Globalization, Production Networks, and National Models of Capitalism - On the Possibilities of New Productive Systems and Institutional Diversity in an Enlarging Europe

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Scientists from the Soziologisches Forschungsinstitut (SOFI) at Göttingen and from the Industrial Performance Center (IPC) at the Massachusetts Institute of Technology (MIT) at Cambridge, Ma. start a joint research project on the impact of reorganization and relocation decisions of firms on the diversity of national models of capitalism. The project is funded by the Volkswagen Stiftung in its programme on „Global Structures and Governance". This essay outlines the starting point of the joint venture.

1. Overestimating and underestimating globalization

As we look across the terrain of organizations producing goods and services in advanced countries, we observe enormous shifts over the past decade in the landscape and the actors. The liberalization of trade, finance, and investment across the world has opened vast new territories for the expansion of dynamic enterprises. The rise of incomes in developing countries has created large new consumer markets. Relocation across national borders has shifted research, development, and manufacturing activities involving higher and higher degrees of skill and value into other societies. At the same time, economic institutions are also changing. Once vertically-integrated corporations are shrinking their boundaries and functions and focussing on core specializations. Highly qualified suppliers, contractors, and service providers are supplying more complex components, subassemblies, and services. New partnerships, commodity chains, alliances, and mergers are emerging to link producers, suppliers, and customers, both at home and abroad.

How do we understand these complex transformations and the connections among them? How do we understand their potential impact on our societies as opportunities for innovation, value creation, employment, and security are redistributed by new structural arrangements? We start from the hypothesis that two distinct processes of transformation are at work: a process of relocation of economic activities, or globalization, and a process of reorganization that is reshaping productive systems in the most advanced countries.

In focussing on the possibilities that globalization, on one hand, and technological and organizational innovation, on the other, create for transforming national models of capitalism, we are moving onto a terrain that has been largely discounted in current debates over globalization. Rather, the existence of possibilities for exploiting global resources in the context of distinctive national patterns has been denied, both by those who see globalization as leading to convergence in a „borderless world", and by those who see globalization as a vastly exaggerated phenomenon. Both for its advocates and for its detractors, globalization commonly refers to tendencies towards the integration across borders of markets for labor, capital, goods and services and the emergence in all of these markets of a common set of economic actors. (Economist, 1992; Economist, 1995; Berger and Dore, 1996; Boyer and Drache, 1996; Castells, 1996)
Scholarly and popular controversies over globalization's consequences for national autonomy and for societal

welfare have polarized views on the extent and impact of this phenomenon. One group of writers (e.g. Ohmae, 1990; Narr and Schubert, 1994; Martin and Schumann, 1996; Friedman, 1999), sees globalization as a radically new and irreversible set of changes in the international economy. In this view, new information and transportation technologies have combined with the liberalization of trade and finance and with the emergence of new competitors to produce rising tides of trade, investment, and production that flood across national boundaries. National governments are losing the capacity to regulate these cross-border flows, and are thereby losing the ability to defend the distinctive preferences of their citizens for particular societal and economic arrangements. The German and Japanese coordinated capitalism models, the Swedish social democratic welfare state, the unique characteristics of East Asian NICs (newly industrialized countries) all seem destined to converge towards common market-driven patterns. Globalization in this perspective works through markets, competition, and technological diffusion to create new economic actors and linkages which undermine both the power of national states and the distinctive social and economic patterns which public power once supported. In this view the withering away of the state then becomes a self-reinforcing dynamic. As the state's legitimacy fades with its diminished ability to shape social and economic conditions at home, so too does its capacity to buffer its constituency from the gales that blow in the global economy.

These views and the conclusions that follow from them have come under heavy attack. The critics start by pointing to strong continuities of contemporary globalization with previous periods of internationalization, especially before World War One (Zevin, 1992; Strikwerda, 1993; Wade, 1996), and they deny that the national state is facing a wholly new or irresistible challenge to its authority (Hirst and Thompson, 1996; Garrett 1998a, 1998b). However compelling the theories about how increased capital mobility creates pressure to lower corporate taxes to retain and attract footloose investmen – resulting in reduced public services and a shift of the tax burden to labor - the skeptical analysts have found little evidence in fact of such tax shifts or of a decline in the share of GDP that goes to public expenditure (Swank, 1998). Perhaps the strongest card in the hand of the globalization critics is the demonstration of how nationally-centered the principal activities of even the largest multinational corporations remain, as Hirst and Thompson (1996, pp. 80-96) have illustrated in a striking set of graphs which show the heavy concentration of customers, production, research and development, in the multi-national corporation's „home society". From this perspective, economic activity remains firmly rooted in the distinctive and shaping environments of different national systems. While the interactions among national systems have become far more dense and important, the basic building blocks of each system remains the same, as does the locus of regulation in the national state. In this view, control over the pace and characteristics of increasing internationalization remains in the hands of national governments.

Beyond the constraints that globalization may exercise in macroeconomic policymaking remains the question of its impact on the institutional constellation of different national systems. At the beginning of the nineties Michel Albert's „Capitalisme contre capitalisme" (1991) launched a debate over the societal foundations of economic performance. Albert's book, which drew broad-brushed sketches of „Anglo-American" and „Nippo-Rhenish" models, was followed by a wave of research on the specificities of German, Japanese, Italian, French, and other „models".[1] (Albert, 1991; Soskice, 1991, 1999; Streeck, 1992, 1997; Hall, 1997). The common intuition underlying all of these contributions is that firms - and therefore economic performance - should be understood not as autonomous actors but as social creations, highly dependent on societal resources which they do not themselves create. As Streeck lays it

1 In earlier contributions that provided an empirical foundation for this debate about various national capitalisms, (Dore, 1973; Maurice, 1986) demonstrated that firms operating in the same industries in different societies had very different organizations that were more or less equally efficient and productive over time. They showed that organizational differences reflected broad societal characteristics.

out (1997, p.37), firms are „social institutions, not just networks of private contracts or the property of their shareholders. Their internal order is a matter of public interest and is subject to extensive social regulation, by law and industrial agreement“. He describes the similarly social and organized character of capital and capital markets. Even firms in the same sector, using the same technologies and making similar products, will differ systematically across societies according to the kinds of resources and frameworks those societies provide.

Is each country its own national capitalism? No, while there is diversity and pluralism of social types, this diversity is limited. The basic unit of analysis is institutional configuration - or production regime (Soskice, 1999, p. 19) - defined by the sets of rules and institutions regulating the industrial relations system, the educational and training system, the relations between companies, and the system of corporate governance and finance. Those four patterns together form a production regime, and the production regimes of the advanced industrial countries fall into a limited number of types. In Soskice's categories, there are two broad types: business-coordinated market economies (e.g., Germany, Sweden, Japan, Korea) and liberal market coordinated economies (e.g., US and Britain). The varieties of capitalism literature see more than one kind of industrial society and argues that different institutional configurations, or production regimes, generate systematically different micro-behaviors. From these institutional configurations and differences in micro-behaviors these scholars deduce a theory of comparative institutional advantage (Hall, 1997). In this perspective, different production regimes, or different capitalisms should be good at solving different kinds of coordination and production problems and hence over time should come to specialize in and excel in those activities.

The question from this perspective is whether these varieties of capitalism, each with its distinctive strengths and weaknesses, are equally well suited to performing well in an open international economy. Thus these controversial positions over globalization have far-reaching implications for further industrial development in advanced societies. A 'borderless world' implies that options for industrial organization (such as lean production or fragmented value chains that separate design from manufacturing) can be freely adopted by firms in any location. At the very least, the globalist view contends that the context in which firms are embedded limits the range of options they are able to adopt far less than in the past. Therefore, paradigms and practices for industrial organization which have emerged in the U.S., Japan or in South East Asian NICs are readily accessible for adoption by European industry. If this were true, national institutions would lose their ability to shape industrial organization according to a distinct national pattern. Moreover, because these new organizational models are increasingly transferable across different social and political contexts, this transfer itself would drive convergence. If globalization means convergence on a single model, European societies have to change radically or risk stagnation. If globalization means that there are a single set of „best practices“, then the discipline of the global market will force their adoption.

By contrast, those who insist on the diversity of national development paths deny that the simple transfer of organizational paradigms and practices from one national setting to another is possible. Following this position, there are no global „best practices“ which fit regardless of social context, political conditions, and institutional settings. Industries in different countries will respond differently to the challenges posed by the world market because their development paths are still shaped by national institutions and traditions. European industries would, in this perspective, neither face compelling pressure to copy American or Japanese models nor succeed if they tried. Rather there will be incremental adjustments that continue to move along existing nationally-specific trajectories.

2. Loosening the ties: national models and industrial development paths

These debates over globalization have, we believe, obscured some of the most important emergent patterns of change. Our view seeks to carve out a different analytic space. In contrast to those who claim continuity, we see new processes at work whose impact on the future remains uncertain. Over the past two decades, new trade rules, economic liberalization, the collapse of the Soviet bloc, and falling costs of transportation and communication have greatly altered the conditions of entry to foreign societies. The enlargement of market boundaries - with the creation of regional entities like the European Union, NAFTA, and MERCOSUR - has transformed terms of access. New market and investment spaces have been opened in societies once protected by „iron curtains".

Over the same period, firms have acquired new capabilities for moving production out of their home societies. These capabilities are both technological and organizational. Technological advances like computer simulation and digital codification of design specifications make it feasible for companies to outsource increasingly complex functions they once had to perform in-house. New economic actors - the global suppliers - have gained the capability to perform a wide range of functions for a number of customers at high levels of quality and efficiency, creating external economies of scale that span the globe. A firm that decides to produce outside its own country needs no longer rely solely on its own internal capabilities, nor on the existing productive resources of the society into which it moves. Rather it can count on using specialized suppliers with production capacities in different places and markets around the globe. The result is a dual fragmentation of production, with companies breaking up their R&D, production, and marketing systems and moving the component parts into new locations; and companies breaking off functions once carried out within vertically-integrated organizations and acquiring these goods and services from outside suppliers and service providers. These dual processes of relocation and reorganization pose new challenges for European societies.

Industrial adaptation as combination of changes at home and abroad

In contrast to those claiming that globalization will force radical change for European societies, we hypothesize a range of reconstruction trajectories for European countries. Within this range we see broad possibilities for building on the institutional strengths of distinctive national systems and indeed, reinforcing them by allowing firms to bring in from outside capabilities that their own society does not provide. We do not conceptualize the transformation of European capitalism as a process of wholesale adoption of American liberal market institutions. Industrial models cannot be transplanted into new geographic settings without being altered in some way to fit their new institutional contexts. An example is the „Fordist" vertically and horizontally integrated „modern corporation", which arose as an American organizational innovation. When it was introduced in Japan, it triggered radical organizational transformation in Japan, for the tenets of mass production were adapted to smaller consumer and capital markets (Sayer, 1986). The result was „lean production", a system so efficient that, in many important manufacturing industries (e.g., steel, autos, electronics), it created a competitive crisis among the leading industrial firms in the United States and Europe (Womack et. al. 1990).

Beyond a process of „retrofitting" needed to adjust foreign institutions and practices to new settings, we see a more fundamental process at work today. Firms are able to reach out and acquire capabilities - organizational, technological, market access - that they cannot develop with their own resources and that are not available in their own society. By combining these new assets and capabilities with their old institutions, they both transform and preserve their old strengths (Hall 1997).

National differences will still matter, because they shape the distinctive strengths and weaknesses of firms in the society and thus shape the fundamental strategic decisions on reorganization and relocation of the enterprise. At the same time, firms and industrial systems that have historically been rooted in national economies have become increasingly connected, particularly as cross-border production networks have developed. International competition confronts national industries with the industrial practices of other national systems, and accelerates the rate of organizational change as firms from one nationally-based system adapt to new competitive pressure from another by adopting, however imperfectly, the organizational characteristics that are perceived as providing competitive advantages for their rivals. There is great potential for powerful forces of innovation to be unleashed as attempts at imitation combine with homegrown organizational characteristics to create new approaches to organizing production.

A crucial question arises. Can such adaptation be accomplished without sacrificing the institutions that reflect each country's historical consensus on how to accommodate market capitalism within society? There are at least two possible outcomes. If adaptation cycles continue to become shorter and more intense over time, the changes we are seeing today may drive production systems everywhere toward convergence around a more common organizational model. Over the long term, national production systems will gradually lose their distinctive historical characteristics as global economic integration thicken cross-border linkages among enterprises. In this scenario, the distinctive features of national production models would fade away as a global pattern takes shape.

Alternatively, the adoption and adaptation of parts of industrial models from other places, and the innovative approaches to organizing production that issue forth as a result, may well be possible within the institutional context of different national systems. They could remain distinctive and perhaps even divergent as industrial practices developed in other places are absorbed and transformed on an ongoing basis. The impact of tapping into practices and production networks emanating from outside national systems could reinforce national differences if firms could access organizational resources not available within their own society and thus compensate for traditional weaknesses. The key question is whether elements - or „modules" - of economic organizations developed in other places can be incorporated into European societies without the full institutional panoply that supported the functioning of these modules on their home terrain.

3. New options for industry organization and location

In the 1990s European industries face more global competitive pressure, but: they also have more opportunity to draw in global resources. Today, corporate reorganization is strongly influenced by new practices and patterns of industrial organization that have emerged outside of Europe - especially in Japan and North America. Firms are tapping into these new options - mainly the abilities of production networks to provide external economies of scale and external flexibilities - to respond to volatile markets, shortened innovation cycles, and increasing costs of R&D. These forces are loosening the fit between models of industrial organization and national contexts.

These new paradigms and practices represent both a challenge for European industries and a set of new options for transformation. Innovative forms of industrial organization are now more transferable across national contexts than during the era of Fordist mass production. The latter was mainly based on organizational capacities and practices inside firms. Therefore the „modern corporation" - as defined by Chandler (1977) - served as the key institutional framework to realize economies of scale and of scope. With respect to value chains, the objective was to control them by integrating suppliers vertically into the large multidivisional enterprise (Coase, 1937; Williamson, 1975, 1985). But the viability of the

giant corporation depended on preconditions, such as market size, which were not present everywhere.

The fragmentation of value chains

In contrast, the more recent organizational answers to new conditions - such as market volatility, shortened product life cycles, and increased costs of innovations - are based on different institutional preconditions. The preoccupation of industrial organization has shifted away from the logic and ramifications of the *internal structures* of the modern corporation to the *external economies* created by the interactions among firms (Richardson, 1972; Johanson and Matson, 1987; Powell, 1987, 1990; Jarillo, 1988; Bradach and Eccles, 1989; Lorenz, 1992; Cooke and Morgan, 1993). We call this new focus the *production network paradigm.* The common feature of production networks is that they rely on fragmented rather than on vertically integrated value chains. Because industrial producers focus on functional specialization and inter-firm rather than on intra-firm divisions of labor, production networks allow economies of scale to be de-coupled from any single firm. We refer to the scale economies that reside in production networks as *external economies of scale*.

The focus on production networks provides a unique window into the transformation of both industrial and developing societies. In our view, the new options for reorganizing and relocating economic activity that production networks present provide a key analytic bridge between economic and institutional elements that operate at various scales, from industrial districts and national economies, to trade blocs and the global economy. When viewed through the lens of the production network, it becomes clear that relocation and reorganization are not discrete strategic choices. Since some production networks extend across national borders, and others have been made newly available through the shifting terms of market access, firms from outside existing networks have new opportunities to tap network capabilities without the need for home-grown organizational innovation and network building. Thus, relocation and reorganization can be seen as complementary forms of industrial transformation.

We see three types of production networks that play important roles in the reorganization of European industry today: the *captive* production network, the *relational* production network, and the *turn-key* production network. Each network type has a different set of actors, is coordinated differently, has its origins in a different national setting, and provides European firms with a different set of advantages and limitations.

Captive production networks[2]

Captive production networks rely on dominant lead firms to coordinate tiers of largely captive suppliers (Schonberger, 1982; Dore, 1986; Sayer, 1986; Aoki, 1987; Sako, 1989; Womack et. al., 1990). For example, production networks led by Japanese firms include suppliers that are likely to be highly dependent on one or a small number of key customer firms. Buyer-supplier relationships are often formed between affiliates of the same industrial group. Lead firms may make equity investments in their suppliers and over time come to dominate them financially. Lead firms often urge affiliated suppliers to adopt specific production technologies and quality control systems and provide the required technical assistance and financial support.

The advantages of such close buyer-supplier linkages are high efficiency, stimulated by technological upgrading in the supply base, close coordination of „just-in-time“ deliveries, and flexibility in the face of market volatility, as workers and suppliers are redeployed on short notice. In the context of market volatility, the strong lead firms can oblige their suppliers to cut costs

2 The term “captive” refers to a distinction which is common in the electronics industry. Within this industry suppliers (such as semiconductor manufacturers) which are vertically integrated into final producers (such as computer firms) are called “captives” whereas independent suppliers delivering to the open market are called “merchants”. Following this distinction we use the term “captive” for those production networks which are predominantly coordinated by the final producer.

and output in bad times or invest in new customer-specific production capacity in good times. Lead firms support loyal suppliers through hard times and with new business in good times. Captive production networks are a key element of the „lean production system“ (Womack et. al. 1990).

The interdependence of captive production networks also has disadvantages, for mutual dependence makes it more difficult and costly to begin and end supplier relationships. While this feature limits opportunism, it also make the overall system less adaptable since the ability to make and break network relationships is constrained. The „porosity“ (i.e. ease and speed of information and materials flow) within the confines of the captive network may be high, but the outer perimeter of the network is resistant to linkages with economic actors outside the network, a major weakness in the context of globalization. The negative outcomes associated with captive production networks are mounting structural rigidities in the system, technological „cul-de-sacs“, geographic inertia, the development of redundant offshore production systems, excessive accumulations of debt to keep the system running during extended economic downturns, and limitations in the scale and scope of external economies.

Relational production networks

Relational production networks have a long history in Europe as well as in other world regions. They tend to be built through social and spatial proximity and especially through long term contracting relationships between firms. Embedding economic relations in social relationships can create authority relationships and norms of behavior (e.g. trust, reciprocity, reputation, peer pressure) that reduce the threat of opportunism and provide an alternative governance mechanism to the internal hierarchy of the integrated firm on the one hand and pure market relations on the other (Granovetter, 1985). Geographers (e.g. Scott, 1988; Storper and Walker, 1989) have emphasized that relational production networks tend to operate within the bounds of specific localities. The industrial districts of Italy (Brusco, 1982; Piore and Sabel, 1984), the regional supply networks of Germany (Sabel, 1989; Herrigel, 1993), clusters of apparel assembly sub-contractors and home-workers in the greater agglomerations of New York and Los Angeles (Bonacich, 1994; Gereffi, 1994; Taplin, 1994), the family-based business networks of overseas Chinese in East Asia (East Asia Analytical Unit, 1995; Gereffi, 1996; Berger, 1997), and even Silicon Valley (Saxenian 1994; Luethje, 2001) are examples of places where robust relational production networks operate. Relational production networks tend to be embedded in larger socioeconomic systems, in some cases allowing the temporary redeployment of workers to agriculture or the „informal“ sector when the demand requirements of buyers change suddenly.

Relational production networks can adapt to volatile markets quite rapidly. The trust, personal, and familial relationships of the community enable individuals and small firms to take on new roles as conditions change. The manufacturing base is often fragmented into a myriad of small subcontractors specialized not only on a single stage of the manufacturing process, but often on a particular sub-process of one stage. Flexibility stems from the local concentration of extremely specialized small firms that can be recombined into multiple configurations according to changing market demand and to the requirements of the lead firms in the network. The highly fragmented organizational structure allows flexibility to meet the requirements of small batch runs, short lead times, fast delivery, and quick market entry and exit.

The drawbacks of relational production networks are high barriers to entry and geographic boundedness. As in the captive network, relational network linkages take a long time to build up, since trust, reciprocity, and shared identities can take generations to solidify. If firms remain small and the industrial structure fragmented, scale economies can fail to develop and coordination costs can be high, especially when buyers are

from outside the network. The social embeddedness of the network, while providing flexibility and adaptability, limits the porosity of the network's outer perimeter and binds it to specific locations. For outside buyers to gain access to a relational network's capabilities, intermediary individuals, firms, or institutions must be used. If such intermediaries are not present, relational networks can remain isolated from buyers, financing, and input sources from the outside.

Turn-key production networks

Many American companies have responded to the pressures of international competition by developing a distinctive model of networked production. We call it the *turn-key production network*, because it is based on highly qualified suppliers (Sturgeon, 1997, 1999). Turn-key suppliers provide a wide range of production-related services, including logistics, process engineering, component purchasing, manufacturing, assembly, packaging, distribution, and even after-sales service. In some industries, such as motor vehicles, suppliers perform module and component design tasks as well (Sturgeon and Florida, 1999). The principal difference between American-centered turn-key production networks and Japanese-centered captive production networks is the *merchant* character of turn-key suppliers, which is achieved through the development of a large and diverse pool of customers. To facilitate this, turn-key suppliers often specialize in a cross-cutting *base process*, one which is used to manufacture products sold in a wide range of end-markets (e.g. pharmaceutical manufacture, semiconductor wafer fabrication, plastic injection molding, electronics assembly, apparel assembly, brewing, telecommunications backbone switching); *base component*, one which can be used in a wide variety of end-products (e.g. semiconductor memory, automotive braking systems, engine controls); or *base service*, one which is needed by a wide variety of end-users (e.g. accounting, data processing, logistics). The key point is that long term contracting relationships - although they do exist - are not required. Thus, it appears that lead firms in American-centered production networks have increased their reliance on external suppliers while retaining their traditional focus on cost cutting, price-based supplier relationships, and competitive switching.

Production networks that rely on merchant suppliers are very permeable, allowing buyers easily to connect to and disconnect from suppliers with a wide variety of technical and geographically-specific attributes. The result is a highly flexible system characterized by fluid relationships (low barriers to entry and exit), geographic flexibility, low costs, rapid technological diffusion, and powerful external economies of scale and scope. Because the actors in turn-key production networks strive to limit interdependence, the ability to switch partners is retained. Thus barriers to entry and exit are low, resulting in a high degree of *organizational flexibility*. Since the merchant manufacturing capacity in the turn-key network can quickly be turned toward those brand-name firms that win in the marketplace and away from those that lose, the result is *more intensive capacity utilization and lower overall costs.* Like the other models, turn-key production networks are embedded in particular locations that support the day-to-day functioning of the network. But due to high *geographic flexibility and reach* geographic clusters of activity can easily be woven into wider network. As a result, such networks create new possibilities for brand-name firms to implement global-scale production strategies without FDI. In the turn-key network, market-creating innovative capacity is kept in-house by brand-name firms while market-supplying productive capacity moves into commodified external economies that can be shared by the industry as a whole, creating large external economies of scale.

There are potential drawbacks of the turn-key model. As suppliers gain in financial strength, technical and operational competence, and geographic reach - and as brand-name firms become extremely reliant on them - suppliers might take the further step of developing their own end-products in competition with their customers (Fine, 1998). This happened in the 1970s and 1980s, when American consumer electronics firms used Japa-

nese suppliers to manufacture their products. Eventually, American firms lost control of product definition and were reduced to affixing their brand names to Japanese designed and manufactured products. These Japanese firms now dominate most consumer electronics markets, and American consumer electronics firms have all but disappeared. Another concern stems from the merchant character of turn-key networks. If suppliers work for brand-name firms that are in direct competition with one another, the possibility of technological leakage to competitors and loss of intellectual property arises. The experience of outsourcing a product's production only to find a counterfeit version appearing on the market months later is not unknown. Finally, the outsourcing of broad swaths of activities formerly performed in house raises the possibility that brand-name firms will lose process expertise that makes them more astute buyers of external services. Such expertise might turn out to be critical to ongoing success in product development. American automakers have been particularly concerned about retaining their ability to design vehicles even as they outsource module design to large suppliers and spin off their internal parts divisions as stand-alone merchant suppliers.

The pressure on firms to reorganize and use the advantages of these new organizational models is high. We do not argue that there is one best model, but that the three different types of production networks presented here each provide a distinct set of advantages and disadvantages for firms that use them. We also acknowledge that the production network forms presented here are not mutually exclusive; we see ample evidence of interconnection and overlap among various network types. Each network type also captures a major „industrial model" that has been put forward in the literature on industrial organization and economic performance. Specifically, captive production networks map to the „lean production" model (Womack et al. 1990), relational production networks map to the „flexible specialization" model (Piore and Sabel 1984), and turnkey production networks map to the „virtual corporation" model (Davidow and Malone 1992). The benefit of projecting these industrial models into their associated network forms is to draw attention to their dynamic spatial attributes, especially to their performance and impact on host and home economies when they are projected outward or woven together as global-scale economic systems.

Production networks in Central East Europe

In what ways can new production networks be utilized in the day-to-day operations of European firms? There is a range of possibilities. First, firms have the possibility of co-location, i.e., locating industrial activities in the networks´ place of origin - be it in the US, Japan, or Hong Kong. Second, efforts can be made to import production networks directly into European firms' home ground by using them as a blueprint for industrial reorganization. Third, European firms can tap into production networks that have been projected into Europe, mainly for the benefit and at the behest of foreign firms. This last possibility is typified by the growing importance of American electronics contract manufacturers in France, Germany, Sweden, and the UK. All of these options are used, and they create tensions with the institutional environment in which European firms are embedded. This is especially true for continental Europe, and for nations with a traditionally thick institutional environment like Germany.

One option stands out as particularly important: the opening up of new spaces in the East. These spaces are increasingly used by West European firms as production bases, and we claim that since the mid 90s they have increasingly been used to create innovative cross-border production networks. Locations in Central East Europe (CEE) are playing an important role in the reorganization of European production systems by fragmenting formerly vertically integrated industry structures and reshaping supplier relationships. West European firms have quickly learned that locations in CEE provide more advantages than low wages; they are highly useful for experimenting with and crafting innovative strategies toward industrial organization. CEE locations pro-

vide a set of resources - such as a qualified and experienced workforce - in close spatial proximity to West Europe. Countries such as Hungary, Poland, and the Czech Republic already have preferential agreements with EU and belong to the first wave of membership-candidates. It is likely that these three countries will soon be part of the EU and thus even more suitable for incorporation into newly created production networks.

Available data support our claim that Western (predominantly German) firms are using new locational opportunities in CEE (predominantly in the Czech Republic, Hungary, and Poland) to create new organizational practices. (Landesmann, 1995; Ruigrok and van Tulder, 1998; Zysman and Schwartz, 1998; Dörr and Kessel, 1999; Freudenberg and Lemoine, 1999; Pellegrin, 1999; Hunya, 2000) There is evidence that firms - in contrast to the market-seeking approach to initial investments - are deploying a strategy to internationalize production in connection to a systemic reconstruction of their entire production system, creating a set of innovative production networks that span corporate and national boundaries. In other words, a relocation of industrial activities to CEE is closely connected to a reorganization of production systems at home. Data indicate that CEE-locations function as platforms to try out new organizational patterns and practices. This is not limited to exceptional cases but is a trend that is speeding up as we enter the 21st Century. While the early 90s was characterized by a high degree of uncertainty in regard to what West European industries should do with the ruins of state-socialist industries, it now seems that significant parts of West European industry have learned - or are now learning - how to use production capacities in CEE to enable their own transformation. Still, there are questions that remain open.

Although West European industries increasingly use production systems that are networked with the capacities that exist in CEE locations, little is known about the details of emergent organizational models and practices. There is a lack of information about the exact capabilities of parts of production networks which are located in CEE (in terms of economies of scale, flexibility, technological competence etc.). We do not know what type of production networks western based firms are creating when they reach out to eastern locations. To be more specific: Are western firms creating more or less pure forms of captive, relational, and turn-key network models, or are these models being transformed by their insertion into the European context (including CEE), with deviating forms or hybrid combinations as the outcome? Who are the actors involved, what is the relationship between them, and what kind of new organizational practices do particular production networks make possible for Western firms?

Case evidence already shows that the types of networks used by western firms are far from being homogeneous. The question is how to explain this diversity of production network forms. Do Western firms' production network patterns vary more according to sectors or by country? For example, do West European automobile manufacturers use production networks in CEE in similar ways, whereas the West European apparel producers follow a different path? Or, do patterns depend primarily on the national origin of the western lead firms, so that within the same industry, firms - for instance from Germany - would chose different strategies than their French competitors.

4. Relocation and reorganization - Consequences for national models and industrial development paths

The debate over globalization in advanced countries has focused on changes in domestic social, economic, and political institutions that are being driven by corporate reorganization and relocation. At the center of this debate is the question of the impact of the relocation of corporate activities abroad and the concomitant reorganization of home-based activities will have on national institutions and development paths. But, much of the scholarly focus has been on the macroeconomic side of these changes and, in particular, on the effects on wages

of less-skilled workers in advanced societies. The discussion of the consequences of increased capital mobility and the increased elasticity of demand for labor in an open international economy has largely focussed on aggregate effects. The motivating question has been whether capital mobility undermines the viability of alternative national approaches to organizing a market economy.

We shift the focus of attention from one oriented to discovering shifts at the level of the economy as a whole to exploring the range of possible outcomes at the level of individual enterprises and industries. Firms are transforming themselves by building new linkages to external economic actors. Networked production is a way of creating economies of scale and scope in the face of market volatility, rapid technological change, shifting consumer markets. As West European firms increasingly create production linkages across corporate and national boundaries - especially into CEE locations - to gain access to innovative models to organize industrial production we need to ask what the impact will be on firms´ home societies. How does the aggregation of firm-level decisions shape the future of different national production models? This includes the impact that firm-level decisions will have on national institutions and on the corresponding social or political actors' ability to shape economy. Will home societies be able to preserve their distinctive historical preferences for embedding markets within the framework of social institutions?

We start from the assumption that the impact on the home societies of western firms will depend on patterns of industrial division of labor, that - as a result of changes abroad and at home - take shape between Western and Central East Europe. The key question is: do the eastern and western parts of the re-organized value chain develop complementary specialization? Or, do the production activities located in the East parallel existing production segments in the West? The mainstream debate implicitly assumes that globalization of production inevitably leads to parallel - and therefore redundant - industrial structures. As a result, production locations are to a large extent interchangeable. Consequently firms can use these parallel structures - or the plausible threat to build them - to start concession bargaining and to put pressure on governments to reduce socio-political regulations and limit economic activism. If globalization primarily follows such a path the repercussions for West European societies will unravel old societal compromises: firm strategies will threaten institutional settings as assumed by those, who - in our view - overestimate globalization.

In contrast, our claim about production networks supports an argument that the emerging pattern of industrial division of labor is one in which Western firms tend to integrate cross-border production systems in a way that reduces redundancies and avoids parallel production structures. Firms place different (in terms of costs, skills, supporting services, research infrastructure etc.) fragments of the value chain in different locational contexts. Thus they do not bet on the interchangeability of production locations but on the ability to weave the particular characteristics of various locations into a transnational production system. This means that the East will capture segments of the value chain that better fit the institutional setting of the East. There is evidence that a pattern of complementary specialization will predominate in the division of labor in pan-European production networks (Kurz and Wittke 1998). What will the consequences be for West European home societies?

This question is not easy to answer because complementary specialization implies a redistribution of industrial capacities between East and West that may not show up clearly in aggregate statistics. It is hard to estimate or measure complementary specialization, as there are a range of complicated and indirect interactions (Hirsch-Kreinsen 1998). Beyond quantitative effects, the repercussions of complementary specialization on Western firms´ home societies are complex, as complementary specialization takes multiple forms. A division of labor that follows the pattern of complementary specialization would mean that firms acquire

capabilities abroad that are not available in their home societies or do not fit their institutional settings. This could help to preserve their old strengths and could even reinforce the distinctiveness of national institutional settings. For example the traditional „German model" of production could gain new strengths as parts of the value chain that are ill-suited to the institutional setting of Germany, such as labor-intensive, low wage, and low skill stages of production, can be drawn from CEE through production network linkages.

This might be the outcome if the new division of labor were to follow a pattern of complementarity and locate only low-end manufacturing in the East while retaining more sophisticated manufacturing in facilities located at the western home bases. In Germany the result of such globalization would be that industrial activities that are particularly supported by the German set of social and political institutions would survive. But this is not necessarily the outcome of complementary specialization in cross-border production networks. Network-type organizations in CEE mainly involves manufacturing - including technology and skill intensive parts of manufacturing. This suggests that manufacturing as a whole might be largely relocated to CEE locations while everything but manufacturing would remain in the West: research and development, product definition, marketing, services, etc. The shape of the industrial base in West European countries like Germany could radically shift to a quite different type of firm, field of action, occupational structure, skill mix, and employment relation. This new industrial structure in the West could provoke strong tensions with the traditional institutional settings - such as the „German model".

The point is that the very same kind of industrial division of labor - complementary specialization - that seems to result in a win-win situation for Western and Central East European societies could also undermine continuity in the Western home societies: the continuity of firm-level production systems as well as of their societal and political regulation. To put it differently: firm strategies, responding in new ways to the challenges of globalization, could put pressures on West European societies to reshape political and social institutions. But, the threat is quite different from the one typically raised by the globalization debate. For the debate about the challenges for West European societies and the available options to identify the real stakes, we need to ground analysis in empirically-based knowledge of the nature and impact of new industrial divisions of labor and production networks.

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