity a developmental institution. The question becomes at what price can convergence and development be achieved. And as importantly, the price of those external objectives potentially comes in the initial period at the expense of domestic growth.

Jean Pisani Ferry clearly presents the disparities, arguing that although there is an analogy in the experience of Portugal and Spain, the present disparity of real incomes between the richer members and those being considered for membership is indeed larger than that of the rich and the poorer members when Greece and Portugal joined. The Pisani Ferry evidence shows that while the participation in the Community has seemingly created convergence among the participants, the broadening membership leads to radical divergence of economic circumstance.[59] The weight of the new members has to be judged by adding together those that represent the greatest disparity, in other words represent a drain on the rest of the community in the form of structural funds, migrations, and the like. Here it is evident that not only has the dispersion from the richest to the poorest grown, but those countries that would be eligible under existing criteria for structural funds would grow dramatically. As important, the European capacity to respond has diminished over the years measured, for example, by increased domestic pressures in the form of unemployment

Suddenly Europe confronts the post-war American difficulty: what economic price to pay for security purposes? Supporting the development of allies through open markets and assistance may produce development gains over the years as markets expand, but in the immediate present it creates budget pressures and adds to domestic adjustment. America made its choices in an expanding market when its growth, wealth, and dominant competitive position muted or hid the real economic prices. Europe must make similar choices--what economic price in the form of market access and subsidy to pay for security, but it must make the choices with high unemployment, Maastricht pressures to contain budget expenditures, and intense international competition. More important than the cost, though, the present coalition for security does not permit the constitution of a parallel coalition or policy for growth. It is not simply the ambiguous character of the current threats or the difficulty of defining a security doctrine in the absence of a single clear threat, but rather that there is no clear policy solution to the economic problems and

[59] Pisani-Ferry, "Variable Geometry."

no clear coalition to support it. Hence the question of costs, both direct budget costs and the indirect costs of accelerated adjustment, become central.

Significantly, if the East Countries represent a source of migrants or product that accelerates the pressures of structural adjustment in the West, then the economic/security trade off is accentuated. But what if the fine division of labor associated with the Asian story contributed to the competitive position of the European Region? What if the division of labor possible with the heterogeneity provided by the east helps maintain production in Europe that might otherwise have left, brings back production, or permits new production to expand in Europe. Then the conflict posited above is muted. The possibility is real that the very disparity that creates or at least amplifies the economy -security tensions also represents a heterogeneity of production functions that represents a solution. Interestingly despite the struggle over employment and wages in Germany, the unions there have not systematically opposed segmenting some low wage operations for location in the East.[60] Rather the possibility that such reorganization of production will be a mutual gain is seemingly recognized. Much then turns on the character of the transition and the adaptation and reorganization it brings, that is where the Central/Eastern European Country firms become inserted into the European division of labor. We need to develop a framework to address this.

Four Vantages of Adaptation and Reorganization[61]

The defining questions suggested in this discussion, in both political and economic terms, are whether Eastern production entities become *rivals to or complements for* existing Western producers, and if complements, then what kind of complements. In political terms, if the Eastern producers are market rivals, then they raise the cost of regional adaptation and restructuring and raise the price of resolving the economic security dilemma. In economic terms, if Eastern producers are centrally market rivals to the Western companies, then a full set of managerial, labor, and technological resources will be required to compete. They must become firms which require skills of marketing, finance, firm strategy, as well product and production know-how. Alternatively, do the Eastern entities develop into complements that supplement Western firms?

[60] Our thanks to Susan Sienna whose dissertation work is producing these findings.
[61] John Zysman. May 23rd Planning Document and Proposal to the Kreisky Forum on International Dialogue for the BRIE Research Project *Foreign Direct Investment and Trade in Eastern Europe: The Creation of a Unified European Economy*.

In that case, Europe's competitiveness as a region is augmented and the price of adjustment as a mechanism of politically anchoring the transition countries to the west is certainly muted. As complements in a cross-national production chain--typically as subsidiaries of multi-national corporations--then the resource packages of resources and management skills they require will be more limited. The character of the resulting linkages, we would propose, will be critical to the speed, scale and sectoral composition of the economic adaptation. From another perspective, Eastern producers acting as rivals may induce trade restrictions in the west; yet, as complements, Eastern producers may find more open markets, with greater access to financial as well as technological resources.[62] More broadly, the difference between rival and complement is likely to influence the conflicts and debates that accompany and define both economic adaptation and such political issues as the terms of Eastern adherence to the European Union. In sum, the role vis-à-vis Western producers of Central/Eastern European firms, as rivals or more likely as complements, will set the market linkages and influence Western political choices that, in turn, will redefine the development options facing decision makers in Eastern and Central Europe.

Why, though, does it take the jolt of looking through an East Asian lens to see the possibilities implicit in the new production strategies and the cross-national production strategies that both implement and permit them? One reason is that the European producers have not been major players in Asia and have not implemented such contract manufacturing and key in hand production networks we observe elsewhere. Hence the possibilities have not entered the European debate. A second reason is that the frameworks of discussion and debate about the Eastern transition would block from view these possibilities. Let us see why and consider a framework that will reveal these possibilities.

Standard discussions of how Central/Eastern European economies are adjusting in the transition period to the sudden reappearance of technologically advanced Western Europe on the one hand, and the virtual disappearance of Eastern markets on the other hand can be grouped into one of three analytic categories:

An economic vantage, focusing on how markets work. This perspective would propose that the significant features of economic shifts--both in the sectoral composition and the scale of trade and investment--can be predicted by the proximity of markets and resource endowments

[62] Japanese subsidiaries, for example, are more likely to be successful in exporting to Japan than are indigenous firms or subsidiaries of other nation's MNCs.

that set comparative advantage.[63] These authors as a consequence of their analytic perspective contend that if you set up market institutions properly --which often reduces to privatization and the creation of market driven prices--then resources will go to most efficient use.

A political vantage, focusing on what governments do. This perspective would propose that government policies of regulation, subsidy, investment, and trade protection--to list a few categories--will shape industrial adjustments, both in the East and West, by altering market signals and resource endowments.[64] Certainly this would include those who highlight the necessity of free trade and macro-economic stability as essential policy prerequisites as a complement to privatization and price liberalization. A second group highlights market failures and the necessity of gradualism. In their view, if the market has its way, investment will not be devoted toward long term but rather to capital flight and speculation. A third group simply looks at Asia highlighting the developmental capacity of State action.

A sociological vantage that focuses on the arrangements of influence and networks of control that have emerged in the former Socialist economies.[65] For the most they have focused on networks created by ownership.

None of these perspectives would point at the production restructuring we have been discussing, nor would they permit us to discuss those issues effectively were we to try. The networks are products of firm strategic choices, and none of these vantages have much to say about the economic actors in the transition. More generally, none of these perspectives is sufficient. It is not sufficient simply to ask, as the economists might, what will be the sectoral composition and the scale of trade/investment that emerges between two sets of geographically proximate countries. Certainly, at any moment the outcomes will be consistent with the resource

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[63] A perspective which focuses on the creation of proper economic incentives underlies fundamental works of transition economics such as Oliver Blanchard, Rudiger Dornbusch, Paul Krugman, Richard Layard, and Laurence Summers, *Reform in Eastern Europe*, Cambridge, Mass: MIT Press, 1991, Roman Frydman and Andrzej Rapaczynski, "Markets and Institutions in Large-Scale Privatization: An Approach to Economic and Social Transformation in Eastern Europe," in Corbo, Vittorio, Coricelli, Fabrizio, and Jan Bossak, eds., *Reforming Central and Eastern European Economies: Initial Results and Challenges*, 1991, pp. 253-274, Manuel Hinds, "Issues in the Introduction of Market Forces in Easter Europe," IDP-0057 Washington, D.C: World Bank, 1991, Janos Kornai, *The Road to a Free Economy,* New York: Norton, 1990. David Lipton and Jeffrey Sachs, "Privatization in Eastern Europe: The Case of Poland," *Brookings Papers on Economic Activity*, No. 2, 1990, pp. 293-341,

[64] A strong case for "constructive" government intervention appears in Alice H. Amsden, Jacek Kochanowicz, Lance Taylor, *The Market Meets Its Match*, Cambridge, Mass: Harvard University Press, 1994. See also Stephen Cohen and Andrew Schwartz, "Privatization in the Former Soviet Empire: The Tunnel at the End of the Light" The American Prospect, Spring 1993, pp. 99-108.

[65] Work on ownership networks in Eastern Europe is associated especially with David Stark, "Recombinant Property in East European Capitalism," *American Journal of Sociology*, Volume 101, Number 4, Jan. 1996, pp. 993-1027 and Laszlo Bruszt and David Stark, "Deliberative Association," mimeo, 1995.

endowment and economic proximity. But over time resource endowments in the form of human capital and infrastructure are created by public and private investment; and, moreover, firm and government investments can alter the meaning of economic distance.

Nor is it sufficient to focus exclusively on the government policies that influence sectoral and trade outcomes. Such policies create constraints on firms or incentives for particular behaviors, that is they contribute to the environment of inducements and constraints within which economic actors make choices. But the market actors and their choice create what we later call the trajectories of economic development. Government policies often shift as changes in firms' strategies and public investments alter economic possibilities, shifting the narrow economic interests of those who would seek to influence policy. Consequently describing government policies today or defining constraints or starting points does not suffice to specify outcomes and certainly does not help display the economic process in a manner that can illuminate choices of the actors.

Sociological studies of the relationships among firms in the post communist countries tend to define relationships of control and influence. The ownership relationships on which most authors focus are implied to be a function of the transition and hence differ from country. Those relationships may be necessary to survive politically, to accumulate sufficient inputs to survive by managing claims and relationships that emerged in an administered economy. The workings of these arrangements may have significant political consequences, but the current literature does not tell us what the variations in the arrangements are or whether differences in their origins influences their function. Ownership is not the only market connection: debt for example is often more important. Precisely because they cannot tell us what the dynamic at work is, what the incentives for actors are, and how it will actually have an influence on market functioning and market relationships, this literature has the defect of most similar sociological studies of arrangements power or influence in the economy. They describe a structure and not its dynamic. They do not tell us how the fundamental economic problem of who produces what for which markets is being solved. Consequently, that depiction of the post-communist systems are cut off in their analytic from the markets they intend to characterize.

We propose another vantage, a focus on the firm and hence potentially on cross-national production networks created by firms. This vantage supplements, but does not replace, the economic, political, and sociological vantages of economic reorganization. Indeed, we take

economic endowments (the first vantage), government policies (the second vantage), and social networks of influence and control (the third vantage) to define at any moment a constrained "space" within which firms develop strategies. This fourth vantage permits us to examine the transition from the perspective of the market actors making it happen. From this vantage, resource endowment, political decisions, or social networks of control constrain outcomes, but they do not provide an explanation of the strategies and motivations of the firms. It is not simply a matter of whether resource endowments encourage auto or electronic components to be produced and shipped West, as the first analytic vantage might suggest. Nor is the trade/investment outcome simply an issue of what rules the West sets for access to these markets or what decisions the East makes to develop those industries, as the second view would suggest. Nor is what is produced a function of the relationships among the original eastern producers. Rather it is a matter of the type of market linkages--such as trade, investment, and cross-national production arrangements--and the character of the exchanges that result. We suggest analysis should concentrate on one set of linkages (or market interconnections) that Western firms and Eastern firms, production entities, or proto-firms create among themselves, namely, the cross-national production linkages, that are created through trade and investment.

Note that we suggest the use of the term "production entity" as well as "firm" since in many cases in the East it would be a stretch to label as "firms" what were often production units obeying administrative orders. Jumping from the term production entity or production unit to firm hides the massive organizational and strategic changes that the move to the market requires. This focus on the importance of inter-firm linkages mean that it matters what sort of entities the Eastern production units actually are. For example, are the entities:

1. subsidiaries of Western MNCs;

2. clearly defined independent companies operating with clearly defined property and contracting laws; or

3. proto-firms that are simply extensions or relabeled but unreformed organizations that have been carried over from the previous regime.

From this vantage, we also speculate that the nature of the linkages that emerge between East and West will shape the competitive dynamics and industrial development in Central/Eastern Europe. The transition and industrial reorganization cannot be understood as a set of separated stories, but as a regional story. Therefore, rather than focusing in isolation on the

broad, domestically-focused agenda of "economic transition" (privatization, liberalization, government regulation), it is also necessary to consider the regionally-derived "production transition"--the choices that individual firms make in adapting to economic and political constraints, generated both at home and abroad. Doing so can illuminate not only issues about Eastern development, but also about European regional competitiveness more generally. It is not simply a matter of whether East European development demands Western resources or market access. Rather cross-national production networks among heterogeneous countries may make Europe a more flexible, agile, and effective competitor as a whole.

The Fourth Vantage: The Outline of an Analytic Framework

The analytic and policy question if we are to consider cross-national production networks is then how to formulate the firm's place in the recombination, usually regional reorganization, of the division of labor.

In the analytic approach we have been using here, firms make choices in an environment defined by frameworks of incentives and constraints, frameworks that are always created by political and policy choices. Political economists have increasingly used the notion of a "national framework of incentives and constraints" to link a country's distinctive institutional structure to typical corporate strategies and organizational patterns.[66] National political economies can then be depicted as a set of "frameworks of constraints and opportunities" that are created by a politically established market system. In comparative political economy of national systems these "frameworks are either formally or informally depicted as a function of the "political institutional structure of the nation's economy". In fact these "frameworks" are a function of industry organization and the institutional structure of markets and politics. Here, the regional "frameworks" are a function of the Regional Architecture. In both cases, the "frameworks of constraints and opportunities" can only be accounted for as the outcome of a political process. Once established the frameworks then systematically define the environment of the firm by setting constraints on particular actors. The frameworks encouraging predictable lines of strategy also induce predictable patterns of interaction among the principal marketplace players, generate

[66] John Zysman, "How Institutions Create Historically Rooted Trajectories of Growth" *Industrial and Corporate Change* 3, no.1 (Oxford: Oxford University Press, 1994); David Soskice, "Innovation Strategies of Companies: A Comparative Institutional Explanation of Cross Country Differences." Wissenschaftszentrum Berlin, July 1993. Incomplete Draft cited with permission of the author.

in each country a market "logic". Note that any particular firm's strategy may not be predictable, and the pattern of interaction in particular situations may not fit a model, but at the national level this approach accounts for quite evident regularities we observe in different national political economies. The market "logic" specific to a particular national institutional structure drives, we would observe, corporate choice shaping the particular character of strategy, product development and production processes in a national system. A specific national market "logic" then induces distinct patterns of corporate strategy, encouraging internal features of companies that are unique to a country. There are then typical strategies, routine approaches to policy problems for the same analytic method and conclusions can apply to policy processes, and shared decision rules that create predictable patterns in the way governments and companies go about their business in a particular political economy. Those institutions, routines and logics represent specific capacities and weaknesses within each national system, and the same could be said of regional systems. Thus, the steps are:

1. *National Institutional Structure or Regional Architecture*, created initially by the politics of modernization and industrialization, contributes along with Industry Organization to a systematically defined

2. *Framework of Incentives and Constraints* which induces typical strategies by marketplace actors.

3. *A distinct market logic* is a function of the interplay of firms in a particular framework.

As a regional architecture is altered, as in Europe with the end of the cold war, or evolves, as in Asia with several tiers of development, the Regional framework of market incentives and constraints shifts. As it shifts, we would expect corporate strategies to adjust and sometimes innovation in strategy and organization to result. In fact, political choices in West and East are generating "a new regional architecture as a result of political choice that set constraints and opportunities" that in turn is creating a new "regional framework" for firms operating across the old political frontier between the two political blocs. If we can specify the regional framework, then we can ask what regional "market logic" will emerge. Undeveloped as this approach is, it permits us to situate firm strategies and explore the nature of the market linkages and cross-national production arrangements that result.

To create at least a consistent vocabulary, we refer to the Western decisions about the rules of market access, investment, monetary ties, and the like as the "Western Parameters of

Access to Finance, Technology and Markets", or the "Parameters" that will shape the interplay of economic actors in East and West.

These decisions, and the parameters they set , will influence matters such as:

- Availability of Money for investment by endogenous firms
- The terms of Investment from outside the region
- Migration, the movement of people.
- Access to Markets in Europe, the United States, and Asia

The Western players making the decisions that come to constitute the "Western Parameters" include a few larger countries principally interested in the fate of the region, the European Union, and a few international institutions such as the IMF and the World Bank. Their choices will in part be made as judgments about the economic future of Central Europe, partly as choices about regional security, and partly in jostling with each other for position and influence in the region.

The Central/Eastern Europe and Former Soviet Union countries are themselves making a set of fundamental decisions about the creation of market systems of property, money and price driven dynamics as well as about macro policies, exchange rate policies and investment policies. The politics and policies for the transition/transformation are generating implicit development strategies. The collection of these sometimes intentional and probably more often unintentional Eastern decisions should be labeled as "Implicit Development Strategies" of the emerging market economies as they integrate into the Western market system. Those "Implicit Development Strategies" will set distinctive options and constraints on the firm operating in particular countries, and give their particular emerging markets a particular logic.

Heterogeneous Cross National Networks in East Europe

Three questions pose themselves immediately. First, is there evidence that these cross national networks are emerging as a significant fact in the European story and that hence this analytic apparatus is necessary. Second, what form are European Cross National Production Networks taking? Third, what influence might the networks have on European regional competitiveness? Let us consider them in turn.

Hints That Cross-National Production Networks Will Matter in Europe

The first question is whether cross-national production networks are in fact likely to emerge linking East and West and, in so doing, perhaps make Europe a more competitive regional economy A wide range of linkages from trade, through investment, joint ventures, and technology licensing are already joining the two parts of Europe. At the core of the analysis is the question of whether cross-national production networks of the sort that have emerged in East Asia could become a significant feature of the integration of Central/Eastern Europe.

The starting point is the dramatic shift in orientation, the structural reorientation, of the Central/Eastern European producers, many of whom were the capital intensive and research and development production centers in the Eastern Bloc. These producers were cast adrift by the disintegration of the Comecon networks of production and investment. Aggregate trade statistics depict a part of that transition story and suggest that some Central/East European products will find a new role as part of an emergent European based production network. As we all know, trade to the East dropped sharply, CEEC exports to the OECD countries between l988 and l992 jumped 173% and those to the EU by 196%.[67] Yet, these aggregate statistics only hint at the magnitude of the story. Suddenly, Central/Eastern European producers faced competitors and markets--hazards and opportunities--from outside the region while the cost of inputs began to reflect world market costs. The most telling blow was the overnight disappearance of the giant Soviet consumer to the East, the buyer of most of Central/Eastern Europe's products and the source of cheap raw materials, especially energy. Suddenly, the Central/Eastern producers faced a mortal threat. To survive, these producers needed to quickly change what they produced and how they produced; and, where they sold and how they sold. Already some Central/Eastern European enterprises, capital intensive and R&D focused producers in the Eastern Bloc, have responded to market shifts by producing more labor intensive or standard product.[68]

The CEEC's role as a partner in production networks is hinted at in the initial trade evidence which shows the multiple roles Eastern Europe will play: rival to Western producers, market, location for FDI, and complement in network production. The distinctions between rival and complement are especially salient. Rivalry is most evident in sensitive sectors such as steel,

[67] Lemoine, Francoise. *CEEC Exports to the EC (1988-1993): Country Differentiation and Commodity Diversification.* Paris: CEPII, Working Paper 94-15. 1994.
[68] Landesmann 95

cement, chemicals, leather products and shoes, and agriculture where the EU has maintained or taken additional restrictive measures. In other sectors, including electronics, metalworking, automobile parts, or in high-technology areas, Central/Eastern firms seem to be emerging as complements in network production. In these areas Central/Eastern firms are unlikely to be able or to be willing to challenge Western producers. Complementarity opens the door for, but by no means assures, tightly woven production network arrangements of the sort we have been discussing.

The preliminary intra-industry trade data also indicate that production networking is occurring. Intra-industry trade between the CEEC and the EC has grown very quickly, more rapidly than the rapid expansion of trade as a whole. Central/Eastern European producers were exporting to the West in sectors in which their nations were also importers. Hungary and the Czech Republic drove this adjustment; though some increase in intra-industry trade occurred in Poland and Bulgaria. There is also considerable sectoral evidence that this intra-industry trade is forming part of production networks. The evidence is in two forms. First, in textile and leather goods, outward processing which was already an important link between Eastern and Western Europe by 1988 has grown steadily, with the CEEC now surpassing the Asian countries. In many of the countries and commodity groups, outward processing is more than 50% of exports with such outward processing jumping from 10-20% to 40-60% in many cases. [69]

The aggregate data that we so quickly review here is substantiated by a long series of anecdotes that, while not systematic evidence, give a sense of the flavor and texture of what is happening. That East Europe is being used as a production base for Western Europe and as a piece of more complex production networks is evident from both the trade press and interviews. The scale of development, the intent of companies in particular deals, and the patterns of activity are not yet clear from our evidence. Consider that in the summer of 1995 South Korea's DaeWoo Corporation began to generate in Europe a cross-national production network with a capacity of over half a million vehicles annually and the possibility of autonomous innovation at the

[69] In machinery, transport equipment, and electrical machinery, the patterns of outward processing are varied, showing substantial declines in some country/sectors and substantial increases in others. However in these sectors it appears that more than 50% of the substantial investment flows are in manufacturing. A critical issue is the exception of the auto sector where processes appear to have gone in the opposite direction. It also appears, not surprisingly perhaps, that the firms with foreign capital are more outward-oriented than national firms. In Hungary, joint ventures were responsible for 30% of the country's exports versus 112% in l990, and their contribution to exports was higher in some sectors. Note that, by contrast, in Poland intra-industry trade was of less significance and in places like Romania of little importance.

individual nodes. It has done so through purchases of automobile assemblers in Eastern Europe and tried to acquire such component producers such as Steyr-Daimler-Puch in Austria.[70] Phillips has explicit maps of network possibilities detailing potential association or contract arrangements and reports that it has intentionally placed production in Hungary as a means of maintaining factories in Austria that depend on lower cost components and which might have had to be moved to Asia.[71] Indeed, many proposed arrangements draw on the low cost SKILLED labor and research capacities in the East. For example, Mikro Systeme of Austria has opened an ASIC design center that will have 15 engineers and support staff. For now it will focus on circuit design for markets in the East[72]

We could list many other examples in Hungary, Poland, the Czech Republic, and even Bulgaria that involve a diverse set of American and Japanese multinationals. However, Sturgeon reports on the basis of interviews conducted for this project that:

Although many companies in western Europe are very interested in developing relationships with eastern European suppliers, early experiments have been very negative in terms of quality and delivery. Firms reports that the skills to perform electronics production to export standards do not currently exist in Hungary, Poland, Russia, or the Czech Republic, although mechanical and electro/mechanical production skills generally do.[73]

The transition has not been simple. Indeed pools or nodes of resources have been dissolved. Many companies that have been privatized over the past six years are now closed or are in crisis. There are obstacles to linking production nodes within Eastern Europe, encouraging simple outward processing ties back to the West since poor infrastructure, such as telecommunications and road transportation, makes conducting business difficult, however efforts to improve the situation are underway. Nevertheless, it is clear that West European electronics firms will continue to experiment while keeping a close eye on developments in the East. Such interest suggests ample promise for the formation of production networks between East and West in the electronics sector, but given the tenuous character of the linkages developed so far, it remains unclear what role Eastern Europe will play in the future development of international production networks in electronics.

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[70] *Financial Times* October 1995.
[71] Company interviews, Summer 1994
[72] "ASIC Center Opens in Austria" *Electronic Engineering Times* (October 10, 1994).
[73] Sturgeon, "Rise of Global Locality."

We are persuaded that network structures of some importance are beginning to emerge in Central/Eastern Europe. The networks may be decisive for the development of particular countries and sectors. And countries must ask whether, or more precisely how, participation in the international networks of production can create the domestic infrastructure for growth. The present extent of the use of such arrangements is an empirical question that we cannot resolve here. The more important question, and the one we pose ourselves, is rather, how significant can their role become? The answer turns on two matters. *First*, there is the matter of the potential scale of East production or producers. Taken as a set, the Central/Eastern Europe countries may not in themselves be large enough to alter the way in which European business as a whole is organized and to affect its competitive position in global markets. In any case, as Central/Eastern Europe begins to form production nodes that extend the networks further East, just as Taiwan and Korean production networks have contributed to the extension of the Asian regional production system, then perhaps producers in the former Soviet Union might emerge in these networks. *Second*, what will the demand be for network nodes or components? European companies have been slow to exploit the possibilities of these cross national contract production arrangements Sturgeon writes: "Highly leveraged production models, where all or a large portion of manufacturing is carried out through turnkey contracts with independent suppliers, while gaining in popularity among newer firms, are only being incrementally adopted by large (European) systems firms when demand for high volume, low margin products (e.g. personal computers) exceeds installed capacity."[74] We noted in the first section that European production networks have been slow to evolve and have been principally used either to rationalize production in the face of trade restrictions and limited national markets on the one hand and to provide flexible capacity in periods of peak demand. One reason European producers have been reluctant to adopt these mechanisms because of legal restrictions on labor reorganization and layoffs often transform such dramatic shifts in production orientation into confrontations and political battles. Internal investment to increase productivity has been one strategy, but if it is not successful either because it produces low returns or ties up too much capital, then the move to network production may be accelerated. A second reason is that the earlier competitive difficulties of European producers in volume sectors such as PCs has left them concentrated in higher value added equipment segments and systems integration. In these segments technology,

[74] Sturgeon, Ibid.

production and particularly assembly technology has been more stable, diminishing the costly capital demanding need for rapid shifts in production arrangements that have attracted American producers to these contract arrangements. In these cases the real risks of these systems - unacceptable quality, lack of coordination of manufacturing and design, delivery delays, technology leakage to competitors - matter more than cost gains or production flexibility. In sum, there are questions about both the supply of and demand for these cross-national networks of contract manufacturing in Europe.[75]

What Form Will European Cross National Production Networks Take?

The form that production networks will take is the next issue. Recall that the form or architecture of the production network in our argument about Asia was a surrogate in our thinking for the possibility for the firms and indeed the countries in the network to receive and absorb technology as well as innovate and extend their market position. Seemingly our Asian story has provided a powerful initial answer to the question: the networks will reflect the characteristics of the home country firm organizing the network. Look then at the network arrangements of the firms operating in Europe for a prediction to answer the question of the kind of networks that will emerge.

The weakness of the Eastern firms and Eastern market institutions will, over the coming years, amplify the influence of Western MNCs and other Western investors. First, the Eastern firms by and large don't have the technical and management skills to compete with the world class firms. Second, most Eastern firms don't have the financial wherewithal to devote to modernizing aged production facilities or to engage in massive research and development projects. These undercapitalized firms are unlikely to be in a position to challenge well-endowed Western producers. Third, many firms in potential sectors are relatively small and thus at distinct disadvantages within their own countries to obtain cheap credit, government subsidies, or tax holidays. These critical financial benefits tend to be reserved for the largest companies which may not be economically dynamic, but which employ thousands of workers, and so for political reasons cannot be closed. As a separate financial matter, large bankruptcies could mean the cascading of unpaid inter-enterprise debts and neglected receivables.

[75] My thanks to Tim Sturgeon for helping me prepare these critical paragraphs.

This logic suggests, and the early evidence confirms, that Central/Eastern European network development will be strongly influenced by corporate decisions made in Western Europe. Perhaps, but that is not a sufficient response for three reasons that must be elaborated. *First*, in the case of the Asian third tier countries foreign direct investment by MNCs and initial rapid industrial development were going hand in hand. In many of the Central European countries there is the foundation of industry, and at least on the surface we are looking at the adaptation and restructuring of industry not its creation. Consequently there is a related issue, what are the absorptive capacities of the several CEE and FSU countries. Because there is already considerable development in Eastern Europe--just not the most appropriate, competitive or appropriately organized--the crucial question in Central Eastern Europe may be which functions or activities are assigned to these existing "nodes", likely to be reconstituted state enterprises, and which activities are assigned to newly created "nodes", likely to be new local companies and subsidiaries. The story for each of the three types of node-- reconstituted enterprises, new companies, or subsidiaries - are likely to be different. *Second*, the primary investors in CEE and FSU will be European firms. But these firms are so limited in the presence in Asia that it is hard to project from their behavior in Asia their likely strategies of organization in Eastern Europe.

What might we expect of the character of European networks that involve Eastern producers? Three more elaborate propositions suggest themselves as the basis of a fuller research program on these issues. They are unfortunately grounds for pessimism about whether the full developmental potential of these networks can be captured.

1. Outward processing will be the first step as Western producers extend their production operations into the East to capture cost advantages. *Outward Processing (or export processing)* is the separation of a particular function in the production process and its location in usually a low wage site. Some may be small operations such as the German doll maker contracting for doll clothes with Czech producers. Others may come in the form of joint ventures with Eastern partners that assure the home country firm inexpensive sources of specific technologies or natural resources. The risk is that development may get stuck here.

2. The Move to Contract Manufacturing, the creation of Indigenous Eastern production operations will be slow. The webs of independent indigenous producers are difficult to envision because the transition to a market economy has left the industrial structure of the former

Communist countries' in tatters. A common problem stems from the fact that enterprises, private or otherwise, are typically burdened by huge overhanging inter-enterprise debts. This has created conditions under which enterprises are starved for ready cash. Enterprises demand payment for products upfront for fear that they won't be paid on the one hand, and to pay their own suppliers who also require payment immediately on the other hand. In this atmosphere, enterprises have little chance to develop flexible relationships with local firms, nor do enterprises have the ready funds to commit to restructuring, including the retraining of management and the development of marketing capabilities. As a result, in their search for reliable business partners, the Eastern enterprises are liable to prefer foreign partners, as indeed Western firms look to the East for cost advantages. Finally, the probable dearth of indigenous Eastern production networks suggests that in several sectors CEEC firms may be rivals with each other, if not to firms from other regions, in seeking Western partners. The result may well be a hollowing out of industries in the East, with the ones that remain maintaining close, complementary ties to a cross-national network dominated by a Western firm.

3. The Open Networks of "Manufacturing Service" Companies that provide turnkey networks that represent entire production processes may never emerge. Rather the New European Networks that emerge may be closed networks created by the investment of European firms. On the whole, the European firms have favored tighter control of subsidiaries, some propose, than the American counterparts and have avoided contract manufacturing strategies.[76] Therefore we would expect this pattern to extend to the new linkages in Central/Eastern Europe. European network structures may more closely resemble in structure the closed Japanese networks than the more open Asian networks. This tendency toward close networks will be reinforced by the lack of an indigenous production network in the East that would struggle to establish independent relationships based on their own resources and innovative capacities.

European Regional Competitiveness

The third issue is whether the new more heterogeneous European architecture, representing a new framework of incentives and constraints on firms, will influence the regional competitiveness of Europe. The relevance of that question is reinforced by the Asian experience

[76] This statement is based on work conducted for this project BRIE's research on production networks and by Dieter Ernst and Tim Sturgeon cited here. Both research efforts involve detailed and extensive interviews with a wide range of companies of varied national origin.

which suggests that the heterogeneity of the region woven together by a collection of cross-national production networks enhanced the Asian region's appeal as a business location. Certainly, Japanese, Korea, and Taiwanese firms created these networks to maintain cost competitiveness as a range of developments from exchange rate changes through wage increases limited their capacity to produce exclusively within their national home base. Once created, the networks provided their own advantage. For example, Asian firms in the networks innovate as a means of extending position in existing products, to extend their range of products, and to move to higher value added segments of the production chain.

Will, then, a dense and diverse web of production networks add to the capacity of firms based in Europe to compete with firms that have other regional home bases? They may be able to do so, as in Asia, by providing flexibility--the ability to rapidly introduce new products and reorganize production, create a more complex nuanced division of labor within the region, and induce innovation in product and process.

If such arrangements can encourage European competitiveness, should European countries and institutions promote these heterogeneous networks? That certainly could be done by rules of access and arrangements of technical help. The inclusion of Central/Eastern European firms into a European division of labor isn't likely to be pain-free. One concern, of course, would be that the expansion of production in East Europe would both move jobs out of Western Europe and put downward wage pressure on jobs that might compete with Eastern production. Certainly, parts of production would stay in Western Europe, but some activities would move to the transition economies. The transition economies would represent a lower wage labor pool, and not exclusively for unskilled work. Certainly, by counterpoint, we would point to the export gains as East Europeans increasingly demand higher quality consumer and food products. Already countries such as Austria and Denmark have noted that Eastern exports in fact can act as a significant boost both to the balance of trade and aggregate demand for the economy. However, let us set this issue aside. The real gains to Europe are likely to be elsewhere.

Our question is whether European companies that presently move production to Asia because of the cost and flexibility advantages will consider European locations? There is real evidence of this. For example, the CEEC trade advances seem to have come at the expense of Asian producers. The five countries that Lemoine considered saw their share in EC manufactured imports grow from 2.6% in 1989 to 4.3% in 1993 while Asian manufactured products dropped

from 7% to 5.5%. One critical question for our analysis is whether Asian production displaced is simply low-labor cost standard product or is part of the emergence of alternate production networks in Europe. If production that would otherwise move to Asia stays in Europe and if production presently in Asia moves back to Europe, then the gains could be substantial for Europe as a whole and particularly for some segments of higher value added production that will locate in Western Europe. Note that if an entire product, say a VCR, or a sub-system such as a computer mother board, is produced in Asia, there are a whole range of components and sub-assemblies that might on a cost basis be produced in Europe. But once production of the whole moves out of Europe, then many parts will be procured in Asia that could be competitively produced in Europe. Surveys of Western business suggest that in the next five years Eastern Europe is expected to play this kind of role. The Germans in particular consider Eastern Europe of distinct importance.[77]

Conclusion

A new global economy with national foundations, a regional architecture, and an "Intelist" production influence is clearly evident in Asia. It highlights the questions we must pose when we look at Europe. The internal architecture and linkages among three regional segments of the global economy are the critical questions. And even within those regions and within cross national production networks that highlight interconnections and arrangements, we find national foundations. In Asia national rivalries entrench a heterogeneity that facilitates cross national networks.

Other stories about the "global" economy would emphasize the inter-regional character of market ties. Those tales would depict wholesale financial markets and the need to market new products throughout the world. But the global economy is not about a single homogeneous market in which governments are shoved to the side. In this tale, the expanding market interconnections in the form of investment, financial networks and trade that are supposedly the foundations of a "global" economy are principally regional in character. There are national foundations of the cross-national networks and arguably of the distinctive growth trajectories each country has followed. There is a multiplicity and competition among corporate and national

[77] See, for example, Coopers & Lybrand's survey of business leaders in Italian, German, French, and British companies in Coopers & Lybrand, *The Coopers & Lybrand Competitiveness Survey*, United Kingdom: Coopers & Lybrand, 1995.

strategies in an attempt to capture advantage in shifting markets. New competitors, basing strategies on new capacities, are at the core of the speed, confusion and chaos. Equally important, these new production forms, cross-national networks, and new corporate strategies are deeply interconnected. The cross national production networks are themselves a reflection of a shift within the electronics industry to a structural from which Borrus and Zysman have labeled "Intellism", the shift away from competition about assembly to competition about architectures, standards, high value added components and subsystems that are defended with intellectual property, and an outsourcing of the commodity assembly and commodity components. These networks have emerged in electronics, because this industry is most open to innovating this strategic approach, and in Asia, where third tier producers provide the raw material of the networks. The potential for these new arrangements would be difficult to see if we focused exclusively on Europe. With the change in Europe's regional architecture and the spread of the "Intelist" model, new questions about Europe's adaptation must be posed.

It certainly seems possible that cross-national production arrangements will become a decisive element in the Eastern transition to a market economy, the reintegration of Europe, and the evolution of Europe's regional position in the "global" economy. The analysis of cross-national production networks as a critical mechanism linking East and West Europe focuses our attention in four places. First, it focuses on the firm, and it requires us to consider the strategies of the firm in the West and the transformation of production entities into firms, including the response to the radical shifts of markets and suppliers in the East. Second, it focuses us on regional dynamics and forces us to analyze the evolving competitive dynamics that are emerging from the long delayed, if unanticipated, return of Central/Eastern Europe to Europe. We have used the notions of regional architecture and regional frameworks of incentives and constraints to permit us to compare regional arrangements. We would expect distinct architectures and frameworks to generate particular market dynamics within each region. Our concern here is the change in the European Architectures which shifts the incentives and constraints opening the possibility of new, perhaps more competitive European regional market dynamics. Third, we must ask whether the domestic institutional reform process can shape the extent and form of production linkages. If, as the Asian experience suggests, networks are formed by the investment strategies of the home multinationals not by the host countries, is there any room for policy? We believe that there is. Since cross-national production networks are fabrics of relations woven by

MNCs among heterogeneous production functions, policy in the form of both the creation of economic assets such as human capital and ports and also in the form of market rules and arrangements for contracting, can influence where in the networks a country and its firms fit. But, it is worth repeating, that it stretches the point to speak of an explicit transition development strategy. It is not clear that most Central/Eastern European countries could carry out a consistent strategy of institutional reform even if the political elite were so inclined. By East Asian standards at least, the CEEC countries seem at a loss to adequately regulate foreign players or to implement a competitive industrial policy. In truth, the bundle of transitional reforms adopted by the transition states often represent strategy by default, literally an "implicit development strategy." Nonetheless, the variation in those implicit strategies should be examined as systematically in the transition economies as the overt strategies have been examined in the fast growing countries of East Asia. Fourth, if cross-national production networks are decisive to regional competitiveness, what national and European Union policies should be adopted? And, significantly, if the industrial reorganization required for a new division of labor increases regional competitiveness, thereby keeping jobs in Western Europe, how is public understanding of this process encouraged?