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The Effects of State–Societal Arrangements on International Competitiveness: Steel, Motor Vehicles and Semiconductors in the United States, Japan and Western Europe

JEFFREY A. HART*

Changes in international competitiveness since the Second World War have favoured Germany and Japan over France, the United States and Britain. This applies to competitiveness in general, but is examined here in three specific industries: steel, motor vehicles and semiconductors. Explanations of changes in competitiveness often focus on economic and cultural variables, but an examination of the three industries shows that a better explanation can be found in the way in which each country organizes its state and its society. State–societal arrangements influence competitiveness mainly through their impact on the speed of diffusion of new technologies. The disparate cases of Germany (strong business and labour, weak government) and Japan (strong business and government, weak labour) suggest that there is more than one path to competitiveness. The literature on competitiveness has focused too much on Japan, and therefore on state industrial policies, as the key to increasing competitiveness. The German case shows that increased competitiveness is possible with a relatively weak state, but only if there is a major commitment to upgrading the skill levels of the work force.

The main argument of this article and the larger research project from which it springs¹ is that variation in state–societal arrangements is a key to explaining changes in the international competitiveness of the five largest capitalist countries since the Second World War. The reason that state–societal arrangements matter is that they can accelerate or impede the development and diffusion of technological innovations that are crucial for competitiveness (see Figure 1). This impact is felt most strongly during technological transitions such as the one we are currently experiencing.²

Because state–societal arrangements vary significantly among the major industrialized capitalist countries, there is likely to be very uneven growth during periods of technological transition. This uneven growth is the most

* Department of Political Science, Indiana University. An earlier version of this article was delivered at the Annual Meeting of the American Political Science Association, San Francisco, 1990.

¹ Jeffrey A. Hart, *Rival Capitalists: International Competitiveness in the United States, Japan, and Western Europe* (Ithaca, NY: Cornell University Press, 1992 forthcoming).

² The idea of technological transition is taken from a variety of sources including: James Kurth, 'The Political Consequences of the Product Cycle: Industrial History and Political Outcomes', *International Organization*, 33 (1979), 1–34; Michael J. Piore and Charles F. Sabel, *The Second Industrial Divide* (New York: Basic Books, 1984).

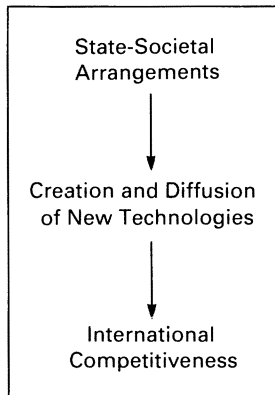


Fig. 1. *The main argument*

important source of changes in the distribution of economic power and therefore of military/strategic power.³

State-societal arrangements are deeply rooted in the history of each country. Major upheavals connected with intense domestic social turmoil, the fighting of global wars, or drastic shifts in international competitiveness can result in changes in those arrangements. Despite some change in state-societal arrangements over time, there is little evidence that variance in arrangements has decreased. The decline in US competitiveness and the rise in Japanese and German competitiveness has resulted in increasing conflict over international economic regimes in the last two decades.

All countries favour international economic regimes that are congenial to their internal state-societal arrangements. They would rather fight over international economic regimes than change their domestic arrangements. Economic hegemony permits one economically powerful country (for example, Britain in the nineteenth century and the United States after the Second World War) to establish regimes that are highly consistent with its domestic arrangements. However, winning the consent of other countries to the establishment of these

³ The key original works on hegemonic decline are Charles Kindleberger, *The World in Depression, 1929-1939* (Berkeley: University of California Press, 1973); Stephen D. Krasner, 'State Power and the Structure of International Trade', *World Politics*, 28 (1976), 317-47; Robert Gilpin, *US Power and the Multinational Corporation* (New York: Basic Books, 1975). More recent discussions of the theory can be found in Robert Gilpin, *The Political Economy of International Relations* (Princeton, NJ: Princeton University Press, 1987); and Michael C. Webb and Stephen D. Krasner, 'Hegemonic Stability Theory: An Empirical Assessment', *Review of International Studies*, 15 (1989), 183-98.

regimes requires compromises, and a certain amount of variation in state–societal arrangements will be tolerated as a result.⁴

As other countries grow in relative economic strength, and especially if the hegemon declines relative to one or more challengers, there will be increasing conflict over the content of pre-established regimes. There will also be debates over domestic arrangements in the major industrial countries, especially those suffering a relative decline (for example, Britain and the United States), but also in those whose competitiveness has increased (for example, Germany and Japan). Unless there is a major economic crisis, or some other cataclysmic event (like a major war or revolution), these debates will result only in gradual changes in state–societal arrangements.

RESULTS OF EMPIRICAL ANALYSIS

These propositions were examined in the context of a comparative analysis of the role played by state–societal arrangements in changes in international competitiveness in the five largest industrial capitalist countries – the United States, Japan, the Federal Republic of Germany, France and Britain – in three industries – steel, motor vehicles and semiconductors – since the Second World War. These three industries were chosen to represent three distinct waves of innovation in industrial technology and to test the proposition that there is more consistency in state–societal arrangements within nations across industries than there is within industries across nations.

One of the key findings was that international competitiveness in steel, motor vehicles and semiconductors has been strongly dependent on the diffusion of new technologies. In the case of steel, the new technologies were basic-oxygen processing and continuous casting. In the case of motor vehicles, the new technologies were just-in-time (or *kanban*) production systems and, later, new forms of factory automation. In the case of semiconductors, the new technologies were the product and process technologies necessary to move from one generation of semiconductors to another (for example, from transistors to integrated circuits and from integrated circuits to large-scale integrated circuits).

Those countries that were successful in innovating and diffusing these technologies earliest were most likely to increase their share of world production, to experience high rates of productivity growth, to maintain or increase employment, and to experience fewer financial crises. Overall, innovation was not as important as diffusion. Even if domestic firms were not first in commercializing a new technology, the national industries that widely adopted new technologies in a timely manner had a distinct competitive advantage over those that

⁴ I am taking, as a point of departure, the work on hegemonic stability by scholars like Robert Gilpin, Stephen Krasner, Charles Kindleberger, Robert Keohane and others. The idea that variation in state–societal arrangements is tolerated is consistent with John Ruggie's idea of 'embedded liberalism'. See his 'International Regimes, Transactions, and Change: Embedded Liberalism in the Post-War Economic Order', *International Organization*, 36 (1982), 379–415.

did not, independently of other presumably important variables like average wages.

Defining International Competitiveness

The definition of international competitiveness has proven to be controversial, but one proposed by the President's Commission on Industrial Competitiveness seems to satisfy many experts: 'the degree to which a nation can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining or expanding the real income of its citizens.'⁵ This definition has three main elements that deserve some elaboration.

First, meeting the test of international markets means the ability to design, produce and distribute goods and services at costs that are globally competitive. Factor costs and the application of leading-edge technologies enter in here most centrally. If factor costs are high or rising, application of technologies that increase the productivity of factors will be crucial for maintaining or increasing competitiveness. If a country's factor costs are low, the application of productivity-enhancing technologies can give an extra boost to its competitiveness.⁶

Secondly, there is the question of whether market conditions are free or fair. If they are not, then some countries will appear to be internationally competitive when they are not, because their domestic markets are sheltered or their firms are receiving large subsidies. Any country can have a simulacrum of competitiveness by adopting illiberal policies. Similarly, truly competitive countries will appear not to be competitive, because their unsubsidized and unprotected industries are forced to compete with subsidized or sheltered firms from other lands.

Thirdly, there is the question of real incomes. If a country is experiencing a large increase in exports, but real incomes are declining, it may be inferred that workers and other citizens are subsidizing the nation's competitiveness. Any country can adopt labour market policies that reduce real wages in order to improve its position in world trade. This practice, however, should not be identified with genuine competitiveness.⁷

National competitiveness is not the same as the competitiveness of nationally owned firms. Firms that are multinational in operations frequently put large amounts of their productivity-enhancing technologies in foreign locations.

⁵ *Global Competition: The New Reality*, Report of the President's Commission on Industrial Competitiveness, Vol. II (Washington, DC: US Government Printing Office, 1985), p. 6; see also *The Cuomo Commission Report: A New American Formula for a Strong Economy* (New York: Simon and Schuster, 1988), p. 19; and Stephen S. Cohen and John Zysman, *Manufacturing Matters: The Myth of the Post-Industrial Economy* (New York: Basic Books, 1987), p. 60.

⁶ For a much lengthier discussion of the variables which explain competitiveness, see Michael Porter, *The Competitive Advantage of Nations* (New York: The Free Press, 1990), chap. 3.

⁷ 'Competitiveness is associated with rising living standards, and an upgrading of employment.' Cohen and Zysman, *Manufacturing Matters*, p. 61.

Thus, it is possible for them to be internationally competitive without having much impact on the competitiveness of the home country. Indeed, encouraging the local presence of foreign firms that use state-of-the-art design, production and distribution technologies can conceivably be a more effective way of enhancing national competitiveness than supporting domestic firms.⁸

It is not necessary to be competitive in all industries in order for a country to be competitive overall, but it *is* necessary to be competitive in a variety of industries. Countries that become too specialized in the production of a small number of industrial goods tend to become overly vulnerable to external economic shocks, such as disruptions in the supply of vital inputs, sudden changes in the demand for specialized products and predatory behaviour on the part of foreign producers in upstream or downstream markets. More importantly, there are industries that are economically strategic in the sense that a failure to be competitive in those industries makes it impossible for a country to be competitive in a range of others, because participation in those industries is necessary to obtain access to generic technologies.⁹

Measuring International Competitiveness

There are two basic levels at which to measure national competitiveness: economy-wide and industry-specific. In this article the stress is on the latter, although there appears to be sufficient consistency across industries to suggest that an economy-wide approach is possible. The main reason to measure competitiveness at the level of specific industries is that data on specific industries is easier to interpret than data on the economy as a whole. Interpreting economy-wide data on competitiveness is complicated by a number of problems to be discussed below. In addition, if technological innovation and diffusion is an important mediating variable, as hypothesized above (see Figure 1), it will be impossible to test this without looking at industry-specific data, since technologies vary widely from industry to industry. The competitiveness of an entire country cannot however be measured by focusing on a small set of specific industries, however. A judicious combination of industry-specific and economy-wide indicators is the best way to measure national competitiveness.

⁸ This issue is discussed in Jeffrey A. Hart and Laura Tyson, 'Responding to the Challenge of HDTV', *California Management Review*, 31 (1989), 132-45; Robert B. Reich, 'Who is Us?' *Harvard Business Review* (January-February 1990), 53-64; and Laura Tyson, 'They Are Not Us: Why American Ownership Still Matters', *The American Prospect* (Winter 1991), 37-49.

⁹ See Hart and Tyson, 'Responding to the Challenge', pp. 37-9. For a contrasting view, see Porter, *Competitive Advantage*, pp. 6-11. Here Porter argues that national competitiveness is either meaningless or simply a proxy for productivity. Porter does not accept the idea that some industries may be economically strategic. He notes, however, the tendency of firms in any given nation to be competitive in clusters of related industries.

MEASURING COMPETITIVENESS AT THE LEVEL OF THE WHOLE ECONOMY

International competitiveness can be measured on an economy-wide basis using such indicators as: (1) trade balances; (2) world export shares; (3) rates of productivity growth; (4) growth in real wages; and (5) price elasticities of imports.¹⁰ Increasing trade balances and world export shares, high rates of productivity growth, rapidly growing real wages and decreasing price elasticities of imports are all indicative of growing international competitiveness. Because productivity growth tends to be strongly correlated with growth in real income and because sustained growth in productivity requires constant upgrading of production techniques, productivity growth is the most fundamental and reliable way of measuring national competitiveness.¹¹

All of the economy-wide indicators are imperfect in some respect. Markets are often not free or fair. Trade balances and world export shares are subject to governmental manipulation of exchange rates and trade barriers. National production and export statistics usually do not reflect the ability of multinational firms to penetrate foreign markets through local production and licensing of technologies. Labour productivity grows rapidly during periods of massive layoffs; both labour and capital productivity increase sharply whenever aggregate demand surges. Nevertheless, the indicators listed above do a reasonably good job of measuring shifts in competitiveness over time.

A more accurate view of competitiveness is obtained by combining the separate indicators into a composite view. For example, a country that experiences growth in productivity, world export shares and real wages (such as Japan) is clearly more competitive than one experiencing declining productivity, world export shares and real wages (such as Britain).

Trade Balances and World Export Shares

Between 1980 and 1987, Japan and Germany experienced increasing global trade surpluses, while the United States and Britain suffered increasing deficits (see Figure 2).¹² France suffered from chronic trade deficits in the 1980s, but ones that were relatively small compared with those of both the United States and Britain.

World export shares in manufactured goods provide a similar picture. The United States and Britain both lost considerably in their shares of world manufactured exports between 1960 and 1982, although the United States started from a higher level. Japan rose rapidly, from around 6 per cent of world exports

¹⁰ The logic behind this last measure is that quality differentials between domestic products and imports will be indicated by low price elasticities of imports. See *Global Competition: The New Reality*, p. 8; and Cohen and Zysman, *Manufacturing Matters*, pp. 61 and 68.

¹¹ Porter, *Competitive Advantage*, p. 6.

¹² The trade surplus from exports of petroleum in Britain (which ended in 1983) complicates using the trade balance as a measure of the competitiveness of Britain.

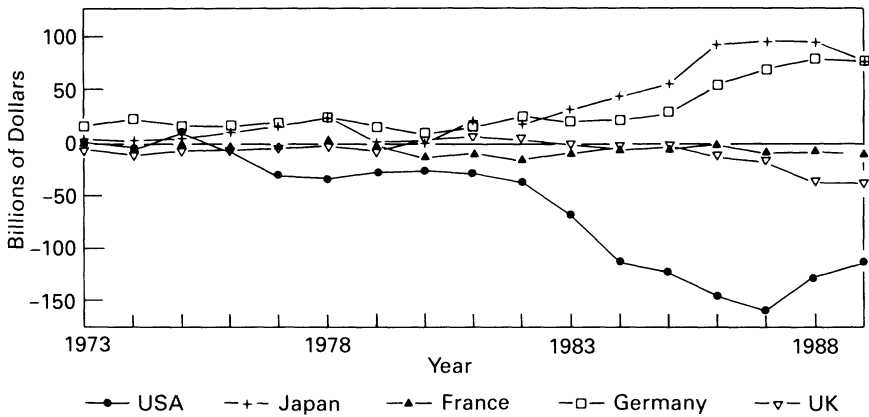


Fig. 2. Balance of trade of the five countries
 Source: International Monetary Fund, *International Financial Statistics Yearbook* (Washington, DC: 1990), p. 140.

to around 14 per cent during the same period. Germany held steady at around 20 per cent; France did the same at around 10 per cent.¹³

Productivity

Growth in productivity since 1960 has been most rapid in Japan and least rapid in the United States. From 1966 to 1973, Japanese total factor productivity grew at 6.3 per cent per year. From 1960 to 1973 US total factor productivity grew at 1.5 per cent per year. French productivity growth has been somewhat more rapid than that of both Germany and Britain, but all three have experienced more rapid productivity growth than the United States (see Figure 3).

Prior to the late 1960s, labour productivity in manufacturing in the United States grew at around 3 per cent annually. Between 1973 and 1979, it grew at only 1 per cent. It increased to 3 per cent between 1979 and 1986; but the authors of the MIT study, *Made in America*, warn against interpreting this as a return to economic health:

A significant fraction of the productivity gains in manufacturing were achieved by shutting down inefficient plants and by permanently laying off workers at others. Employment in US manufacturing industry declined by 10 percent between 1979 and 1986, and that loss of jobs accounted for about 36 percent of the recorded improvement in labor productivity. Another reason for caution is that the productivity recovery

¹³ Bruce R. Scott, 'National Strategies: Key to International Competition', in Bruce R. Scott and George C. Lodge, eds, *US Competitiveness in the World Economy* (Boston, Mass.: Harvard Business School Press, 1985), p. 27.

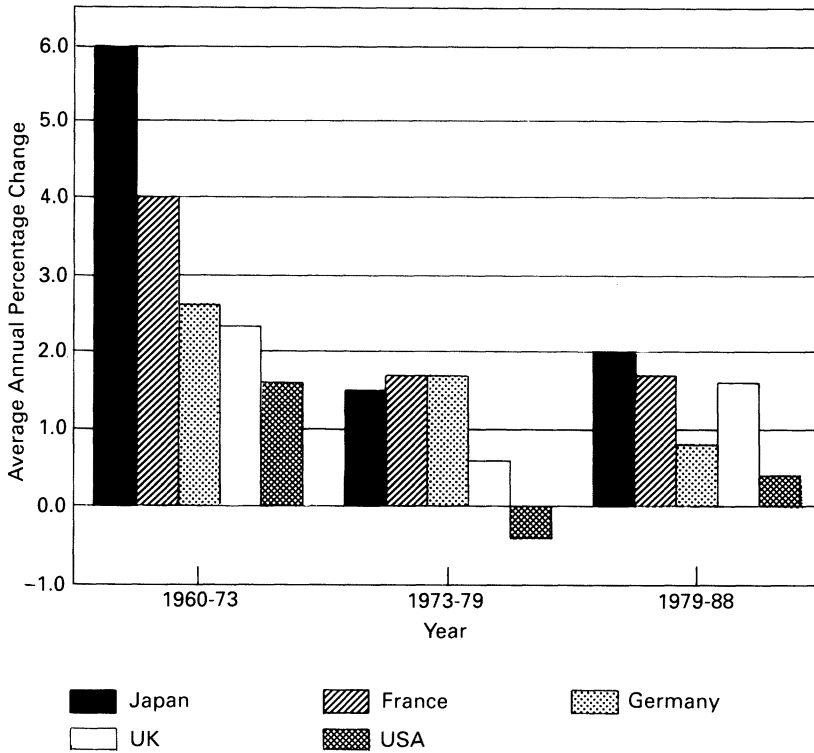


Fig. 3. Growth in productivity in the five countries

Source: Organization for Economic Cooperation and Development, *OECD Economic Outlook*, No. 48 (December 1990), p. 120.

spanned a deep recession; productivity growth always accelerates following a recession as factories increase their output and take up the slack in the economy.¹⁴

GROWTH IN REAL WAGES

Real wages rose steadily in all five countries between 1960 and 1989. The largest increases in real wages during that period were in France and Britain (see Figure 4). The smallest increases were in Germany and the United States, which started the period with higher absolute wages than the other three. The fact that real wages in Japan and Germany grew more slowly than those in France and Britain, while the former two countries outperformed the others in trade and productivity, suggests strongly that wage restraint was an important factor in their increased overall competitiveness. The slow growth of US real wages combined with its poor trade, profits and productivity performance suggests

¹⁴ Michael L. Dertouzos, Richard K. Lester, Robert M. Solow and the MIT Commission on Industrial Productivity, *Made in America: Regaining the Productive Edge* (Cambridge, Mass.: MIT Press, 1989), p. 31.

a general decline in competitiveness. The British pattern, as usual, is the worst: bad trade and productivity performances and rapidly increasing real wages.

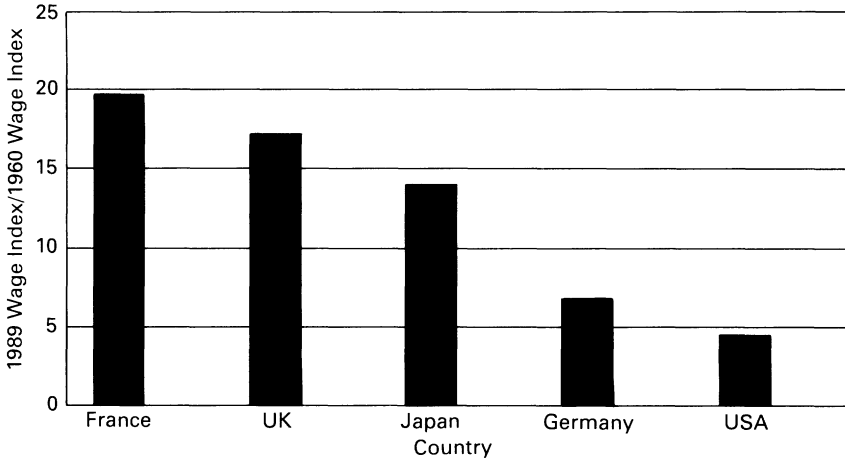


Fig. 4. Growth in real wages in the five countries, 1960–89

Source: International Monetary Fund, *International Financial Statistics Yearbook* (Washington, DC: 1990), pp. 112–13.

PRICE ELASTICITY OF IMPORTS

The price elasticity of imports in the United States increased in the 1970s and 1980s, as US buyers no longer were willing to pay a premium for US-made products because of perceived differences in quality.¹⁵ Price elasticity of imports has never been particularly high in Japan because of a generally low propensity to import (a fact that has much to do with the Japanese distribution system). Nevertheless, Japanese consumers began to buy consumer products from abroad as their affluence rose in the 1980s, especially luxury goods from Europe and low-end standardized products from Asian developing countries. The increased imports from Asia were partly the result of perceptions of decreasing quality differentials, while the imports from Europe were the result of continued perceptions of quality differentials in favour of European goods. In producer goods, with a few exceptions, Japanese buyers remained convinced of the superiority of Japanese products. Consumers in Britain and France have behaved more like those in the United States in recent years; consumers in Germany more like those in Japan.

¹⁵ Cohen and Zysman, *Manufacturing Matters*, p. 67. Cohen and Zysman cite the following source: Elizabeth Kremp and Jacques Mistral, 'Commerce extérieur américain: d'où vient, où va le déficit?' *Economie prospective internationale*, 22 (1985), 5–41.

SUMMARY OF ECONOMY-WIDE INDICATORS OF COMPETITIVENESS

In summary, the economy-wide data on competitiveness indicate increased competitiveness across the board in Japan and Germany, decreased competitiveness in the United States and Britain, with France somewhere in the middle. Japan does particularly well in trade and productivity; but Germany remains a close second. The United States and Britain both suffer a decline in competitiveness, but the United States starts from a much better initial position. The French do remarkably well until the 1980s, when they begin to experience chronic trade deficits and decreased productivity growth while wages remain on a steep upward trajectory.

MEASURING COMPETITIVENESS IN SPECIFIC INDUSTRIES

Useful indicators for national competitiveness in specific industries are: (1) growth in national shares of global production; (2) growth in employment of production workers; (3) growth in revenues and profits of firms in the industry; and (4) the frequency of industrial crises. In a specific industry, if a country is increasing its share of global production, increasing (or decreasing relatively slowly) its level of employment, increasing its revenues and profits and experiencing very few industrial crises relative to other countries, then that country has increased its international competitiveness in that industry. Although it will be impossible to present statistical evidence for all these indicators here, it will still be possible to show that the available industry-specific data reinforce the message conveyed by the economy-wide data: that Japan and Germany have increased their international competitiveness relative to the United States and Britain, with France again lying somewhere in between.

Production Shares

Global production of steel was 313 million metric tonnes in 1956. By 1985, this had increased to 793 million metric tonnes. The average annual growth of steel production by volume during that period was 3.4 per cent. The share of US production in this total dropped from 37 per cent to 11 per cent (see Figure 5). The absolute level of US production remained near the 1956 level through the beginning of the 1980s – averaging around 120 million metric tonnes. The mid-1950s were a relatively high point in the US share of global production because of sales of iron and steel to a Europe not fully recovered from the damages of the Second World War and because of a defence industry that had grown enormously during the Korean War.

The European share of global steel production rose substantially from the mid-1950s to the early 1970s, finally overtaking US production in 1968 and then dropped off to a plateau of 130–140 million metric tonnes. The Japanese,

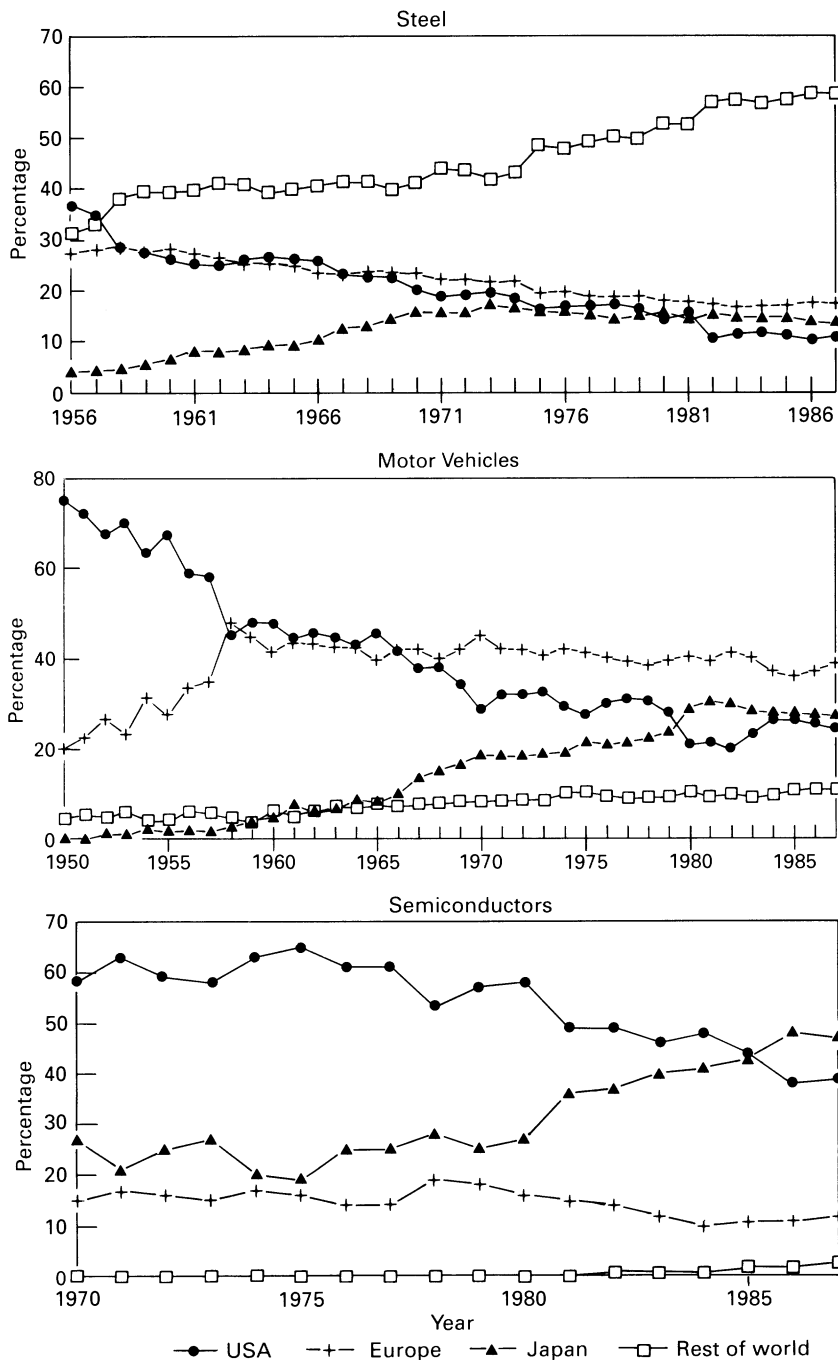


Fig. 5. World production shares in steel, motor vehicles and semiconductors

Note: Dataquest statistics for semiconductor production include estimates of captive production of semiconductors by large firms like IBM and AT&T.

Sources: American Iron and Steel Institute, *Annual Statistical Report* (Washington, DC: various years); Motor Vehicle Manufacturers Association, *Motor Vehicle Facts and Figures* (Detroit: various years); and Dataquest.

also recovering from the Second World War, increased their share of global production from 4 per cent in 1956 to around 15 per cent in late 1970s. Japanese steel production only surpassed that of the United States in 1980, but it should be recalled that the gross national product (GNP) of Japan was about half the GNP of the United States at that time. Japanese production levels hovered around 115 million metric tonnes after 1975. US production, in contrast, never regained its high point of 151 million metric tonnes (in 1973) but rather sank lower and lower to below 90 million metric tonnes by the mid-1980s.

Global motor vehicle production grew rapidly after the 1950s. The number of motor vehicles manufactured world-wide grew at an average annual rate of 5.1 per cent between 1956 and 1985. Global production of motor vehicles doubled from 10 million in the early 1950s to 20 million in the mid-1960s and doubled again to 40 million in the late 1970s. The US share of global production dropped from 75 per cent in 1950 to 26 per cent in 1985. Europe increased its share of global production from about 20 per cent in 1950 to almost 50 per cent in the late 1960s, but fell back to less than 40 per cent by the end of the 1970s. Japan increased its share of world production from virtually zero in 1950 to more than 30 per cent by 1981. Even though Europe remained the largest producing region, Japan, by taking the lead away from the United States in 1980, became the largest producing country. From a peak of 12.9 million motor vehicles produced in 1978, US production declined to 7.0 million in 1982 (lower than the production level of 1962), recovering to 11.7 million in 1985.

In 1987, world production of semiconductors was worth around \$39 billion and of integrated circuits (semiconductor devices that contain entire electronic circuits on a single chip) it was around \$29 billion. Between 1970 and 1987, world production of semiconductors grew at an average annual rate of 18.8 per cent. The share of discrete devices (devices that are not integrated circuits) in the overall market for semiconductors has been declining steadily since the invention of integrated circuits in 1958. Integrated circuits accounted for slightly more than 30 per cent of world production of semiconductors in 1970; by the 1980s, this figure was over 70 per cent.

In 1975, the United States accounted for 65 per cent of world production of semiconductors and 76 per cent of integrated circuits. The corresponding figures for 1987 had dropped to 39 and 41 per cent, respectively. Japan's share of world semiconductor production increased from less than 20 per cent in 1975 to 47 per cent in 1987. Its share of world integrated circuit production increased from 14 per cent in 1975 to 48 per cent in 1987. In 1986 Japanese production surpassed that of the United States in both semiconductors and integrated circuits.

The increase in the Japanese share of world production is remarkable, but perhaps more important is its domination of markets for the more advanced integrated circuits and especially CMOS (complementary metal oxide silicon) devices and the latest generation of random access memories (RAMs). By the end of 1979, the Japanese firms controlled 43 per cent of the US market for

16-kilobit (16K) dynamic RAM (DRAM) devices.¹⁶ By the end of 1981, they supplied almost 70 per cent of 64K DRAMs in the open part of the US market.¹⁷ In 1984, Japanese firms introduced 256K DRAMs before a number of major US firms did so. The same thing happened in 1987 with 1-Megabit DRAMs. Japanese firms controlled over 90 per cent of both 256K and 1-Megabit DRAM markets after 1986 and, on average, 75 per cent of total DRAM markets between 1985 and 1987.¹⁸

Employment

Employment in the British steel industry fell from over 270,000 in 1972 to around 52,000 in 1981. This was the largest percentage drop in steel employment in the five countries, but the largest absolute decline in steel employment was in the United States. US employment in steel dropped from 478,000 in 1974 to 170,000 in 1988. Although there were major reductions in jobs in the Japanese and German steel industries after 1973, they were not as large as the declines in the United States and Britain (see Figure 6).¹⁹

Employment in the British motor vehicle industry fell from 184,000 in 1972 (a peak year) to 78,000 in 1985 (see Figure 6). US motor vehicle employment dropped from 304,000 in 1978 to 194,000 in 1982, but rose again to around 250,000 in 1984 and 1985 (due to the recovery of the US economy and the VER agreement with Japan). The French and German motor vehicle industries created new jobs in the 1960s and 1970s, but the French industry began to shed jobs in the 1980s. German employment in motor vehicle production stabilized during the 1980s, possibly at the expense of needed rationalization.

Accurate and fully comparable statistical data on employment in the semiconductor industry are hard to find for the countries in this study. Most countries have only recently begun to report figures on employment in the semiconductor industry. Several countries lump data on employment in semiconductors together with data on employment in electronics or data processing. With these caveats in mind, I will report my findings.

Employment in semiconductor production in the United States rose from 234,000 in 1972 to 375,000 in 1984 and then fell to around 320,000 in 1986–87.²⁰ Employment in electronics in Japan was exceedingly buoyant from the early 1970s on, increasing from 948,000 workers in 1982 to 1,212,000 workers in

¹⁶ Michael Borrus, James Millstein and John Zysman, *International Competition in Advanced Industrial Sectors: Trade and Development in the Semiconductor Industry* (Washington, DC: Joint Economic Committee of Congress, 1982), p. 106.

¹⁷ Gene Bylinsky, 'Japan's Ominous Chip Victory', *Fortune*, 14 December 1981, p. 55.

¹⁸ Dataquest data presented by Andrew A. Procassini, President of the Semiconductor Industry Association, at Stanford University, on 21 October 1988.

¹⁹ All data cited in this paragraph are from the *US Industrial Outlook* (Washington, DC: United States Government Printing Office, 1988 and 1989).

²⁰ *US Industrial Outlook*.

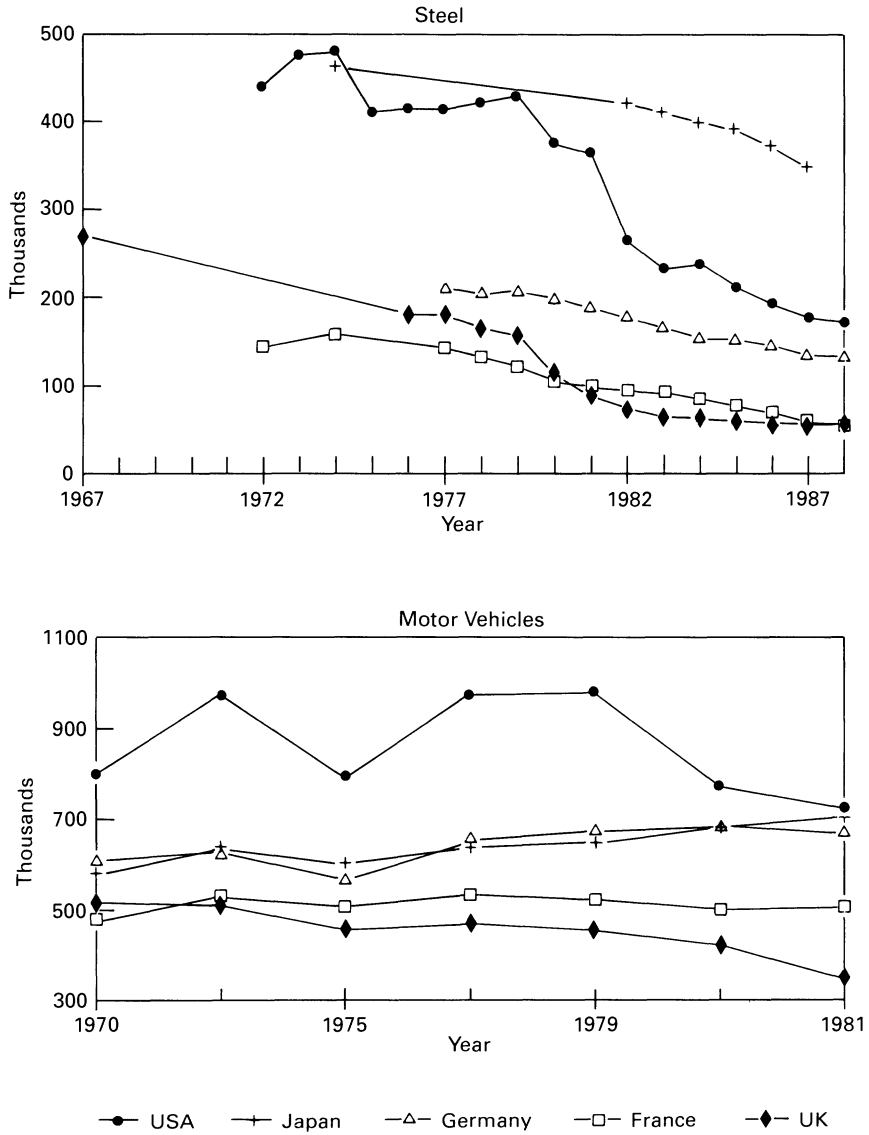


Fig. 6. Employment in steel and motor vehicles

Sources: Louka Tsoukalis and Robert Strauss, 'Crisis and Adjustment in European Steel: Beyond Laissez-Faire', in Yves Mény and Vincent Wright, eds, *The Politics of Steel: Western Europe and the Steel Industry in the Crisis Years* (New York: Walter de Gruyter, 1986), p. 208; Statistical Office of the European Community, *Iron and Steel Yearbook* (Luxembourg: Eurostat, 1989), p. 24; *US Industrial Outlook* (Washington, DC: United States Government Printing Office, various years); and Alan Altshuler, Martin Anderson, Daniel Jones, Daniel Roos and James Womack, *The Future of the Automobile: The Report of MIT's International Automobile Program* (Cambridge, Mass.: MIT Press, 1984), p. 201.

1986.²¹ Employment in the production of monolithic integrated circuits remained flat at around 50,000 workers in France, Britain and Germany between 1983 and 1989. Employment in hybrid integrated circuits increased in Germany from 58,000 to 103,000 workers and in France from 80,000 to over 150,000 workers during the same period; British employment in this area declined slightly from 182,000 to 164,000 workers.²²

Profitability

Firms in all five countries experienced financial difficulties during global recessions, but Japanese and German firms tended to do better during these periods and to emerge from them in better shape than American, British and French firms. Both Japanese and German steel firms suffered financially from the stabilization in demand for steel after 1973. In contrast, the larger motor vehicle firms of both countries did remarkably well financially for the entire period. There were exceptions, of course, such as the financial problems of Mazda and Volkswagen in the mid-1970s; but these were generally short-lived. Smaller firms that had financial problems were either acquired by larger firms or became linked to larger firms through various forms of interfirm co-operation. The profits of the Japanese semiconductor industry have been very strong, especially since 1986, while the profits of the semiconductor operations of Siemens, Germany's largest producer, have been relatively small compared with its main source of profits: large central-office switches for public telecommunications networks.

French firms did less well financially than the German and Japanese firms, especially during the 1980s, after steady growth in revenues and profits in the 1960s and 1970s. The French steel firms were unprofitable from the late 1970s through the late 1980s. The two main French motor vehicle firms suffered losses from 1980 through 1986–87, although Renault's losses were deeper and longer-lasting than those of Peugeot. The only major French producer of semiconductors, Thomson, made little money in that business during the entire 1980s.

British financial performance always tended to mirror the stop-go pattern of the British economy, but British profits took a turn for the worse in the 1970s and 1980s. The British Steel Corporation and British Leyland, the national champions in steel and motor vehicles, suffered deep and prolonged losses in the 1970s and 1980s, even during periods of economic recovery. British semiconductor firms were marginally profitable, but profits were contingent upon the continued funding of defence programmes, which provided the main

²¹ MITI data from the census of manufacturers as cited in *Facts and Figures on the Japanese Electronics Industry* (Tokyo: Electronic Industries Association of Japan, 1988), p. 29. These figures include employment in the manufacturing of all types of electronic components and systems and not just employment in semiconductor manufacturing.

²² Eurostat, *Industrial Production: Quarterly Statistics*, 3rd quarter (Luxembourg: Eurostat, 1990), p. 173.

source of demand in Britain for application-specific integrated circuits (ASICs). British firms, with the exception of a small firm called Immos, did not produce high-volume, standardized semiconductor devices.²³

American financial performance was reasonably strong in all three industries until the 1970s. The profits of the American motor vehicle industry generally depended on levels of domestic demand and were highly cyclical as a result. The huge losses of Chrysler and the lower profitability of Ford and GM beginning in the late 1970s were ended artificially with the negotiation of the voluntary export restraint with Japan in 1981. The semiconductor industry seemed recession-proof until the global semiconductor slump of 1985. Firms such as Intel and Motorola sprang back quickly when demand increased again, while others, such as AMD and National Semiconductor, never fully recovered from the shock.

Thus, profitability data reinforce the notion that Germany and Japan experienced increased international competitiveness during the period, while the United States and Britain suffered from competitive decline. The French experience was mixed: profits were generally up until 1980; the losses of the mid-1980s were followed by a general turnaround in the late 1980s.

Industrial Crises

Table 1 below lists forty-seven industrial crises in the five countries in steel, motor vehicles and semiconductors between 1960 and 1989. The main criterion for selection is the broad perception of the potential for financial collapse of a firm or industry and major possible consequences in increased unemployment, national or regional, and negative effects for important downstream industries.²⁴ Connected with each crisis is a combination of government, business and labour responses and a variety of outcomes – including bankruptcies, liquidations, acquisitions and mergers and government rescues.

Japan experienced the fewest industrial crises during the period and only one after 1973. Most of the crises it suffered were limited in scope, were dealt with quickly and did not recur. In contrast, Britain and France suffered the most crises, but the British crises were deeper than the French and more prone to recur. French crises were often provoked by the breakdown of bargaining between business interests and the state and are not, therefore, always good indicators of changes in competitiveness of firms or industries. Even though the United States suffered relatively few industrial crises, when they occurred they tended to be industry-wide. The management of industrial crises in the United States was much more likely to involve government imposition of trade barriers than in the other four countries.

One surprise in Table 1 is the frequency of German industrial crises. It should

²³ Immos was sold to SGS-Thomson, a Franco-Italian semiconductor firm, in 1989.

²⁴ For a more complete description and analysis of these data, see Jeffrey A. Hart, 'Crisis Management and the Institutionalization of Corporatist Bargaining Mechanisms', paper delivered at the Conference of Europeanists of the Council for European Studies, Washington, DC, October 1985.

TABLE 1 *Industrial Crises Since 1960 in the Five Industrial Countries in Steel, Motor Vehicles and Electronics*

Country	Steel	Motor vehicles	Electronics
United States	1968	1970 Chrysler	1985 semiconductors
	1977	1979 Chrysler	
	1981	1980	
Japan	1964	1966 Prince	
		1968 Isuzu, Mitsubishi	
		1977 Toyo Kogyo (Mazda)	
Germany	1962	1965 Auto Union	1980 AEG-Telefunken
	1977 Saar	1967 BMW	1982 AEG-Telefunken
	1982 Ruhr	1969 NSU	
		1974 VW	
France	1965	1963 Simca	1964 Bull
	1976	1974 Citroen	1968 CSF
	1983 Creusot	1978 Chrysler	1970 Bull/GE
		1980 Renault	1975 CII
		1984 Citroen	1977 Sescosem
Britain	1967	1964 Rootes	1964 ICL
	1977 BSC	1967 Triumph, Talbot	1980 ICL
	1982 BSC	1974 Chrysler	1984 Inmos
		1977 Chrysler	1989 Inmos
		1981 BL	
		1982 DeLorean	
		1986 BL/Rover	

Note: Each crisis is identified by its initial year. If no specific firm or region is mentioned after that date, the crisis effected the whole industry in all regions.

Source: Jeffrey A. Hart, 'Crisis Management and the Institutionalization of Corporatist Bargaining Mechanisms', paper delivered at the Conference of Europeanists of the Council for European Studies, Washington, DC, October 1985.

be noted, however, that the biggest crises were in steel and that the others were relatively limited in scope and time. The German system was able to manage most of its crises without resort to governmental intervention. Indeed, the propensity of the federal government to avoid industry-specific interventions is a key factor in the generation of German industrial crises.

SUMMARY OF INDUSTRY-SPECIFIC INDICATORS OF COMPETITIVENESS

Industry-specific measures of competitiveness provide evidence for the increased competitiveness of Japan and Germany and the decreased competitiveness of Britain and the United States. French industry-specific competitiveness rises until the late 1970s and then declines in the 1980s. While some anomalies exist in specific indicators, the general pattern is clear and is highly consistent with that suggested by the economy-wide indicators discussed above.

State–Societal Arrangements

State–societal arrangements are defined as the manner in which the state and civil society are organized and how the state and society are institutionally linked. The state consists of a set of institutions mostly associated with the government but also including such actors as tripartite (composed of government, business and labour representatives) boards and commissions, state-owned business enterprises and other para-state organizations. Civil society is the domestic social environment in which the state operates. In contemporary advanced industrial countries, it makes sense to focus on only two groups in civil society, business and organized labour, especially when the issue to be examined is competitiveness in manufacturing industries.²⁵

The state–society dichotomy, which has deep roots in liberal political philosophy, is premised on the notion that the power of the state should be, and will be, limited to prevent undue interference in the actions of individuals and selected collectivities.²⁶ In an ideal, free-enterprise economy, all business corporations would be private and relatively autonomous of state agencies and therefore would be part of civil society. All private individuals would also be members of civil society, except when they were the holders of state offices. All capitalist countries fall short of the liberal ideal, using state-owned enterprises to perform certain functions of government and limiting the autonomy of private firms through a variety of regulations.

The liberal ideal is not the only one that has been defined for state–society relations. The communist ideal subordinates the state to the interests of one class in society – the proletariat – so that the state may eventually wither away in a classless society. The social democratic ideal gives the state sufficient power to reduce the inequities between classes that are created over time by capitalism, but seeks to keep the state accountable by maintaining a representative form of government.²⁷ The fascist ideal gives the head of state extraordinary powers and organizes societal interests from above, while at the same time prohibiting the formation of autonomous groupings that might resist state

²⁵ For a convincing argument that agricultural groups need to be included in descriptions of social dynamics in earlier historical periods, see Ronald Rogowski, *Commerce and Coalitions: How Trade Affects Domestic Political Alignments* (Princeton, NJ: Princeton University Press, 1989).

²⁶ The discussion of the concepts of state and civil society in this work must, by necessity, be brief to the point of caricature for those who are familiar with the vast literature on this subject. For more lengthy discussions, see Bertrand Badie and Pierre Birnbaum, *Sociologie de l'État* (Paris: Bernard Grasset, 1979); Martin Carnoy, *The State and Political Theory* (Princeton, NJ: Princeton University Press, 1984); Eric A. Nordlinger, *On the Autonomy of the Democratic State* (Cambridge, Mass.: Harvard University Press, 1981); Reinhard Bendix, ed., *State and Society* (Boston, Mass.: Little, Brown, 1968); Charles Tilly, ed., *The Formation of National States in Western Europe* (Princeton, NJ: Princeton University Press, 1975); John A. Hall and G. John Ikenberry, *The State* (Minneapolis: University of Minnesota Press, 1989); and Alfred C. Stepan, *The State and Society: Peru in Comparative Perspective* (Princeton, NJ: Princeton University Press, 1978).

²⁷ See David Held and Joel Krieger, 'Theories of the State: Some Competing Claims', in Stephen Bornstein, David Held and Joel Krieger, eds, *The State in Capitalist Europe: A Casebook* (Winchester, Mass.: Allen & Unwin, 1984).

leadership.²⁸ The neo-corporatist ideal is the concertation of the state and privileged groups – especially business and labour – to determine national policies.²⁹

None of these ideals has ever been fully realized. Yet obviously their very existence has had a major impact on national and international politics in the twentieth century. National debates over state–societal relations tend to be defined in terms of the alternative ideals discussed above. Not only do these debates become an important element of partisan politics, they become highly salient during and after major international wars, domestic social conflicts and deep economic crises. At key moments in a nation's history, changes in state–societal arrangements may be embodied in new political, social and economic institutions that are designed to settle, for a time, the domestic debates.³⁰

The way state and society are organized and how state and society are linked will therefore vary significantly from country to country. The key reasons for these variations are historical and contextual. Different institutions are inherited from the past. Some states have more centralized bureaucratic systems than others, often combined with a pattern of recruitment from elite colleges and universities. Some states are more inclined to structure civil society than others through the exercise of state authority and, at times, direct intervention in the economy.³¹

Systematic Observation of State–Societal Arrangements

State–societal arrangements will vary across countries and across time. They may even vary across specific industries, although the empirical cases presented here suggest that this type of variation is not important. The following approach was adopted to observe state–societal arrangements in the area of industrial

²⁸ I owe this formulation of the fascist ideal to Gregory Kasza, *Administered Mass Organizations* (forthcoming).

²⁹ A very clear statement of this ideal is in Wolfgang Streeck and Philippe C. Schmitter, 'Community, Market, State – and Associations? The Prospective Contribution of Interest Governance to Social Order', in Wolfgang Streeck and Philippe C. Schmitter, eds, *Private Interest Government: Beyond Market and State* (Beverly Hills, Calif.: Sage, 1985), p. 10. See also Gerhard Lehmbruch, 'Introduction: Neocorporatism in Comparative Perspective', in Gerhard Lehmbruch and Philippe C. Schmitter, eds, *Patterns in Corporatist Policy Making* (Beverly Hills, Calif.: Sage, 1982).

³⁰ On this subject, see G. John Ikenberry, 'Conclusion: An Institutional Approach to American Foreign Economic Policy', in G. John Ikenberry, David A. Lake and Michael Mastanduno, eds, *The State and American Foreign Economic Policy* (Ithaca, NY: Cornell University Press, 1988), pp. 223–5; and Stephen Krasner, 'Approaches to the State: Alternative Conceptions and Historical Dynamics', *Comparative Politics*, 16 (1984), 223–46, at p. 234.

³¹ The works that inspired this formulation are Andrew Schonfield, *Modern Capitalism* (London: Oxford University Press, 1965); Peter Katzenstein, ed., *Between Power and Plenty* (Madison: University of Wisconsin Press, 1978); John Zysman, *Governments, Markets, and Growth: Financial Systems and the Politics of Industrial Change* (Ithaca, NY: Cornell University Press, 1983); and Peter Hall, *Governing the Economy: The Politics of State Intervention in Britain and France* (New York: Oxford University Press, 1986).

competitiveness. For each country examined in this study, the following questions were asked:

(1) *How is the government organized?* Specifically, how centralized and influential are the bureaucracies dealing with industry-specific policy making? What sorts of policy instruments are available to the government for the making of industrial policies? How inclined is the government to use these instruments? How successful is the government in getting its way with business or labour in conflicts over industrial policies?

(2) *How is the business sector organized?* How powerful are business peak associations?³² Do individual firms or subgroups have the ability to lobby successfully for policy changes outside of business associations? Is there a system of 'industrial families' (loose horizontal groupings) in the business sector? What is the role of the financial sector in underpinning these arrangements? Are the articulated interests of business in the country so diverse that there is insufficient unity to influence governmental policies or the legal regimes that affect business-labour relations?

(3) *How is labour organized?* How powerful are labour peak associations? What percentage of the work-force is unionized? Are unions organized on an enterprise or industrial basis? Can unions successfully block undesired governmental policies or managerial decisions?

(4) *What sorts of institutions link state and society?* In particular, are individuals recruited for top positions in the governmental bureaucracy from elite colleges and universities? What role does the state play in financing those institutions? Does the government own major business enterprises or does it closely supervise the operations of 'private' firms? Does the government help to organize and fund consortia of businesses for the purpose of advancing industrial technology? Are there special institutions for transmitting abstract knowledge from universities to the business sector? What role do the state and business sectors play in providing training for workers? What sorts of para-state institutions exist – especially those involving neo-corporatist concertative mechanisms – and how important are they in specific policy realms?

Some state-societal arrangements are conducive to the creation and diffusion of new technologies and others are not. The distribution of power among government, business and labour is the simplest way of summarizing the differences in the state-societal arrangements among the five major industrial countries selected for examination here: the United States, Japan, Germany, France

³² A peak association is an association that aspires to represent all organizations of a certain type (e.g., businesses or labour unions) in a given society. Examples of business peak associations are the US Chamber of Commerce, the Japanese Keidanren and the German Bundesverein der Deutschen Industrie. Examples of labour peak associations are the US AFL-CIO and the German Deutsche Gewerkschaftsbund.

and Britain. I will argue below that the distribution of power among those three social actors is the basic underpinning of state–societal arrangements.

THE ROLE OF TECHNOLOGICAL INNOVATION AND DIFFUSION IN
COMPETITIVENESS IN THE THREE INDUSTRIES

Technological innovation played a pivotal role in all three industries in determining which firms and which countries would come out on top in international competition. State–societal arrangements strongly influenced the creation and diffusion of new technologies. Therefore, state–societal arrangements had a major effect on international competitiveness through their effects on innovation. While these bold statements need to be qualified in specific cases, they nevertheless provide a better explanation of changes in international competitiveness than alternative explanations. Let us start by making the case for the crucial role of technological innovation and consider afterwards the claims of competing explanations.

The Steel Industry

In the steel industry, the most important technologies introduced after the Second World War were basic oxygen furnaces and continuous casting. The replacement on a major scale of other types of furnaces with basic oxygen furnaces occurred first in Japan, spread quickly to Germany and diffused more slowly to the rest of Europe and the United States. In 1960, 11.9 per cent of Japanese production was by means of basic oxygen, compared with 3.4 per cent in the United States. In 1970, 79.1 per cent of Japanese production used basic oxygen, while in the United States production was still only 48.2 per cent of production.³³ The larger German companies were also quicker to adopt basic oxygen furnaces than most US, French and British firms.

The basic oxygen technology was invented in Austria; the Japanese licensed the necessary patents from Canadian firms. The Japanese government played a key role in encouraging the major Japanese firms to adopt this technology. One of the more important reasons why the government did this was to lower Japan's dependence on imported scrap iron and steel; a dependence that figured importantly in US–Japanese relations in the years prior to the attack on Pearl Harbor.³⁴ But the firms themselves had an interest in lowering their dependence on imported scrap, as scrap prices had been controlled by the large US firms and had been set just high enough to discourage competition.

The basic oxygen technology was risky because it was unproven. No one had 'scaled up' the technology to the size required for realizing production

³³ Leonard H. Lynn, *How Japan Innovates: A Comparison with the United States in the Case of Oxygen Steelmaking* (Boulder, Colo.: Westview, 1982), p. 23.

³⁴ Together with Britain and the Netherlands, the United States imposed an embargo of iron ore and scrap exports to Japan in July 1941 after the takeover of Indo-China. See Paul Kennedy, *The Rise of and Fall of the Great Powers* (New York: Random House, 1987), p. 303.

cost advantages over the Bessemer technology. The US producers might have converted their plants to basic oxygen furnaces in the 1950s when they had made major investments to upgrade their facilities. Instead, they passed up the opportunity, either because they did not see the future of the basic oxygen technology or because their major investors were unwilling to assume the risks involved in adopting it.³⁵

While bad management or risk-averse financial institutions may have been to blame in slowing the adoption of basic oxygen technology in France, Britain and the United States, one needs to consider other explanations for the slowness with which the technology was adopted after it became clear that it was more efficient. One important source of slow diffusion in the United States was the problem of amortizing investments made in the 1950s on the now-obsolete older technologies. The mistakes of the 1950s, in essence, haunted the US steel industry for the next three decades. Nevertheless, by the mid 1970s, the US industry had caught up with the rest of the world in the diffusion of oxygen furnaces (see Figure 7).

The US industry, however, remained far behind Japan and Europe in the adoption of another technology: continuous casting. Prior to the introduction of continuous casting, steel ingots or slabs were cast in separate plants and then reheated in another location so that they could be formed or rolled into their final shapes. With continuous casting, the molten steel is poured from the steelmaking furnace directly on to a processing line which produces the required shapes. The savings in the energy required to reheat the cooled steel ingots and slabs are substantial, as are the savings in processing time and handling. Continuous casting requires relatively sophisticated scheduling, however, which has become easier with the introduction of computer-controlled production lines.

Having the opportunity to build new plants on large sites was an important advantage held by the Japanese in adopting continuous casting. Many of the plants built in the 1960s in Japan were 'greenfield' plants – as opposed to the 'brownfield' plants of the United States and Europe.³⁶ Some new integrated plants were built in the United States and Europe with continuous casters, but the steel plants of Britain, France, the Saar Valley in Germany and the United States were still in predominantly traditional steel-producing regions where there was little room for plant expansion or where the costs of building greenfield plants were so high as to discourage the required investment. Higher labour costs and environmental regulations played a minor role in this regard, in comparison with the other factors militating against upgrading production technologies.

³⁵ Interview materials.

³⁶ 'Greenfield' means that no previous facility was on the site. 'Brownfield' means that a previous facility was modernized or renovated. For a discussion of this issue, see Ira C. Magaziner and Robert B. Reich, *Minding America's Business: The Decline and Rise of the American Economy* (New York: Vintage Books, 1983), chap. 13.

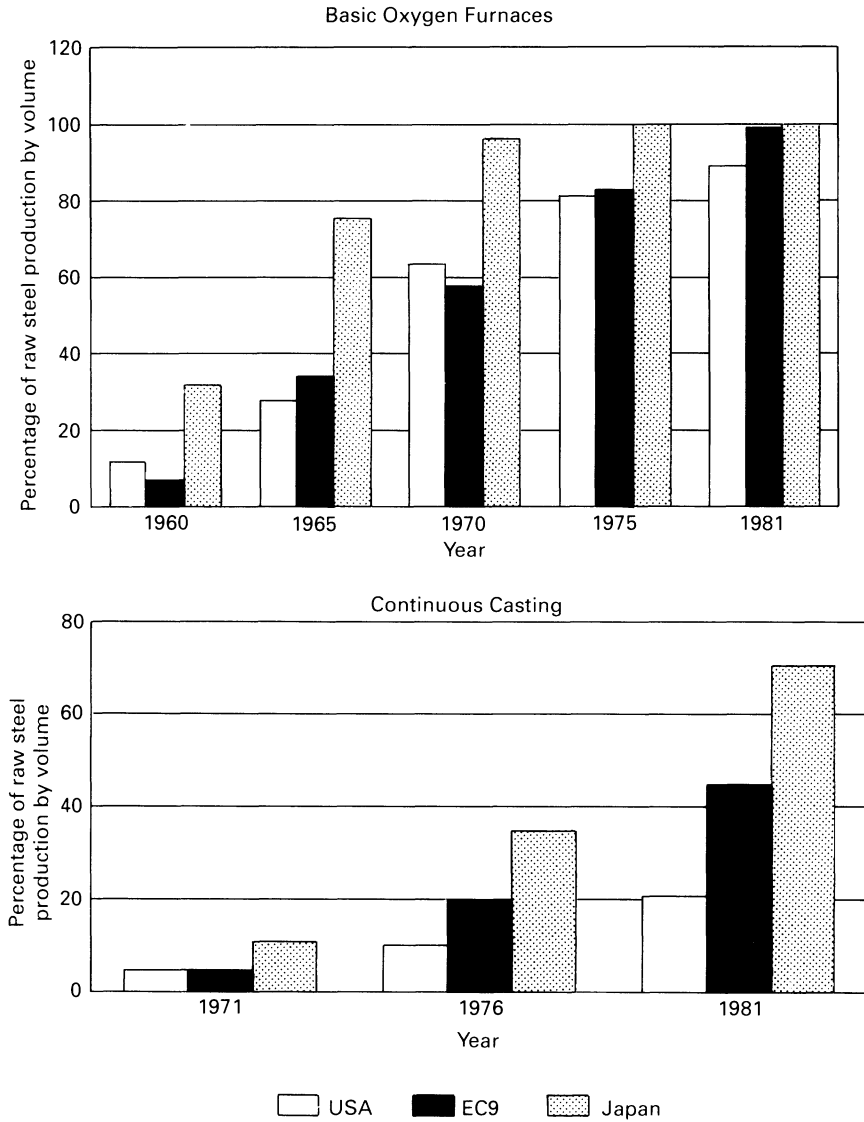


Fig. 7. Diffusion of new production technologies

Source: Donald Barnett and Louis Schorsch, *Steel: Upheaval in a Basic Industry* (Cambridge, Mass.: Ballinger, 1983), p. 55.

Major mistakes were made in France, Britain and the United States in delaying the phasing out of obsolete production facilities. In Britain, the major expansion of steel production in the 1970s in modern plants should have been accompanied by the shutting down of obsolete plants, especially in light of the weakening of demand for both domestic production and steel exports.

The British paid a high price for this error. Similar errors were made in France and the United States.

It should be noted that no national steel industry had strong financial results in the absence of a growth in steel demand following the oil price increases of 1973. By the early 1980s, even the traditionally strong firms of the Ruhr Valley in Germany were experiencing financial losses because of depressed prices in a European market glutted with excess production. Nippon Steel also experienced lower than average rates of profitability and began to redeploy its idle work-force by loaning workers to other firms. The point to remember, however, is that the German and Japanese firms weathered the recessions better than the firms of the other three countries; steel employment decreased in Germany and Japan, but not as much as in the other three countries.

The Motor Vehicle Industry

In the motor industry, too, technology played a vital role in the rise of Japan. Both product and process innovations were important. In the 1950s and 1960s, the Japanese firms played the game of catching up with the product and process technologies of the US and European industries. Initially, the Japanese firms imported new product technologies through licensing and co-production agreements with Western firms. By the mid-1960s, however, they began to produce their own car models and to compete intensively with one another for domestic market shares.

Toyota invented an entirely new way to produce motor vehicles. Toyota redesigned the assembly process to reduce the total man-hours required for producing a single unit. Part of this redesign involved the shift to *kanban*, or just-in-time production, under which inventories of components and parts were kept to a minimum and suppliers were required to make early morning deliveries of only those parts needed for the day's production schedule. Suppliers had to be located quite close to the main factory for this system to be feasible – in marked contrast with the wide distribution of suppliers in both the US and European systems.³⁷

By the 1970s, the Japanese motor vehicle firms began to respond to increasing domestic wage rates by automating both production and assembly with an increased use of robots, computer-controlled machine tools and computerized assembly lines. The new process technologies adopted by Japanese firms allowed them to increase worker productivity in the face of increased wages, while at the same time improving the quality of vehicles produced. Products were redesigned around the new processes, both to make the new processes work more efficiently and to improve the reliability of the products. The new generation of Japanese models that resulted was able to compete overseas with the generally higher quality vehicles produced in the United States and Europe.

³⁷ The best single work on this subject is James P. Womack, Daniel T. Jones and Daniel Roos, *The Machine that Changed the World: The Story of Lean Production* (New York: Harper Collins, 1990).

Computerized automation reduced retooling 'downtime' – the amount of time production had to stop for the retooling that accompanied the annual changes in models – resulting in major efficiency gains for Japanese firms.

It needs to be acknowledged that the product and process innovations pioneered by the Japanese might not have resulted in such dramatic increases in exports, had it not been for the added effect of the increased oil prices on the demand for small cars, especially in the huge North American market. Had the US producers been able to match Japanese innovations in small car production, the opportunities for Japan in that market would have been greatly diminished.

While US product and process technology lagged seriously behind that of Japan, especially in small cars, European technology followed with a somewhat shorter lag. European production was more similar to that of Japan in servicing demand for small cars; and many of the product innovations introduced in Japanese models either originated in Europe or were quickly copied by European producers. Some European firms were slower than others in this regard, of course. British Leyland (now called the Rover Group) suffered the most from its inability to match Japanese product and process innovations – a suffering accentuated by its overmanning with high-wage labour. French and Italian producers were lulled into a false sense of security by traditional tariff and nontariff barriers and, in the case of France, the availability of less expensive North African and Turkish workers. Even Volkswagen suffered diminished export demand as a result of more intense competition from Japan and also problems in making the transition to multi-model production in the mid-1970s.

One consequence of the increased challenge from Japan in Europe was the accelerated diffusion of computerized automation in the major firms. Firms like Volkswagen, Renault and Fiat rapidly introduced new flexible manufacturing systems that allowed them to produce more than one model on a single production line. Automation was also used as a tool of management to ensure reduced worker militancy by eliminating workers from processes that were particularly vulnerable to work stoppages.³⁸ Both European and US manufacturers also responded to the Japanese challenge by moving some production to lower-wage countries.

The issue of sending production offshore comes up again in the case of semiconductors. The Japanese firms in both motor vehicles and semiconductors acted at first as if they did not have the option of locating labour-intensive production processes overseas, thus forcing themselves to use automation to compensate for increasing wages. US and European firms, in marked contrast, used a combination of sending production offshore and using less expensive immigrant workers to compete with Japanese firms. Even after Japanese wage rates began to increase in the 1960s and 1970s, US and European firms –

³⁸ See, for example, Wolfgang Streeck and Andreas Hoff, 'Industrial Relations and Structural Change in the International Automobile Industry', working paper, International Institute of Management, Berlin, August 1981.

with only a few exceptions – continued to believe that differences in wage rates were the most important reason for the lower prices of Japanese cars. Only when those firms began to perceive that Japanese innovations in process technology were compensating for rising labour costs did they make the necessary investments in production technology. By and large, the Europeans and the European subsidiaries of US firms were faster in doing this than the US firms in their North American operations.

The Semiconductor Industry

Very rapid rates of technological innovation, in both product and process technologies, characterized the semiconductor industry from the invention of the transistor in the late 1940s. The jump from integrated circuits to large-scale integrated (LSI) circuits in the mid 1970s was made possible by the invention of a new process involving the use of photographically produced masks to create an electronic circuit of thousands of transistors, resistors and capacitors on a small portion (chip) of a wafer of silicon. This new process made possible a series of product innovations, including the calculator chips that were responsible for the rapid rise in the fortunes of companies like Texas Instruments and National Semiconductors. The next generation of products, very large-scale integrated (VLSI) products was made possible in the late 1970s by another process innovation – the wafer stepper. Wafer steppers allowed manufacturers accurately to etch hundreds of copies of a single circuit design on a silicon wafer.

Photolithography and wafer steppers alone were not sufficient to make it possible to move from one generation of integrated circuits to another. They had to be supplemented by a variety of new technologies that made it possible to produce wafers with fewer and fewer impurities and with very smooth surfaces, so that smaller and smaller line-widths could be etched on to the silicon. A variety of chemical baths were developed to make the etching process cheaper and more reliable. Clean-room technology also had to evolve to make the chip yields per wafer high enough to allow new generation products to compete in price with older generation products. Finally, the processes by which circuit designs were converted into masks had to be improved as line-widths got smaller. But the transition from generation to generation would have been impossible without advances in photolithography and the introduction of wafer steppers.³⁹

Japanese firms were not competitive with US firms in integrated circuits

³⁹ The best sources of information on these matters are: Ernest Braun and Stuart Macdonald, *Revolution in Miniature: The History and Impact of Semiconductor Electronics*, 2nd edn (New York: Cambridge University Press, 1982); Michael Borrus, *Competing for Control: America's Stake in Microelectronics* (Cambridge, Mass.: Ballinger, 1988); and George Gilder, *Microcosm: The Quantum Revolution in Economics and Technology* (New York: Simon and Schuster, 1989). Gilder provides an excellent bibliography on this subject on pp. 385–402.

until the transition from LSI to VLSI circuits. In previous generations, by the time the Japanese firms began to get manufacturing costs down to US levels, the US firms had begun to produce the next generation of circuits. US firms were driven at first to innovate in semiconductors by the rapid growth of demand from the military and space programmes and later by the enormous growth of the computer industry. Japanese firms were limited in their innovative potential by having to focus on supplying the demand for consumer electronics circuitry.

In the transition to VLSI, however, it became the policy of both the major Japanese firms and the Japanese government to beat the Americans in process technology so as not to be dealt out of the competition in VLSI products. The government committed itself to this enterprise not just because it was concerned about semiconductors, but also because it believed that overtaking the United States in semiconductors was the key to improving Japanese competitiveness in all major downstream industries such as consumer electronics, computers and telecommunications equipment. Thus, in the transition from LSI to VLSI in semiconductors, the connection between state–societal arrangements and technological innovation was extremely clear.

Technological innovations were very important, in some cases crucial, factors explaining the rise in the international competitiveness of Japanese firms in steel, motor vehicles and semiconductors and the continued or enhanced competitiveness of German steel and motor vehicle firms. Almost every decline in competitiveness in the three industries can be traced back to a failure to either invent or exploit a new product or process technology. The technological explanation is not, of course, always sufficient to explain all individual cases of rises and declines in competitiveness; but as a general explanation it is superior to its main competitors.

VARIATION IN STATE–SOCIETAL ARRANGEMENTS

Figure 8 summarizes information concerning the organization of state, business and labour in the five industrial countries. It places the five countries on the faces or vertices of a triangle that represents the influence of the government, business and labour embodied in state–societal arrangements. A country on the labour vertex has strong labour, weak government and weak business. A country on the business vertex has strong business, weak labour and weak government. A country between the labour and business vertices has strong labour and business and weak government. Each country has a distinctive pattern. That is, Japan has a pattern of high influence for the state and business but low influence for labour. Germany has a pattern of high influence for business and labour and but low influence for the state (although here the qualification has to be made that the federal government is in a weaker position than the *Land* governments in matters dealing with specific industries).

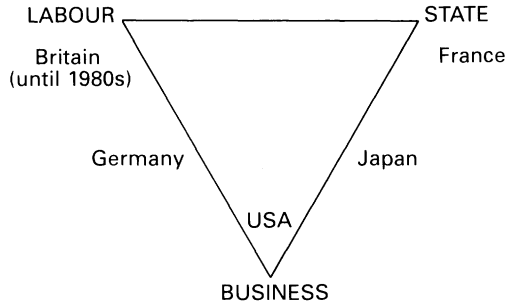


Fig. 8. State-societal arrangements in the five countries

Some of the judgements implicit in Figure 8 need to be qualified because of important changes that have occurred since the Second World War. For example, the influence of labour in Britain was greatly reduced during the Thatcher administration from 1979 to 1990, and the state became more assertive if only to carry out its programme of privatization. Similarly, labour in Germany had somewhat less influence under the Kohl administration than it had under previous SPD governments. Labour may have gained some influence in Japan with the unification of the Sohyo and Domei, and Labour was temporarily influential in France immediately after the strikes in 1968 and had a greater say in French politics during the Mitterrand presidency than under previous presidents.

In Britain, both the degree of centralization and the influence of the state increased markedly after the institutional changes introduced by the Conservatives in 1972, but both remained low in comparison with those of France and Japan. In the United States, the trend towards greater use of government resources to support civilian industries in the late 1980s is not reflected in Figure 8, nor is the move away from the use of state enterprises in Britain and France under the Thatcher and Chirac governments.

The influence of business increased in Japan during the period in question, but it has always been high relative to the other industrialized countries thanks to the *keiretsu* form of organization. The influence of business has fluctuated substantially over time in both the United States and Germany, but again relative to other countries it must be considered to be high throughout the period. In Britain, the influence of services and financial interests has always been substantial, while manufacturing has had its ups and downs. The influence of business as a whole in Britain has been weakened by its diversity and lack of a single voice.

Business in Britain and the United States has fewer incentives to create centralized peak associations because of the state's fragmented nature. It is not necessary to centralize in order to influence public policies and may even be

counter-productive. In Germany, business is centralized primarily as a counterweight to centralized labour, but also partially as a consequence of the large role played by the 'big three' universal banks in the financing of industrial activities. The centralization of German business organization also stems from a legal environment that creates national forums for tripartite bargaining among government, business and labour for wages and other labour market issues.

France, like Britain, scores low on business influence because of the high dependency of French firms on government policies. Because most French firms never achieved the global competitiveness enjoyed by Japanese firms, they were not able to rival the influence of the state. While France does have industrial families, they have never played the role of the *keiretsu* in Japan in creating high levels of domestic competition. The high centralization of French business reflects the high concentration of ownership in most industries and business leaders need to deal with the government in a relatively unified way: it stems from their relative weakness and is not (as in Japan and Germany) a source of strength.

In short, the relative influence of government, business and labour in the five countries creates a distinctive pattern for each country which has a certain logic of its own. The least successful pattern was that of Britain before the 1980s: that is, low government and business influence combined with highly influential labour. Japan and Germany, with very different state-societal arrangements, both increased their international competitiveness. The state-dominant pattern of France performed well until the late 1970s, a fact that suggests that this pattern is not well suited for the technological transition connected with innovations in microelectronics. The business-dominant pattern of the United States also does poorly when compared with all the other large industrial countries except Britain.

THE LINKAGE BETWEEN STATE-SOCIETAL ARRANGEMENTS AND THE CREATION AND DIFFUSION OF TECHNOLOGIES

The relative power of the state, business and labour in the domain of industrial policy is closely linked with the creation and diffusion of new technologies. Labour must be receptive to the introduction of new technologies at the workplace, business must be prepared to adopt new technologies in a timely manner and the state must be able to work with both business and labour to maximize the probability that new technologies will be created and diffused rapidly.

The receptivity of labour to the introduction of new technologies in the workplace depends on the confidence of labour that it will receive higher wages when productivity increases. This confidence depends very much on the political power of labour in the system, which in turn seems to depend on the level of skills possessed by the average labourer. In the absence of political power, workers may still accept new technologies if they are guaranteed job security

and opportunities for training, but the upgrading of production technologies will be limited if there is a lower average level of skills in the work-force.

The ability of business to adopt new technologies rapidly depends on its access to information about technological change, which can be positively affected by the direct actions of an influential state (as in Japan) or by the transmission of this information by institutions, especially educational ones, that link state and society (as in Germany).

In Japan, the close working relationship between government agencies and the larger firms, which is a function partly of the weakness of organized labour, but also of the long dominance of the Liberal Democratic party in Japanese politics, allows Japan to combine private and public resources in order to pursue technological and economic priorities established jointly by government and business. The main payoff to labour has been job security and steadily increasing wages. A societal commitment to upgrading the skills of workers has also been part of the arrangement, but this commitment is not as deep in Japan as it has been in Germany. The big loser under the Japanese system is the average consumer (who is also the average worker), because the Japanese consumer tends to pay higher prices than those in other industrialized countries for equivalent consumer goods and receives lower interest on personal savings and investments. This set of arrangements – which could be upset in the future if labour and consumer interests are able to organize effectively – has been the basis of the dominance of the Liberal Democratic party in Japanese politics since the 1950s.

The Japanese system is well organized for joint state and business efforts to bring Japan to the frontier of technology in strategic industries and to keep it there. There is very little room for resistance on the part of labour to the introduction of new product and process technologies. So far, these innovations have benefited labour as a whole, because of their effect on employment and wages. Business can block government measures that they perceive are against their interests and especially measures that appear to favour a limited number of *keiretsu* over others, but they have enough weight in government-business forums to assure that government initiatives in technology creation enhance their individual and collective competitiveness.

In Germany, government plays a much less important role than in Japan, while labour plays a much more important role. The strength of the German system is built on the high skill level of German workers. Those skills are the end-result of educational efforts that can be traced back to Wilhelminian Germany. After the Second World War, the traditional power of skilled labour in the workplace was reinforced by the growing power of organized labour in the political system and the embodiment of that power in legal institutions that guaranteed labour a voice in important policy-making forums.

The high influence of labour in the German system, combined with its higher than average level of skills, has meant strong support for technological improvements in established industries as a way of guaranteeing continued growth in wages. German labour has been somewhat less enthusiastic about encour-

aging the growth of new industries such as microelectronics because it is concerned that new process technologies will replace labour with machines. Nevertheless, increasing competition within the European Community and from the newly industrializing countries, has made it clear to both business and labour that the rapid introduction of technological innovations is the key to continued German competitiveness.

While the German government plays a minor role relative to other governments, it still has some important instruments. For example, the government is responsible for the educational system which transmits skills to the work-force. In addition, the government funds many of the activities of universities and the Fraunhofer Institutes, which help to assure the transmission of university-created knowledge to businesses. Finally, the German government, like that of Japan, has created a stable macroeconomic climate for business investments. Thus, the German system has worked nearly as well as the Japanese system because it encourages the creation and diffusion of technologies.

In sharpest contrast, the British system has not encouraged the diffusion of technologies, despite the continued importance of Britain in the creation of new technologies. The uncertainties created by fluctuating political and macroeconomic climates have clearly played an important role in delaying diffusion of new technologies. The relative weakness of both government and business in the face of a relatively unified and militant labour movement in the past added a further disincentive. Britain's competitive decline is partly, but not wholly, a function of poor management; but even wise management was confronted with important constraints that were not present in other industrial countries.

In the United States, the political weakness of labour, closely connected with the low average level of skills of the work-force, has impeded the diffusion of new production technologies. The fragmentation of the American state makes it difficult for the state to play the role of partner with business in the creation of new technologies, especially if those technologies have no possible military application. Business may impose its wishes on both the government and organized labour in the United States, but it is strongly constrained in the types of competitive strategies it can adopt as a result.

In France, the main impediments to the creation and diffusion of new technologies have been the lack of domestic competition in important markets and the marginalization of French labour. The lack of domestic competition will become less important as French firms deal with the problem of surviving in the increasingly open European market, but they will still have to grow out of their current dependence on the tutelary relationship with the powerful French state. The state has learned the lesson of being overly dependent on one or two national champions per industry. But the political fragmentation of organized labour is likely to continue and there seems to be no major move towards upgrading the skills of the work-force. Nevertheless, state-societal arrangements have not been as much of a handicap to making the technological transition in France as they have been in Britain and the United States.

ALTERNATIVE APPROACHES TO THE EXPLANATION OF CHANGES IN INTERNATIONAL COMPETITIVENESS

Five main approaches – besides the state–societal approach outlined here – have been advanced to explain changes in competitiveness: the macroeconomic, culturalist, statist, neo-corporatist and coalitional approaches. All of these alternative approaches have severe shortcomings, however, which is why a new one is needed. Some of the alternative approaches discussed below are more parsimonious than the state–societal arrangements approach, but none fits the data so well. I will try to indicate why.

MACROECONOMIC EXPLANATIONS

The macroeconomic approach to explaining changes in competitiveness focuses on variables connected with factor prices, aggregate demand, the rate of savings and investment and international currency exchange-rates. It is a parsimonious approach because it focuses only on underlying economic conditions. Those economic conditions are often assumed to be determined primarily by market forces and to be only marginally affected by government policies. Thus, the macroeconomic approach appears at first glance to dispense with the need to consider government policies, business strategy, or institutional variations across countries. But a little shallow digging quickly uncovers the fact that behind almost any given macroeconomic explanation is a deeper set of causal factors operating at the level of state–societal arrangements.

Factor Prices

The prices of factors of production – land, labour and capital – are considered in classical and neo-classical trade theory to be crucial in determining the comparative advantages of nations. If international trade is open and free, a country with a relative abundance of capital and relative scarcity of labour will specialize in the production of capital-intensive goods and will exchange those goods for labour-intensive products from abroad. A country with a relative abundance of labour but a relative scarcity of capital will specialize in the production of labour-intensive goods and will trade them for capital-intensive products from abroad. Both countries will be better off as a result, since they will both be gaining from the collectively more efficient allocation of resources.⁴⁰

Wage rates and interest rates are sometimes taken as rough indicators of the relative scarcity of labour and capital, so that it is not uncommon to find analysts claiming that countries with low wage rates (and high interest rates) should specialize in the production of labour-intensive goods and that countries

⁴⁰ For more complete summaries of the results of neo-classical trade theories, see Edward Leamer, *Sources of International Comparative Advantage: Theory and Evidence* (Cambridge, Mass.: MIT Press, 1984), chaps. 1–2; and Elhanan Helpman and Paul R. Krugman, *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy* (Cambridge, Mass.: MIT Press, 1985), chap. 1.

with high wage rates (and low interest rates) should specialize in the production of capital-intensive goods. Similarly, it is claimed that if wage rates are rising, as they are in almost all industrialized nations, then there will be a natural tendency for countries to disinvest from labour-intensive production and shift investment to capital-intensive areas.

If one wants to remain competitive in the production of labour-intensive goods, then one must accept lower wages in that industry. If wages are ‘sticky’ due to labour-management contracting or minimum wage laws, then either unemployment will increase or there will be labour shortages in other industries. Either way, the result will be harmful to the economy as a whole. The use of protectionist policies (tariffs and non-tariff barriers) to preserve jobs in labour-intensive industries will not succeed in the long run and will place a difficult and unnecessary burden (in the form of higher costs) on other domestic industries that use the outputs of those industries as inputs.⁴¹

This is an elegant and highly useful logical structure for understanding basic forces in international trade. Yet, it has serious shortcomings for understanding trade among the industrialized countries and therefore as an explanation for shifts in competitiveness. Trade among rich countries is not as easily characterized in terms of specialization in either labour- or capital-intensive production as is trade between rich and poor countries. With the notable exception of Japan, trade among the rich countries is mostly ‘intra-industry’ trade: that is, industrialized countries exchange goods with each other in almost all industrial categories and do not specialize so much in trading goods for which factors are relatively abundant.⁴²

Countries with increasing real wage rates and increased international competitiveness (Japan and Germany, to be precise) have not diversified out of labour-intensive production in the way that neo-classical trade theory predicts. Rather, they have automated production in labour-intensive goods as well as shifting investment towards capital- and knowledge-intensive industries in order to remain competitive in a broad variety of industries. They have moved to the production of more technologically-advanced and higher-priced labour-intensive goods to compensate for higher relative wage and capital costs. Although some Japanese and German firms produce in low-wage countries through contract and direct foreign investment, this option has been exercised less frequently than it has in the United States and Britain.⁴³

The key problem with applying the factor prices approach to competition

⁴¹ See, for example, J. Peter Neary, ‘Intersectoral Capital Mobility, Wage Stickiness, and the Case for Adjustment Assistance’, in Jagdish N. Bhagwati, ed., *Import Competition and Response* (Chicago: University of Chicago Press, 1982); and David G. Tarr and Morris E. Morkre, *Aggregate Costs to the United States of Tariffs and Quotas on Imports* (Washington, DC: Federal Trade Commission, December 1984).

⁴² For a review of the literature on intra-industry trade, see Elhanan Helpman, ‘Increasing Returns, Imperfect Markets, and Trade Theory’, in Ronald W. Jones and Peter B. Kenen, eds, *Handbook of International Economics* (Amsterdam: North-Holland, 1982).

⁴³ See industry studies A through H in Dertouzos, Lester and Solow, *Made in America*.

among the industrialized countries seems to be the great importance of technology and education as means of compensating for resource and factor scarcities. Labour-saving technology is an important tool available to industrialized nations in compensating for high or increasing labour costs. Education produces knowledge and skills that ease the creation and diffusion of new technologies. Education also seems to have an effect on tastes, often accentuating national differences in countries that have achieved a certain level of affluence, and thus providing an important advantage for firms that understand national differences in tastes.

Aggregate Demand and the Level of Savings and Investment

Other macroeconomic approaches to competitiveness focus on the importance of the growth of aggregate demand and the level of savings and investment as a key to understanding shifts in international competitiveness, especially among the industrialized countries. This approach also has a compelling logic. Faster growth in aggregate demand creates larger pools of capital for investment than does slower growth. Countries experiencing rapid growth, therefore, will invest at higher rates and have the advantage over countries experiencing slow growth of lower capital costs.

Regardless of the rate of growth, a country with a high rate of savings will have a larger pool of money available for investment and hence lower capital costs, than a country with a low rate of savings.⁴⁴ There is a variety of ways for governments to accentuate the individual's propensity to save. For example, taxes can be designed to penalize consumption and to reward savings and investment. Reducing the government budget deficit, if the deficit is financed by government borrowing, frees up funds for investment in more productive areas. Financial institutions can be designed to make it easier and safer to invest one's savings. Prices of large durable goods, like cars and houses, may be artificially manipulated, to increase the necessity of saving to achieve a minimum standard of living. The combination of a fast growth rate in aggregate demand and a high investment rate should, therefore, be an unbeatable combination.

It is indeed true, that the two countries that experienced large increases in international competitiveness after the Second World War, Germany and Japan, both experienced long periods of rapid growth and high savings. On the other side, the countries experiencing declining competitiveness, the United States and Britain, grew slower and saved less than the other three. France experienced rapid growth in the 1960s and 1970s and a moderate level of savings and investment throughout the period in question. Thus, it appears on the surface that this macroeconomic approach to explaining shifts in competitiveness has much to be said for it.

⁴⁴ This argument can be found in Dertouzos, Lester and Solow, *Made in America*, pp. 35–9. The authors of this work argue that macroeconomic factors alone cannot explain shifts in competitiveness.

The main problem with this approach, however, is that it does not explain why opportunities for implementing savings and investment-inducing policies on the part of firms and governments were so consistently and enthusiastically grasped in Japan and Germany, while they were so consistently opposed or ignored in the United States and Britain. There was obviously an element of luck involved, but the continued strength of Japan and Germany and the steady decline of the United States and Britain bely an explanation based solely on chance.

Exchange Rates

Finally, there is the macroeconomic explanation of competitiveness that centres on exchange-rates.⁴⁵ Advocates of this view suggest that wrongly valued exchange rates tend to produce structural trade and payments imbalances that can be quickly corrected with appropriate adjustments of those rates. This explanation received a great deal of attention from US policy-makers in the 1980s, because it offered the prospect of solving the trade deficit problem by devaluing the dollar relative to the currencies of trade-surplus countries.

The appreciation of the dollar in the early 1980s clearly contributed to the subsequent rapid growth of US trade deficits (see Figure 2 above) and forced the United States to raise interest rates to attract foreign investment (much of which took the form of Japanese purchases of US Treasury Bonds). However, it is not likely that further depreciation of the dollar will bring trade and the balance of payments back into equilibrium. The authors of *Made in America* explain why:

The trade balance of 1980 will not be achieved if the dollar falls to its 1980 level. One reason that trade cannot bounce all the way back is that foreign industry has continued to gain in relative productivity. Another reason is that producers abroad are willing to accept lower profit margins rather than give up their foothold in the US market . . . Nevertheless, depreciating the dollar is one way to balance the foreign trade account.⁴⁶

The authors, go on, however, to point out that depreciating the dollar would produce a favourable balance in the trade account only at the cost of a major recession and would therefore not contribute to US competitiveness as defined above.

Further Problems of the Macroeconomic Approach

Macroeconomic variables obviously *are* important for international competitiveness. Factor prices, aggregate demand, levels of savings and investment and exchange rates clearly have a major impact on trade performance, employment

⁴⁵ See, for example, C. Fred Bergsten and William R. Cline, *The United States–Japan Economic Problem* (Washington, DC: Institute for International Economics, October 1985 and revised January 1987).

⁴⁶ Dertouzos, Lester and Solow, *Made in America*, p. 34.

and wage levels, profitability and other indicators of competitiveness. For example, recent research published by the Institute for International Economics suggests that shifts in trade balances in the late 1980s closely reflected changes in exchange rates. Both the direction and the magnitude of changes were as predicted in leading theories of adjustment. Exchange rates themselves were posited to be strongly affected by underlying macroeconomic conditions.⁴⁷

The connection between macroeconomic policy instruments and macroeconomic outcomes, however, is more uncertain. Policy instruments vary across countries because the economic institutions that are associated with state-societal arrangements vary. Some countries give governmental agencies the power to allocate capital directly, others do not; some have firm control over interest rates, others have only limited control. There are significant differences on the fiscal side as well. Because of this variance in macroeconomic policy instruments and their effects, it would be very difficult for the major industrial countries to co-ordinate their macroeconomic policies successfully even if they wanted to.⁴⁸

Since macroeconomic policy instruments are so closely constrained by state-societal arrangements and since they are linked in such an uncertain way to outcomes because of institutional mediation, it makes sense to explain changes in competitiveness not in terms of macroeconomic policy but in terms of state-societal arrangements. Thus, I would argue that state-societal arrangements account for most of the variance explained by macroeconomic variables – and also some of the variance not explained by them.

CULTURALIST EXPLANATIONS OF CHANGES IN COMPETITIVENESS

The culturalists assert that the ultimate sources of changes in international competitiveness are cultural. According to George Lodge and Ezra Vogel, the aspect of culture most likely to have an impact on competitiveness is 'ideology', or 'the collection of ideas that a community uses to make values explicit in some relevant context'.⁴⁹ The major dimension along which ideologies vary, again according to Lodge and Vogel, is individualism versus communitarianism. After examining the ideological orientations of nine major capitalist countries,

⁴⁷ Fred Bergsten, ed., *International Adjustment in Finance: Lessons of 1985 through 1990* (Washington, DC: Institute of International Economics, 1991).

⁴⁸ Jeffrey Frankel and Catharine Rockett argue that when policy makers do not agree on a model for the effects of macroeconomic policies on performance, then international co-ordination actually makes performance worse than it would have been in the absence of co-ordination. See Jeffrey Frankel and Catharine Rockett, 'International Macroeconomic Policy Coordination: When Policymakers Do Not Agree on the True Model', *American Economic Review*, 78 (1988), 318–40.

⁴⁹ George C. Lodge, 'Introduction: Ideology and Country Analysis', in George C. Lodge and Ezra Vogel, eds, *Ideology and National Competitiveness* (Boston, Mass.: Harvard Business School Press, 1987), pp. 2–3.

they conclude: ‘those countries with a coherent communitarian ideology have been able to best adapt to this international competitive economic system’.⁵⁰

The main problem with the culturalist view is that culture is presumed to be relatively fixed while many of the variables that it is supposed to explain in fact vary over time. For example, Japan and the newly industrialized countries (NICs) of Asia had communitarian ideologies long before they began their rapid economic growth. Similarly, culturalists often neglect to consider the possibility that cultural or ideological factors may themselves be a response to changes in the material conditions faced by a country or to shifts in the balance of domestic political power. Ideologies have been known to change rapidly in response to major social upheavals. Political and economic elites have tried to mould ideologies to their interests. Thus, viewing culture and ideology as exogenous variables that explain shifts in economic competitiveness seems historically naïve.

Culturalist explanations, unlike macroeconomic explanations, cannot, however, be considered true rivals to state–societal explanations. Cultural explanations cannot account for changes in competitiveness in such relatively short time periods as those involved in this study. Culture itself, moreover, is rarely defined in a precise enough way to permit an adequate test, but, when it is, what is being called ‘culture’ is usually epiphenomenal rather than fundamental. This is pretty clearly the case in recent work linking culture and competitiveness, because the attitudes or ideologies that are posited to reflect differences in culture probably reflect differences in state–societal arrangements or other variables that are not as deeply rooted in history as the term ‘culture’ implies.

It has to be admitted, however, that culture as embodied in ‘habits of mind’ may have played a role in the persistence of certain state–societal arrangements. Why do Americans distrust the state so much? Why did the British accept the blocking role of organized labour? Why do the Americans and the British accept high levels of spending for military R&D? Why do Japanese workers accept their subordinate status in society? Why don’t Japanese consumers band together to protect their interests as they do elsewhere? Why is it so hard to reform the French educational system? There are no simple answers to these questions and I personally would not like to say that it is simply a matter of the pursuit of personal and group interests.

STATIST EXPLANATIONS OF CHANGES IN COMPETITIVENESS

Statists assume that the governments of industrialized countries are relatively autonomous from civil society. That is, they can define the interests of the country differently from the way in which specific groups in civil society or even coalitions of groups define them. Moreover, statist assume that, in conflicts between the state and groups in civil society over the definition of national interests, the state often prevails. Thus, explaining the decisions of governments

⁵⁰ Ezra F. Vogel, ‘Conclusion’, in Lodge and Vogel, *Ideology*, p. 305.

requires a careful examination of politics within the government itself. It does not normally require the examination of the actions of groups in civil society other than those that directly affect the state's deliberations.⁵¹

Some statist argue that government policies of countries with centralized industrial policy-making institutions result in greater international competitiveness. One of the best examples of this sort of work is Chalmers Johnson's *MITI and the Japanese Miracle*.⁵² Johnson argues that the Japanese state had a developmental orientation (as opposed to the regulatory orientation of the US government) and that it was 'plan rational' rather than 'market rational' (again the comparison was with the United States). This meant that the Japanese state possessed the policy instruments necessary to reallocate resources across industries, while the US state did not. According to Johnson, Japan located many of these instruments in a single agency, the Ministry of International Trade and Industry or MITI. As to the effect of MITI policies on Japanese economic performance, Johnson says, 'the government was the inspiration and the cause of the movement to heavy and chemical industries that took place during the 1950's ... This shift of "industrial structure" was the operative mechanism of the economic miracle'.⁵³

One does not, however, have to argue that industrial policies directly affect macroeconomic performance to say that they are important for international competitiveness. If fact, an argument frequently made by statist is that industrial policies permit states to make payoffs to political opponents of adjustment strategies that are vital for the pursuit of intelligent and effective macroeconomic policies. They may also help the state to change the comparative advantages of the country in international trade over time by altering the level of investment in physical and human capital.⁵⁴

Criticisms of statist works have focused on the limited autonomy of the state *vis-à-vis* other societal actors in reallocating resources across industries and in determining the success of specific industries in international competition.

The state appears as a network of institutions, deeply embedded within a constellation of ancillary institutions associated with society and the economic system. Contemporary states do not seem to be as autonomous from societal influence as state-centric theories imply.⁵⁵

⁵¹ A useful discussion of statist approaches can be found in G. John Ikenberry, David A. Lake and Michael Mastanduno, 'Introduction: Approaches to Explaining American Foreign Economic Policy', in Ikenberry, Lake and Mastanduno, eds, *The State and American Foreign Economic Policy*, pp. 9–14.

⁵² Chalmers Johnson, *MITI and the Japanese Economic Miracle: The Growth of Industrial Policy, 1925–1975* (Palo Alto, Calif.: Stanford University Press, 1982).

⁵³ Johnson, *MITI and the Japanese Economic Miracle*, p. 31.

⁵⁴ For an example of this argument, see John Zysman and Laura Tyson, 'American Industry in International Competition', in John Zysman and Laura Tyson, eds, *American Industry in International Competition* (Ithaca, NY: Cornell University Press, 1983).

⁵⁵ Hall, *Governing the Economy*, p. 17.

Even in Japan, the state must confer extensively with other societal actors prior to effecting a change in industrial policies.⁵⁶ Implementation of changed policies also depends on the co-operation of these actors. As a result, government policy alone does not explain changes in competitiveness.

Other than the inability of a purely statist approach to describe the Japanese case correctly, there is the difficulty of explaining the competitive success of both Japan and Germany with a statist model. Japan has a 'strong' state, by most accounts, while the federal government of Germany is comparatively 'weak'. How is it that the two 'strong' states in Japan and France produce such different results? It is clear that state strength, capacity or autonomy cannot explain changes in competitiveness.

CORPORATIST EXPLANATIONS OF CHANGES IN COMPETITIVENESS

Another possible approach to the explanation of changes in competitiveness is the 'neo-corporatist' approach. In neo-corporatism, a partially autonomous state operates in a civil society in which certain social groups have privileged access to the state. In neo-corporatism, the state can play an important role in giving privilege to certain social groups. Thus, the state is not the heroic individualist of the pure statist model, but it still has substantial leeway in structuring its domestic social environment.

The principal focus of the literature on neo-corporatism is not the explanation of changes in competitiveness but rather the criticism of liberal or pluralist ideals for democracy in the light of empirical observations about state–societal arrangements in industrialized capitalist countries. Nevertheless, it is possible to infer from some applications of the neo-corporatist approach that neo-corporatism is good for all sorts of economic problem-solving, including the problem of increasing international competitiveness.⁵⁷

The principal problem with the literature on neo-corporatism is that much of it focuses on the issue of whether a given country is or is not neo-corporatist. It does this by asking whether there are institutions for concertation of the state with privileged social groups and whether these institutions (which are necessarily para-state in nature) are the key determinants of policy making and implementation in a wide variety of issue-areas. By these restrictive criteria, only a few small industrial countries qualify as fully neo-corporatist. Large industrial countries rarely give wide-ranging decision-making authority to tripartite concertative bodies. Therefore, this way of applying the neo-corporatist approach does not help us much in explaining changes in competitiveness in large countries.

Despite the limitations of past applications of the neo-corporatist approach,

⁵⁶ See, for example, Richard Samuels, *The Business of the Japanese State: Energy Markets in Comparative and Historical Perspective* (Ithaca, NY: Cornell University Press, 1987), p. 8. Johnson acknowledges this in the final chapter of *MITI and the Japanese Economic Miracle*, p. 312.

⁵⁷ See, for example, Peter Katzenstein, *Small States in World Markets: Industrial Policy in Europe* (Ithaca, NY: Cornell University Press, 1985), chaps 3–4.

the examination of neo-corporatist institutions is easily subsumed in the state–societal arrangements approach. Neo-corporatist mechanisms can be an important way of bridging the gap between the state and groups in civil society. Even in countries relatively hostile to neo-corporatist institutions, like the United States and Britain, important examples of the application of neo-corporatist principles can be found. Indeed, the irony of the US and British cases is that a failure to address problems of competitiveness often leads to a special kind of neo-corporatism: the neo-corporatism of the large-scale industrial bailout.⁵⁸

COALITIONAL EXPLANATIONS OF CHANGES IN COMPETITIVENESS

The coalitional approach starts from the assumption that the policies of the state are determined by bargaining among influential and autonomous societal groupings. The state becomes the agent of a coalition of social groups, which may change somewhat from issue to issue, but which is rooted in shared perceptions of long-term interests. The state is not an autonomous actor, because the state's goals are determined outside the state. The Marxist variant of the coalitional approach focuses exclusively on classes as social actors; the pluralist variant focuses exclusively on interest groups. More recent approaches define societal actors in terms of the abundance or scarcity of factors of production – for example, groups in capital-intensive versus labour-intensive industries or groups in capital-abundant versus labour-abundant countries – in order to explain changes in coalitions that determine government policies.⁵⁹

The approach used here differs from the coalitional approach in making the state a potential party to national bargaining and by explicitly examining the role of institutions that link state and society. In the coalitional approach, the state is usually not a party to the bargaining and state–societal links do not matter. In short, I agree with John Ikenberry when he says, 'It is not enough to delineate the preferences of social groups and government officials

⁵⁸ See Jeffrey A. Hart, 'Crisis Management'.

⁵⁹ All of the following recent works use the coalitional approach: Peter Alexis Gourevitch, *Politics in Hard Times: Comparative Responses to International Economic Crises* (Ithaca, NY: Cornell University Press, 1986); Rogowski, *Commerce and Coalitions*; Thomas Ferguson, 'From Normalcy to New Deal: Industrial Structure, Party Competition, and American Public Policy in the Great Depression', *International Organization*, 38 (1984): 41–94; and Jeffrey Frieden, 'Sectoral Conflict and US Foreign Economic Policy', in Ikenberry, Lake and Mastanduno, eds, *The State and American Foreign Policy*. The coalitional approach is implicit in Theda Skocpol, *States and Social Revolutions: A Comparative Analysis of France, Russia, and China* (New York: Cambridge University Press, 1979), but since Skocpol includes the state as an actor along with groups in civil society, her approach is more consistent with the state–societal approach used here.

themselves. Those preferences will be constrained and perhaps even shaped, by the larger institutional setting in which they are situated.⁶⁰

FURTHER CRITICISMS OF THE STATIST, CORPORATIST AND COALITIONAL APPROACHES

The statist, corporatist and coalitional approaches are all less general than the state–societal approach because they focus on a proper subset of the pattern of relationship among the three ‘actors’ that are the concern of the state–societal approach: the state, business and organized labour. The statist approach focuses on the state exclusively and therefore misses the important roles that business and labour play in competitiveness. The corporatist approach posits a connection between state, business and labour that does not exist in most large industrial countries. The coalitional approach does not consider the possible role of a relatively autonomous state in explaining country-level outcomes. These three approaches simply, therefore, do not fit the data. We are left with the conclusion that the state–societal approach is the most general approach and the one that best fits the data at hand. This does not mean that the alternative approaches are not useful for other purposes, simply that they are less useful for this one.

IMPLICATIONS FOR THEORIES OF DOMESTIC INSTITUTIONAL CHANGE

One of the main failings of earlier work on state–societal arrangements is its emphasis on stasis or inertia in state–societal arrangements and hence its inability to account for change. My own work attempts to remedy that failing by looking for evidence of such change and finding convincing explanations for it. While there was not a great deal of institutional change during the period addressed here, there was enough to suggest several new lines of inquiry.

Some institutional change was imposed on Japan and Germany by the occupations that followed the Second World War. Not all the changes desired by the occupation authorities ‘stuck’ in the two countries and, in any case, both societies had their own ideas about how to reorder themselves in light of the disasters that had befallen them. Defeat in war clearly made possible changes

⁶⁰ Ikenberry, ‘Conclusion’, in Ikenberry, Lake and Mastanduno, eds, *The State and American Foreign Policy*, p. 223. The state–societal arrangements approach is similar to the institutional approach that Ikenberry advocates, but differs in its focus on the distribution of power among the state and two specific social groups – business and organized labour – as a key to understanding state–societal institutions. In this respect, the state–societal arrangements approach is an attempt to build on the strengths of the statist, neo-corporatist, coalitional and institutional approaches, without inheriting their weaknesses.

in state–societal arrangements. What changes actually occurred depended on a number of additional factors.

In Germany, for example, the nationalist and militarist elites were completely eliminated from any participation in building the post-war order. The authoritarian and corporatist methods of the Nazi state were discredited. The post-war order, therefore, combined a desire for a competitive market with a highly weakened and federalized state to guarantee that the excesses of the recent past would not be repeated. The political power of labour was institutionalized in a new legal regime to prevent the legitimization crises that preceded the rise of the Nazis. While the new arrangements were inconsistent with granting mesoeconomic policy-making instruments to the state, the German system compensated by emphasizing the training of skilled workers and the transfer of university-created technologies to businesses in areas that were crucial for maintaining or increasing German competitiveness.

In Japan, the conservative elites were not so thoroughly discredited as they were in Germany. Some bureaucracies, in particular MITI's predecessor agency, the Ministry of Commerce and Industry, wanted to apply some of the lessons learned during the military occupation of Manchuria about how to guide the development of heavy industry after the war. They were not prevented from doing so by major changes in the institutions governing the exercise of state power. Obviously, some of the reforms introduced by the occupation authorities took root – e.g., the introduction of greater competition in Japanese politics and markets, the legalization of trade unions, the break-up of Nippon Steel,⁶¹ the enfranchisement of women voters and others – but state–societal arrangements in postwar Japan were not as radically different from those of pre-war Japan as their equivalents were in Germany.

Less significant changes in state–societal arrangements occurred in Britain, France and the United States after the Second World War. In Britain, the main turning points were 1972 and 1979 – corresponding to the adoption of the 1972 Industry Act and the election of Margaret Thatcher. The 1972 Industry Act attempted to institutionalize a greater centralization of mesoeconomic policy making and confirmed a growing societal consensus over the desirability of reducing conflict between labour and business in British society. However, these institutional reforms did not 'take'. The election of Thatcher meant a shift away from the use of state enterprises to privatization as a response to the weakness of private British firms in international competition. The privatization process had, however, very nearly reached its limits by the end of the 1980s.

In France, the 1980s were a time of troubles. The system that had worked

⁶¹ This was the 'old' Nippon Steel, the dominant steel firm created by the military regime in 1934, as opposed to the 'new' Nippon Steel that was created by the merger of Fuji and Yawata Steel in 1970.

so well to build French competitiveness in steel and automobiles was failing to maintain that competitiveness and also impeding the development of high technology electronics. The Socialists experimented with neo-Keynesian macroeconomic policies, a major increase in R&D expenditures and nationalizations. The macroeconomic policies were badly timed; the nationalizations were mostly reversed by Chirac (but not until after they had injected some badly needed capital into some strategic industries). By the late 1980s, France had recovered somewhat and was facing the necessary changes that would be imposed by 'Europe 1992' with renewed confidence.

In the United States, starting in the late 1970s, serious proposals were put forward for institutional changes that would allow the US government to make and implement mesoeconomic policies outside of the traditional realms of defence, agriculture and health. These proposals were seriously debated through the late 1980s and rejected by three different administrations. But the increasingly obvious growth of Japanese economic strength and the declining threat of a Soviet Union preoccupied with *glasnost*' and *perestroika* meant that the debate over institutional change was far from over.

In short, there was movement in state–societal arrangements in the five countries within the bounds established by the underlying distribution of power among major societal groupings. That movement was likely to continue in the two least-favoured countries – Britain and the United States – with continued debate on giving the state instruments to pursue mesoeconomic policies to respond more effectively to the challenges from Japan and Germany.

The competitive successes of Japan and Germany were having an effect on their own state–societal arrangements, as well. In Japan, business had achieved greater autonomy and the agencies of the state began to compete with one another for mesoeconomic influence to deal with the growing complexity of the domestic economy. MITI was no longer the prime mover of mesoeconomic policy by the end of the 1980s, especially in high technology electronics and businesses did not depend on its guidance as much as they had in the 1950s and 1960s. The Japanese system began to feel pressures from below to grant greater influence to workers and consumers, so that the societal gains from greater international competitiveness could be distributed more equitably.

In Germany, continued problems of competing with low-wage countries in older industries combined with the forces behind 'Europe 1992', not to mention reunification, were bringing certain established institutions into question. The dominance of the three largest universal banks was under attack, as was the resistance of German labour to Japanese- and American-style production practices in high-technology industries. The lack of mesoeconomic policy instruments at the federal level resulted in a number of mesoeconomic policy experiments at the *Land* level.

What emerges from this study, therefore, is a greater sense of the dynamism and room for manoeuvre in state–societal arrangements within the broad constraints imposed by the domestic balance of power that has often been allowed for. Nevertheless, the variance in state–societal arrangements across nations

has not tended to diminish, nor is it becoming less closely connected to international competitiveness.

WHERE DO WE GO FROM HERE?

The two countries that experienced increased competitiveness in the last two decades – Japan and Germany – are not on the vertices of the state–business–labour triangle in Figure 8 but on the sides linking the state and business and business and labour respectively. The country that experienced the greatest decline in competitiveness – Britain – is on the labour corner, which suggests that this is a position to avoid in the future if possible. There is no example of a country on the side linking state and labour, although we might think of this as an option in countries undergoing a ‘populist’ phase (e.g., Brazil under Goulart or Poland after the election of the Solidarity government). Neither populism nor fully-fledged tripartite concertation appears to have been an option for large industrialized capitalist countries during the post-war period.

It seems reasonable to argue that it is easier to move from a corner of the state–business–labour triangle to an adjacent side or from a side to an adjacent corner than to a non-adjacent position. A move to a non-adjacent position means removing one societal grouping from a position of influence and replacing it with at least one other grouping. Such a change would probably involve a rather lengthy and perhaps violent struggle. If one assumes that Japanese- and German-style state–societal arrangements are likely to continue to be connected with increasing competitiveness in the world economy (this assumption will be re-examined below), then each of the other three countries faces a different set of choices about which of the two models to emulate in reforming its domestic institutions.

If the assumptions in the previous paragraph are correct, then the main option for France is to emulate Japan and for Britain to emulate Germany. To do this, France will have to build a much more competitive domestic market around competing industrial families. Given the position of France in the European Community, it is likely that the ‘Frenchness’ of those industrial families will be even more broadly defined than it is at present. In addition, the French state will have to give up some of its prerogatives in the allocation of credit and focus more of its efforts on promoting the creation and diffusion of new technologies outside of the charmed circle of champion firms. Finally, the French state will have to work with business to create a more stable macro-economic climate.

In Britain, there will have to be major efforts to increase the skills of the work-force. A major overhaul of the educational system will be required, with heavy involvement of both business and labour. New investments in British manufacturing will be required and the most likely sources of new capital will be Japan and Germany. The government will have to focus its efforts on assuring that state-funded universities are creating technologies oriented

towards manufacturing and can transfer those technologies to business, a task already begun under the Thatcher government. A new political coalition would have to form around the joint interests of business and labour, which would mean a centrist party of some sort and an avoidance of either the Thatcherism or labourism of the recent past.

The United States is fortunate in having a choice between the Japanese and German models. If it chooses the Japanese model, there will have to be a major upgrading of government agencies and a centralization of industrial policy making in a single agency. At the very minimum, there will have to be a civilian equivalent to the role of the Department of Defense in supporting the development of defence-related products and technologies. If the United States chooses the German model, there will have to be a major upgrading of the role of unions in government policy making and in labour-management relations. A significantly increased commitment to the training and retraining of workers will also be involved in such a choice. While the transition to the German style of state-societal arrangements will take longer, because of the need to narrow the gap in skill levels between the United States and Germany, a transition to a Japanese style would encounter strong resistance from those Americans (the vast majority) who are suspicious of strong central government.

SUMMING UP

How can we explain changes in international competitiveness among the major industrial nations in the last twenty years or so? The answer lies in the political and social institutions that establish the fundamental relationships among government, business and labour in each society. These state-societal arrangements vary substantially from country to country. Variations in state-societal arrangements affect competitiveness mainly through their effect on the creation and diffusion of new technologies.

It is ironic that systems with only one major dominant social actor in the realm of industrial policy (Britain, France and the United States) tend to do worse in post-war international competition than systems with two (Germany and Japan). A coalition of either the state and business (Japan) or business and labour (Germany) seems to be more conducive to the diffusion of new technologies than one-actor dominance. One might think that a business-dominant system like that of the United States would be ideal for maintaining competitiveness, but that is not so. In a technological age, when the weakness of labour is the result of a low societal commitment to raising the level of skills in the work-force, there will be extensive resistance to the introduction of new technologies in factories and offices. Similarly, one might think that systems with state dominance, such as France, would do well in international competition. But a strong state acting alone without strong allies in the private sector will be quite limited in its ability to anticipate shifts in markets and to respond correctly to them.

Thus, we are left with a choice between two 'models', currently embodied

in the German and Japanese systems. I have argued here that the United States and Britain should opt for a German-style system, while France might pursue a Japanese-style approach. I have indicated that certain problematic features remain in both the German and Japanese approaches. In any case, I expect variations in state–societal arrangements to persist and for these variations to continue to be a source of debate within and between countries. One could argue convincingly, based on historical evidence, that changes in state–societal arrangements are at the centre of all domestic debates and that it takes more than relative economic decline to change the outcome of such debates. The increasing bitterness of economic disputes among the major industrialized countries, however, creates an important incentive for them to consider all possible mechanisms for reducing international economic tensions – even domestic change.