THE MACROECONOMIC ENVIRONMENT AND THE SIZE PATTERN OF BUSINESS FIRMS

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Abstract:
Empirical evidence shows that the second half of the 20th century has been characterised by a dramatic change in the evolutionary pattern of firms' size structure: the general tendency towards a growing importance of big business which marked the first phase of post-war development came to a halt in the early '70s, making way to a gradual decrease of the average size of firms and an employment shift towards smaller sized units. This paper argues that such a phenomenon is closely related to the major changes which have affected the macroeconomic environment over the same period, bringing to an end the so-called Golden Age. Particular emphasis is given to the role played, in this connection, by both the increase in the strength of global competition and structurally higher market uncertainty.

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1. Golden Age, industrial development, big business

1.1. Towards the end of the 1960s, J.K. Galbraith began his analysis of the working of *The New Industrial State* with the blunt remark that "the part of the economy... of which the most conspicuous manifestation is the modern big corporation... is the part... we identify with the modern industrial society.... To understand the rest of the economy... is to understand very little" (Galbraith 1967, p.9)[1].

It can be said that at the time Galbraith's view reflected from an empirical standpoint the apparent lack of *economic* forces which could resist the rise of large corporations as the dominant element within the production system: regardless of whether it was actually bound to culminate in the dominance of the "technostructure" over the organization of production and trade, the *fact* that production was concentrating in ever larger and more complex corporations appeared - even though with some reservations[2] - simply one of the *immanent* laws of industrial development itself. And, on the other hand, the growing size (and influence) of large corporations in the economies of industrial countries had already resulted, at the time, in several attempts to provide an explanation of the phenomenon on theoretical grounds. From this point of view, the early 1960s coincide with the spring off of several "models" aimed at explaining the internal functioning of the large firm[3].

If the emphasis on concentration as such harks back to Marx, the crucial reference on which the whole set of these theoretical constructions is grounded is without any doubt that of Berle and Means (1932): the main axis on which the different contributions hinge is that of the progressive "managerialisation" of large corporations, triggered off by the separation of ownership and control. But in this connection a fundamental role - somehow a preliminary one - is played by the developments of organisational theories, which

from the early post-war years became a major arena for the analysis of the decision-making system (especially discretionary behaviour) within complex bureaucracies[4].

An overall feature of the so-called "managerial" models, from our standpoint, is that they refer to business organizations as entities which by their very size are ever less conditioned by the constraints typical of a competitive market, and have in fact a growing control over the demand for their products and the supply of inputs required to run their business. This ability to make the competitive environment somewhat more "stable" is accompanied by the tendency to make decisions within a framework of long-term strategies; i.e., on the basis of an "interconnected process of choices linked in a sequential frame spanning over a long time"[5]. The inherent *dependence* of each decision upon the whole sequence of decisions taken at any one time requires the firm to operate in a context of substantial *certainty*; the planning of activities must be accompanied by the phasing out of "risk components linked to external variables which were the main justification for the *entrepreneurial* power of the past"[6].

It is in these conditions that the organizational structure gradually adjusts to a "procedural" logic: to the extent that external context is characterized by a basic lack of uncertainty as to the short-term behaviour of macroeconomic variables, the decision-making system may be handed over to *managers*. A given problem will be dealt with in the same way by *all* the managers who will be in charge of *that* procedure at the relevant time.

1.2. But neither market power nor the surfacing of discretionary behaviour on the part of management can provide on their own an explanation for the setting up of the planning process of the large firm. From this point of view, the development of the corporate economy cannot be understood without accounting for the crucial role which the *macroeconomic* context played throughout the two post-war decades in ensuring optimal growth conditions to big business.

Following Glyn *et al.* (1990), it can be said that since the end of the Second World War until the end of the 1960s the economies of the industrialized countries were characterized by a phase of extraordinary growth (a veritable Golden Age) which manifested itself both in an exceptionally high level of output growth rates over time with quite low variability. This phenomenon crucially hinged upon two factors: on the real side, the fact that over the period considered most developed countries were still going through an industrialization stage in terms of their growth pattern; on the financial side, the very existence of a network of institutions entrusted with the task of overseeing the trade system and capital movements, which for many years ensured a high stability of exchange and interest rates.

As far as the first issue is concerned, great attention must be paid to the strength of the unprecedented growth in the (mainly domestic) demand for consumer goods which lasted for the first two post-war decades[7]. Consumption growth did not simply help to keep aggregate demand high, it also - and maybe mainly - had to do with "the assurance it gave to those taking investment decisions of a *steadily* growing market", so as to foster "a general encouragement to *capacity-expanding* investment" (Glyn *et al.*, 1990 pp. 50 and 58, emphasis added). As to the financial system, it is important to remember the role played by Bretton Woods agreements in keeping the economic relevance of speculation down to a minimum (thus contributing to the containment of costs of gathering information *outside* the enterprise[8]), and in ensuring a "reasonable predictability" of expected returns (also due to rather low real interest rates, owing to the virtual lack of inflation risks).

In such a situation the main problem for an enterprise is to make more stable not its final *demand* - which is in itself quite stable - but rather factor *supply*, which can be adversely affected by "excessive" dependence on intermediate markets. Here minimizing risk consists of ensuring that access both to supply and sale channels (upstream and

downstream activities) is not upset by occasional interruptions due to "market" shocks; i.e. it requires the enterprise to *integrate* within one single organizational unit all the activities which its management capacity allows it to govern. As has been stressed by Chandler and Hikino (1997, pp. 29-30), in that context "potential cost advantages of plant size ... could not be fully realized unless a steady flow of materials through the plant and factory was attained", so that "where essential supplies of raw and intermediate materials were not readily available, firms had to integrate backward into such industries and activities". Thus, growth occurs through a process of vertical integration, which responds to the need of increasing the enterprise's direct control over the largest possible number of activities functionally linked to core business[9].

Diversification of activities is in any case the most efficient mechanism for risk reduction in an environment characterized by a high "degree of predictability" of future events; so that in the same perspective we can look at the diffusion of the conglomerate firm, i.e. the entry into activities not linked to the core business - which via *external* growth fosters the trend towards growing average size of firms[10].

The combined effects of vertical and "lateral" integration bring about relevant organizational changes: as the span of control (the maximum number of people that can be directly controlled by any level of the hierarchy) is in any case limited, growth forces firms to adopt solutions which are different from the simple sequential addition of new production units, all placed within the same administrative boundaries.This is the premise for the transformation of firms into M-form organizations, which in the early 1970s become common to almost all industrialised countries - other than to those where large companies had already developed, such as the United States[11]. In most industrial countries, but especially in the United States and in the United Kingdom - this phenomenon was accompanied by a spate of mergers and acquisitions, which since the 1960s has led to a growing number of conglomerates[12].

2. The changing competitive environment in the early Seventies: Exogenous and endogenous forces at work

2.1. By the early 1970s, the macroeconomic context underwent some crucial changes. These were partly exogenous (insofar as they were linked to the shocks affecting industrial economies from 1971 onwards) and partly endogenous, reflecting the very consequences (the "success") of the extraordinary period of growth spanning over the 1950s and 1960s. Starting from the latter, the first thing that can be said is that the achievement of a higher degree of development implies a major change in the structure of demand. More specifically, it implies a gradual shift of final demand towards ever less standardized and ever more diversified goods. Growing diversification reduces the economies of mass production[13], and makes it more and more difficult to predict the dynamics of future demand.

But an even more important consequence of the "historical aberration" represented by the Golden Age, from our point of view, is the gradual but relentless international integration of business activities brought about by the very growth of industrial countries, determining an expansion of international trade faster than output growth (graph 1)[14]. This phenomenon - which simply mirrors the industrialisation process of such countries - involves both rising shares of external supply for internal markets, and tougher competition for domestic supply in international markets, thereby creating a structural tightening in overall market competition. From a situation where demand mainly comes from the domestic market[15] a change occurs whereby a growing share of consumption *a)* depends on a growing number of producers and *b)* is more affected by exchange rates and prices fluctuations.

Increasing competition has two main effects on the pattern of development of the industrial system. On the one hand it imposes ever tighter constraints in terms of costs, which induce enterprises to

reduce their "X-inefficiencies", thereby determining a downsizing effect due to the elimination of all the resources involved in carrying out "marginal" activities (especially as far as staff is concerned)[16]. At the same time it puts out of business all those activities falling outside the boundaries of the *competencies* of the firm itself[17]. As has been pointed out by Carlsson (1996), in the new situation "diversification was no longer the appropriate strategy... Increased competition made it difficult to maintain strong competitive positions in a variety of products *as the competence of management was stretched to the limit*", for "the more diversified the firm, the less likely it is to posses the unique competence required for survival in each business unit" (pp. 80-81, emphasis added).

Downsizing therefore occurs along two lines: the first is the reduction in factor endowments per unit of output (an increase in efficiency) with no change in the "organizational complexity"; the second has to do with the reduction of such complexity, via a lower degree of *conglomerate* integration. In organisational terms, the big multi-divisional firm is ready to be broken down into *autonomous* units.

2.2. A growing dependence on foreign demand and greater market uncertainty served to emphasize the impact of exogenous shocks which, in turn, began to affect the economy of industrial countries at the beginning of the 1970s. As far as the real side of the economy is concerned, the heaviest blow was dealt in 1973 and 1979 by the two oil shocks, which - besides accelerating an inflationary process that had already been started by the rigidity of real wages - pushed up the relative prices of more energy-intensive industries, mostly characterised by large production scale.

Yet, even more crucial problems emerged at a financial level between 1971 and 1973, when the end of the Bretton Woods system ushered in a long period of turbulence on the exchange-rate markets, setting the stage for a period of strong financial instability and speculation (both emphasized by the phasing out of restrictions on capital mobility in most industrial countries)[18]. In macroeconomic terms this implies a

considerable increase in the volatility of exchange rates and interest rates (graph 2 and table 1), determining a deep alteration in firms' investment strategies: on the one hand investment decisions are faced with an upsurge of the costs of gathering "external" information, as a growing share of resources must be allotted to the management of assets and liabilities; on the other, they are faced with the shortening of the time firms have at their disposal to take decisions.

Since the early 1980s growing uncertainty was compounded by the effect of the strong increase in real interest rates triggered by policies aimed at curbing inflation (see again table 1), which favoured a more general propensity to limiting investment.

Increasing costs arising from bearing higher exchange risk[19], monitoring (more volatile) prices, facing (wider) demand fluctuations and the like mean that evaluating future returns to investments becomes more and more difficult. Similarly "greater uncertainty affecting the future returns to private investments, subject to sunk costs, increases the *option value of waiting*", that is to say "short-termism in the private sector is the rational private sector response to macroeconomic instability" (Buiter et al, 1997, pp. 13 - 14, emphasis added). And since the larger the investment, the higher its sunk costs, expanding capacity will be discouraged to the extent that its scale gets greater.

Hence, the whole macroeconomic scenario tends to become hostile to long-term investment decisions, which are the very premises for large firms to *plan* their activity. Following Carlsson (1996) again, the outbreak of financial instability means - at least for those accepting such a distinction on methodological grounds - shifting from managing risk to managing uncertainty. And whereas diversifying can well help firms to ensure against market risks, inasmuch as uncertainty takes the place of risk this no longer is an appropriate strategy[20]. This has a strong impact on vertical integration, pushing firms to look for a *higher* degree of "flexibility". In this respect the problem can also be viewed from the perspective suggested by

Contini (1984): the fact that, as Oi (1962) suggested firms' cost curves are generally steeper on the left side of the MES (i.e. are characterised by a strong downward rigidity in input use) makes the risk of capital underutilization very high; in a context of strong uncertainty this results in the contracting out of activities more prone to demand shocks. With adequately developed markets for intermediate goods, this mechanism tends to split up the "original" production unit along the lines traced by the separability of cost functions[21]. Size tends to reduce along *vertical* lines.

2.3. At an aggregate level, the waning of the "environmental" conditions which for over two decades had been the backbone of the Golden Age can be sensed in the drastic change in the early 1970s of the growth rate (and its stability) of most industrial countries. Graphs 3 and 4 show, respectively, the (average annual) growth rate and the inter-annual variance of manufacturing GDP for each of the countries considered in the two major development phases of the post-war period (from 1950 to 1973 and from 1974 to 1994).

These figures show, without exception, that output growth suffered a notable slowdown in the years after 1973 and that this phenomenon was associated with a considerable increase in its variability[22]. Both phenomena are closely tied: higher market turbulence implies lower growth prospects as well as more uncertain ones. But if uncertainty adversely affects growth (insofar as in the face of higher real interest rates it makes expected returns more uncertain), at the same time rising competition forces firms to focus on *optimizing*. Even if slowing, productivity growth outpaces output growth from the mid 1970s (graph 5).

This phenomenon deserves special attention, because it suggests that, as the Golden Age was drawing to a close, a fundamental change in the industrialization pattern of developed countries occurred. The literature has extensively discussed the slowdown of the productivity growth rate on the basis of factors which can be considered more or less exogenous here (including the fall in the rate of output growth,

coupled with rising labour rigidity). However, the most important fact in this context is the *reversal* of the relationship linking productivity changes to output changes: while in the period between 1950 and 1973 the former are always higher than the latter (except in the United Kingdom), in the following two decades this pattern tends to be reversed[23].

The reversal of this relationship involves a structural change in the growth prospects of the industrial sector. At least in terms of employment (i.e. in terms of one input), the industrial base can expand only if growth is faster than technological progress. When this is no longer possible, the growth model simply changes: as the graph shows, the need to reduce inputs per unit of production by definition translates into a sharp drop in manufacturing employment in absolute terms (with the partial exception of Japan)[24]. While uncertainty discourages growth, increasing competitive pressure gradually "burns out" that part of the industrial sector which previously grew shielded by an exceptionally favourable market situation.

2.4. It has often been claimed that the shift from the Golden Age to the more recent development stage of the industrial economies has been (more or less) strongly conditioned by a further (exogenous) factor acting on the supply side. According to this view, around the mid-1970s the spreading of microelectronics over the production processes of a growing number of manufacturing activities determined a fundamental change in the long-run cost curves of firms, opening the way to a gradual reduction of the minimum efficient (plant) size. Following Steindl (1945), it could be said that this phenomenon relaxed the technological constraint due to the supposed existence of technological indivisibilities, according to which smaller sized units are removed from (at least some of) the most efficient production solutions. The technological advancement favoured by the introduction of the new technologies should then have narrowed - sometimes even bridged - the gap between larger and smaller firms, making the primacy of large plants in terms of "technical" requirements no longer inevitable[25].

As a matter of fact, empirical evidence seems to show a (positive) relationship between the diffusion of microelectronics and falling average size of business units[26]. But the whole question deserves greater attention in analytical terms. In particular, the point here is that technology has (mostly) to do with *production*. That is, it can affect the firm's size only *indirectly* - inasmuch as it affects the size of its production units. In Steindl's perspective, this means that - at least over the historical period we are dealing with - technology basically acts on *plants*.

When it comes to the efficiency of *machinery* - as opposed to that of the *whole firm*, i.e. of the entire *organisation* of business activities - optimizing becomes but a *technical* problem, whereas in the context of the present work the very crucial issue - as size is concerned - rather lies in the way of setting (co-ordinating) each "unit"[27] within the boundaries of the same *enterprise*[28]. As has been argued so far, what is relevant from our point of view - quite apart from how extensively the size of plants may be affected by technical progress - is the extent to which firms are able (find it convenient) to bundle their different functions together (which may obviously be extended to include activities which are not directly related to manufacturing, as being carried out within other units). In this respect, while it can well have favoured the setting up of *new* small (single-plant) firms, technology has probably played a negligible role in the *emerging* search for vertical dis-integration, around the mid-'70s, by *existing large firms* - when microelectronics was still mainly incorporated in (single) *machines*. At *that* stage, the key issue was to be found - as we saw in previous sections - in the need for firms to reduce the costs for *co-ordinating* activities.

Be that as it may, as far as we know (see in particular Traù 1999), the structural change - in terms of downsizing - observed at *plant* level shows a rather different pattern with respect to that of *enterprises* - in most cases it starts *earlier* in time. We can see here that no relevant structural changes at the plant level were brought about by technical

change. If anything, in early industrialised countries economic forces had *already* began to push towards lower average size of *technical* units, far *before* technology experienced such a sharp break[29].

In a broader perspective - whether related to technology or not - the dominance of big business, which in the industrialized world peaked throughout the first stage of post-war growth, actually *never* did apply across the board. Indeed, in many types of production the tendency towards higher concentration actually played a quite marginal role at *all* stages of industrial development. Following again Meade's words (1968, p. 378), it can be said that - even in the course of the Golden Age - however large "that part of the economy which is represented by the large modern industrial corporation... the other part of the modern economic system is indeed very large." And as has been set out by Chandler, this phenomenon had already emerged during the spate of mergers which swept through the U.S. economy at the turn of the century, when it became clear that:

"the new integrated mergers failed to play a dominant role in those industries where the process of manufacturing was labour-intensive, where the application of additional energy did not speed up the process, where selling required little in the way of special marketing services, *and where scheduling of production and distribution was less critical*. One or more of these characteristics occurred in the following industries: textiles, leather, lumber, clothing, hats, shoes, saddlery, furniture, carriage-making, and other wood-processing industries; cigars and many foods; simple metal fabricated products and machinery which did not require special installation, service, or credit; specialized machine tools and instruments; and printing and publishing. In these industries, *the adding, combining, and integrating of many units failed to provide any special competitive advantage* in terms of lower costs or greater customer satisfaction. In these businesses, single-unit enterprises... continued to compete sucessfully against large integrated corporations" (1978, p. 111, emphasis added).

The list made by Chandler is impressive: almost without exception - if

anything with some additions - it corresponds to the whole set of modern industries characterised by a strong presence of small-sized business units. This means that some sort of sectoral bias is at work in the present context, accounting for the fact that in some industries (whose economic importance has been declining in industrial countries) the large "multidivisional" enterprise actually *never* managed to achieve dominance[30].

3. Industrial development after the Golden Age: vertical dis-integration and the "re-emergence" of self-employment.

3.1. As of the late 1970s market conditions looked ever less similar to those that had favoured the development of the corporate firm as the typical form taken by the organization of the industrial system. The macroeconomic context as a whole was no longer the "ideal" environment for big business to thrive in.

Following Harrigan (1983), it can be said that, as a general rule, "unless strategic requirements make full integration a necessity, firms should transfer some of the risk of vertical integration to outside parties" (p. 15). This simply comes from the premise that "full integration is a two-edged sword", for "costs that would be variable under a purchasing contract are converted to fixed costs". In particular, "full integration works best when price competition is not fierce enough for diseconomies to matter... [and] if the environment is a stable one" (p. 17). This in turn reflects the fact that "stable environments have: low product differentiation, [and] infrequent product improvements... Accordingly, in such environments competitive signals are clear and easily understood". On the contrary "a volatile environment would... be characterized by high product differentiation [and] frequent process innovations... Such an industry would be characterized by erratic or cyclical demand" (p. 32). Hence, "less internal integration is appropriate under conditions of high uncertainty, volatility, and frequent product modification. More internal integration is appropriate when industry conditions are less volatile and uncertain" (p. 33). On the whole, we can then say that

"each firm that integrates tries to control its need for certainty, but if competitive conditions and demand variability become *too* unfavourable for it to endure, the firm will face increasing pressure to dis-integrate, or to retreat to lesser forms of integration" (p. 48, emphasis original).

This way of approaching the scope for vertical integration helps us set within a coherent framework the overall picture of structural change we have tried to outline above[31]. As a matter of fact, on empirical grounds it can be said that the first effect of structural change itself can be seen in a generally falling degree of vertical integration of the industrial system, as can be measured by the ratio of value added to production.

Graph 6 shows the long-term trend of the Adelman index[32] in manufacturing for the six countries so far considered, starting from the first year in which international statistics make it possible to venture some calculations[33]. The picture is rather clear: the degree of vertical integration generally tends to fall in the years between the mid 1970s and the early 1980s: the extent of this process varies from country to country (it reaches its maximum level in Italy and is negligible in the United Kingdom) and there seems to be an abatement (or even a reversal of the trend) in the following years. As to our discussion so far, this evidence is compatible with the idea that the re-emergence of small scale production was occasioned by the increase in market relations between enterprises (with "hierarchy" being gradually superseded by the market). This phenomenon seems to have come to an end around the early 1980s[34]: in structural terms this could point to the fact that in those years the de-verticalization process had reached its "physiological" minimum (as the breaking down of production process could not last forever). It should be noted, however, that the dates on which calculations can be made do not make it possible to draw precise conclusions about Germany, and that the two Anglo-Saxon countries seem to be only marginally affected by the phenomenon[35].

In this connection it can be assumed (but the question would deserve specific analysis) that in the last two countries downsizing was mainly influenced by "horizontal" de-concentration, as they were characterised by a particularly strong development of large-scale conglomerates. This hypothesis is borne out - especially as far as the US economy is concerned - by the evidence on recent mergers and acquisitions trends, which have been a quite important tool in the restructuring process of the industrial system. In fact, according to Bhagat et al. (1990, p. 2), towards the mid-1980s "hostile takeover activity results in allocation of assets to firms in the same industries as those assets [so that] ... by and large, hostile takeovers represent the deconglomeration of American business and a return to corporate specialization"[36]. As to the fact that this phenomenon occurs in a context of *general* downsizing (at least in terms of the labour input), it can be noted that as a matter of fact "in the cases where the initial acquirer did not want the majority of the assets of the target company but only some divisions, we see a combination of a strategic acquisition *and a bustup*.... Thus many apparent bustups turn out to be strategic in nature as well" (p. 44, emphasis added). The role that such policies might have played in favouring higher efficiency levels, on the basis of the previous remarks (section 2) can also be inferred from the analysis provided by Cynthia Montgomery (1994) with reference to the American economy, according to whom "on average, firms with higher levels of diversification are less profitable than firms with lower levels of diversification" and in any case "firms that diversify around specific resources are more profitable than firms that diversify more broadly" (p. 172).

3.2. Falling vertical integration means that manufacturing activity is divided up among a larger *number* of producers. For the market to supercede hierarchy it is necessary to start creating *new* production units - i.e. a share of the economy previously controlled by managers must go back to being controlled by *entrepreneurs*. The basic lack of data which would allow an acceptable international comparison of the rate at which new firms are being created (even more difficult to find for retrospective years) makes it impossible to directly examine the

phenomenon; it is however possible to find some indication as to the long-term trend of the share of self-employed workers with respect to total employment. In this connection, graph 7 shows, starting from the 1960s, the trend of the ratio of self-employed workers to the total workforce in the countries considered[37].

First of all, figures show the tendency of the ratio to converge across countries during the period considered. Faced with a range of over 20 percentage points in 1960, in the mid-1990s the gap between the different countries appears to be more than halved. On the one hand, this phenomenon is due to the drop in the index in laggard industrialised countries (Japan and Italy, where it starts to increase again at the end of the 1970s) and on the other hand to its increase - more or less as of the mid 1970s - in countries which developed their industrial system first (United Kingdom and United States).

When set against the basically stationary trend of the two countries in an "intermediate" position (i.e. Germany and France, after a phase of decrease which lasted until the mid 1970s as well), this evidence suggests that in the course of industrial development the share of self-employment tends first to show a downward trend and then to increase again[38]. In the first stage the effect of "pre-modern" handicraft units going out of business prevails (as well as the fact that their self-employed workers become employees of larger firms). In the second stage the very forces reducing the profitability of large-scale production (thereby causing downsizing) once again induce many employees to turn to self-employment[39].

Returning to organisation of the production process which enhances the role of the entrepreneur - through shrinkage of that part of the economy (the big business sector) where *management* influence is greater - tilts the balance of the decision-making system in favour of production units less prone to *internal* conflicts. With respect to what was noted earlier (section 1), a growing *share* of decision-making units with a low degree of organizational complexity in turn brings about an overall reduction of the "extra" costs required to manage

internal conflicts (and therefore of the *time* required to take decisions); that is, those costs which - other things being equal - tend to increase the costs of "hierarchies" as opposed to those of the market[40].

The analysis outlined in the previous pages suggests that the pre-requisite for this to happen must be sought in the fact that "hierarchy" costs are lower than "planning economies" only as long as market uncertainty and competition are so limited as to reduce the risks of capital underutilization to a minimum. According to this view - even though to a different extent in different countries - downsizing and the employment shift towards smaller firms are two facets of one and the same phenomenon.

4. To summarize

The last quarter of the 20th century saw the re-emergence of a way of organizing production and trade based on a high degree of division of labour *among* firms (rather than *within* them). This phenomenon represents a major reversal with respect to what only thirty years ago appeared as the only possible form of development of the industrial system: namely, the primacy of large business organisations characterised by a high degree of both vertical and conglomerate integration. Along with Simon (1991)[41] we can say that the *market* economy claimed back its role from the "*organizational*" economy; that is to say - in Meade's words (1968) - that the organization of production activities readjusted the balance which set "careful forward planning" against the "price mechanism" in favour of the latter[42].

The break with the past introduced by this change was caused by major events that since the end of the 1960s affected the economies of industrialized countries both on endogenous and exogenous grounds. Current literature lists among the former the demand shock resulting from the very mechanism of industrial development (which in itself caused consumption to move away from the typical goods of mass

production), and the growing rigidity of labour (due to the achievement of full employment on the one hand, which raised the frequency and the intensity of labour conflict within firms, and to the ever growing standardization of work functions on the other, which lowered labour flexibility). Among exogenous shocks attention should be paid to the consequences of the introduction of new technologies in the production process, which contributed to reducing the minimum efficient size of plants. The asymmetric nature of oil shocks, which supposedly disadvantaged more energy-intensive industries (mostly characterised by high average size of firms) should also be noted.

The role played by these factors in determining an overall decline in the relative efficiency of large-scale production was undoubtedly important. Yet the full scope of the structural change cannot be understood without taking into account the extraordinary environmental change brought about, at the macroeconomic level, by two decisive forces, both basically endogenous in nature: the first is the gradual but relentless increase in competitive pressure induced by the process of international economic integration; the second is increasing uncertainty on financial markets following the crisis of the Bretton Woods system.

The industrial development pattern which reached its maturity at the end of the 1960s hinged upon two crucial pivots, which characterized what has been defined as the Golden Age of industrial economies: on the one hand the strong growth of domestic consumption of industrial goods (most of these economies were still going through an industrialization stage, while their international integration was still relatively limited); on the other the stability of exchange rates, interest rates and growth expectations ensured by an international financial system in which the scope for speculation was kept down to a minimum. The stability (and strength) of the growth process favoured by such macroeconomic conditions encouraged firms to look for a higher degree of stability of supply rather than fret about the demand-side - and at the same time ensured a reasonable predictability of

expected returns on large-scale investment plans. This translated into an overall tendency towards increasing concentration (both along vertical and horizontal lines), involving a constant increase in the average size of firms and in their output and employment shares.

That world was literally falling apart around the end of the 1960s under the weight of its own strength. On the one side the increase in competitive pressure brought about by rising business integration of industrialized economies (which in its turn is a function of their degree of development) forced firms to concentrate on core competencies - in most cases making use of a lower amount of resources (especially labour). On the other, the crisis of the international financial system shifted on to the private sector the burden of the exchange rate risk and - due to the flaring up of inflation - emphasized the problem of interest-rate fluctuations, thereby increasing the degree of market turbulence in structural terms and paving the way to speculation, which eventually ushered in a phase of veritable uncertainty.

This had devastating effects on investment activity (which are often inexplicably underestimated): as the predictability of expected returns fell, the risk of larger investment soared. Fixed costs (increased by the greater rigidity of labour) rose substantially and the fear of capacity underutilization replaced the Golden Age fears of supply shortages. While the competition shock acts to reduce the degree of conglomerate integration of firms, the turbulence shock contributed to narrow vertical integration (provided cost functions are separable). At the organizational level, the change in the development pattern of size corresponds to the transition from a "managerial" economy (in which the low costs for monitoring markets are compatible with the codified criteria of response typical of the hierarchical organization of business) to a type of economy in which the entrepreneur (the "immediate response" in the face of uncertain events) is once again set at the very centre of the decision making system. The market claims back its role.

In this context it may be of some interest to recall that, in conceptual terms, the whole question raised above was given explicit attention by thinkers since the early 19th century who understood the functioning of the competition mechanism. Indeed, we can find in Adam Smith (even though in the context of a specific reference to international trade) an embryonic theory of the way in which a less "static" economic order puts out of business the activities of big complex organizations led by managers:

"to buy in one market, in order to sell with profit in another, when there are many competitors in both; to watch over, not only by occasional variations in the demand, but the much greater and much frequent variation in the competition, or in the supply which that demand is likely to get from other people and to suit with dexterity and judgement both the quantity and the quality of each assortment of goods to all these circumstances, is a species of warfare of which the operations are continually changing, and which can scarce ever be conducted successfully without such an unremitting exertion of vigilance and attention as cannot long be expected from the directors of a joint stock company."

And then further down the text:

"The only trades which it seems possible for a joint stock company to carry out successfully, without an exclusive privilege, are those, of which all the operations are capable of being reduced to what is called *a routine, or to such a uniformity of method as admits or little or no variation*" (taken from the 1963 Irwin edition, pp. 265-266, emphasis added).

The emphasis put here on the "unremitting exertion of vigilance" required by the need for monitoring ever changing quantities and prices coincides unmistakably with the skepticism about its very compatibility with the organizational mode of large enterprises. Indeed, the stylized facts recalled above show how the changes that swept through the economic system between the late 1960s and the

early 1970s have dramatically increased the "vigilance requirements" per unit of output throughout the industrialized countries.

Notes

[1] As late as the late 1970s, the empirical investigation carried out by Prais (1981) still led the author to conclude that "in the current... period [i.e. in the years following 1950] it appears that factors systematically favouring a relatively faster rate of growth by large firms have become dominant; these have combined with the general diffusion process to make for an unprecedented rate of increase in concentration, to which no limit can be seen at present" (p. 40).

[2] It is extremely interesting to recall here - with hindsight - a number of considerations made by Meade (1968) in a review of Galbraith's book, according to which "In the modern complex economy there are two forces at work. One is that which Professor Galbraith rightly emphasizes, namely the increased need for careful forward planning in a system which involves the commitment of large resources to inflexible uses over long periods of time. But there is a second and equally important trend, which he entirely neglects: namely, the increased need... for a price mechanism,... [which] arises because in the modern industrial system input-output relationships have become so complex and the differentiation between products (many of which are the technically sophisticated inputs of other production processes) has become so manifold that simple quantitative planning without a price or market mechanism becomes increasingly clumsy and inefficient" (p. 391). These claims - which might have appeared even extravagant in the years when they were made - are extremely important when considered in the light of the analysis developed further (see in particular section 3).

[3] No attempt will be made here to review the literature on the subject; I will simply mention the title of the volume edited in 1971 by Marris and Wood - *The Corporate Economy* - which tried to set a first assessment of the issue, including papers by

some important theoretical scholars of the time.

4 It could be said that the bulk of organizational research acts as a catalyst drawing attention to the "problem" of large firms, thus favouring the recovery of the conceptual assumptions made by Berle and Means as early as the beginning of the 1930s. The obvious (basic) references to be made here are to Simon (1945) and Cyert and March (1963). See section 2 below.

5 See Momigliano (1971, p. x, my own translation).

6 See again Momigliano (1971, p. viii, my own translation; emphasis added).

7 According to Engel's law, this means that at this stage of development the elasticity of the demand for manufactured goods is high and fast growing. In particular, this phenomenon is enhanced by the specific relevance, *within* the manufacturing sector, assumed by the production of basic inputs and mass standardized goods - often associated with large size of firms.

8 See specifically on this point the perspective opened by Richardson (1960).

9 Actually, the need to stabilise upstream and downstream markets starts to appear as an organisational problem long before the second post-world period. As has been noted by Kocka (1978) regarding German industry in the early years of the century, "even the slightest upset in production meant massive losses; diversification into raw materials and transport allowed this risk to be minimized; diversification of this sort made it possible to calculate as fixed costs the charges which had hitherto been dependent on unforeseeable market changes; these strategies served the firms' repeatedly emphasized aim of seeking the greatest possible 'market independence' " (p. 560). As far as downstream industries are concerned, this is also

linked to the relative incompleteness of the markets for intermediate inputs in the initial stages of industrial development. More broadly, it can be said that the emphasis put on fixed costs as a factor of risk *reduction* - seen from the quite opposite perspective of the late 1990s - highlights the huge importance of the changes which have occurred in the "external" context.

10 "During the first few decades of the post-war period, firms tended to diversify in order to reduce their exposure risk. This was the golden era of conglomerates." (Carlsson, 1996, p. 80). This applies regardless of the fact that this strategy responded to the emergence of scope economies among different activities.

11 The notion of M-form, whose formulation in descriptive terms dates back to Chandler (1966), was set out theoretically by Williamson in two successive papers (1970 and 1971). Williamson's assumption is that "finite spans of control naturally require that additional hierarchical levels be introduced as the U-form enterprise expands" (1971, p. 346); as this has the effect of reducing the degree of control of managers and amplifying the problems as to the discretional behaviour of each hierarchical level, the firm is induced to adopt a structure (M-form) which is based on the breaking down of the previous unit into "natural decision units" with a substantial decision-making autonomy. The new organization, which is thus made up of "quasi-enterprises" which are subject to a single strategic function, involves relatively lower information requirements (and therefore costs), in addition to a clearer definition of decision-making responsibilities. The first appearance of the M-form actually took place as early as in the 1920s, and coincided with the restructuring of General Motors (see Sloan, especially ch.s 4 and 14).

12 See the review by Hughes and Singh (1980) on this specific point; the importance of mergers in increasing the degree of

industrial concentration had already been stressed, with reference to the English experience in the Fifties and Sixties, by Utton (1971).

13 The whole question can be included in the broader issue of the crisis of the so-called Fordist paradigm in many large-scale production types, as it has been analysed by Piore and Sabel (1984). It is worthwhile to notice that according to Piore and Sabel the developments of mass production do not simply applies to market economies, but also to the (formerly) planned economies of Eastern Europe as well as to many developing countries.

14 From here onwards the empirical analysis - unless otherwise specified - refers to a group of six industrial countries including France, Germany, Italy, United Kingdom, United States and Japan.

15 "The Golden Age could be regarded as primarily domestically based" (Glyn *et al.*, 1990, p. 51).

16 The notion of X-inefficiency first introduced by Leibenstein around the mid-1960s (see the synthesis in Leibenstein 1976) is here meant to recall the reduction of the degree of "inbuilt" inefficiency occurring when the competition mechanism is at work. See also Traù (2000).

17 In the last years a number of attempts aimed at (re)founding a theory of firms' boundaries based on *production* pre-requisites has been developed, revolving around the notion of "competence" (for a full review of this issue see Foss and Knudsen, 1996). This overall perspective includes different approaches, more or less centred on the analysis of some "knowledge capital" allowing the firm to achieve better results than its competitors. Competence is seen in this context as an asset which rests with *individuals*, but is really to be found in

organizations, which are the basic subject of analysis ("firms are seen essentially as repositories of competence", Foss and Knudsen 1996, p. 1). Seen in this way, the possibility for firms to grow both vertically and horizontally is strictly linked to their abilities to develop *from within* (and dynamically) the necessary knowledge. According to this view both "the death of the conglomerate" and "the need for a return to core business" (p. 3) are attributed to the impossibility of sustaining permanent diversification as a long-term corporate strategy.

18 As has been noted by Singh, there was a change from a situation in which "not only were they [the developed economies] subject to international capital controls under the Bretton Woods regime, [but] they also had a plethora of controls, regulations, and other restrictive practices in the domestic product, capital and labour markets" (p. 14), to a situation in which financial liberalisation and globalisation "create enormous scope for destabilising speculation which in turn leads to high volatility of both monetary and real variables" (1997 p. 24).

19 As has been recently noted, "under the Bretton Woods system, foreign exchange risk was borne by the public sector. With that system's collapse, foreign exchange risk was privatized (Eatwell, 1995, p. 278).

20 "With the events of the 1970s and 1980s... the resulting volatility of world markets incorporated more elements of genuine uncertainty than 'mere' risk" (Carlsson 1996, p. 80).

21 In this case the exact opposite occurs of what was said before (see section 1) about the tendency of firms to *increase* their degree of vertical integration when demand is particularly *stable* (that is to say when the downward rigidity of input use is *not* a major problem).

22 The slowing down of growth in the two most recently industrialised countries (Italy and Japan) is less evident, and that this is associated - in both periods - with a lower variance. As far as the United Kingdom is concerned, variability is simply measured by the standard deviation owing to the very low value of the average. As can clearly be seen, in this specific case variability is in any case higher than in the second period in absolute terms, and is all the more so in relative terms (that is to say as against the average, which in the second period collapses).

23 In the years following 1973 the conditions which allowed the European countries to catch up with the US (the leading industrial country in the first post-war phase) gradually disappeared, and at the same time a break in the structural link between output and productivity - according to a Kaldor-Verdoorn view - occured. This means that the positive impact of technological progress on output growth was reduced and vice versa. On this issue see Matthews (1982).

24 The fact that output growth is lower than productivity growth may be linked, in the more recent phase and especially in European countries in which the phenomenon is stronger - to the effects of restrictive policies due to need to meet the Maastricht criteria. But in a long-run perspective the crucial difference between the two phases lies in the very uniqueness of the Golden Age: as Kindleberger (1958) pointed out at as early as the 1950s "the higher rate of growth has the prospect of slowing down"; that is to say "the Gompertz or S curve applies more or less roughly to growth problems. On only a small portion of it can geometric rates of growth be extrapolated, and then not for long" (p. 315). From this point of view the endogenous component of the phenomenon re-emerges; we might even go as far as to say that the conditions under which firms' expansion reaches its extreme must be considered absolutely anomalous and therefore cannot be repeated.

[25] However, as technological advancements gradually allow the setting up of (flexible) manufacturing *systems*, which by their very nature are characterised by large minimum size, the question of indivisibilities comes back again. See for example Mansfield (1992).

[26] The point has been widely analysed by Carlsson (1989) and Carlsson et al (1994), according to whom in the US - from the early 1970s until the mid 1980s - industries most affected by the introduction of numerically controlled machines in production processes underwent a reduction in size (and vice versa). On the broader issue of the relation between firm size and technology see also Dosi (1988).

[27] The term "unit" here has to be internded in the meaning suggested by A. Robinson (1935); see on this specific point Traù (2000), sections 4 and 6.

[28] It needs to be stressed in this connection that in more recent years information technologies have widely spanned over the whole range of the internal activities (functions) of industrial firms in such a way as to deeply alter the very boundaries of various activities, making it difficult, in some cases, even to find any boundaries at all between them.

[29] Reference can be made to the findings presented as early as in the 1940s at a Symposium of the American Economic Association (see in particular the paper by Blair, 1948), as well as many other contributions (e.g. Pryor 1972, Sargant Florence 1954).

[30] The issue assumes peculiar relevance in the Italian case, in which the strong presence of small-scale production units - largely due to the lagged industrial development of the country -

was a decisive factor in accelerating the growth of the small business sector.

31 The perspective suggested by Ms Harrigan appears quite similar to the one opened by Meade's insights (see section 1 here). See also Traù 2000 (in particular sections 4 and 5).

32 For a comprehensive discussion of the methodological issues related to vertical integration measures see Maddigan (1981).

33 The values shown in graph 6 correspond to the (simple) average of the values available at the sectoral level (at input costs - subject to exceptions - and at current prices). Calculations do not include a number of sectors structurally characterized by limited possibilities of breaking down individual production stages (see table A.1 in the Appendix).

34 A partial exception is represented by Japan (which is, however, affected by some roughness of available data, see Appendix).

35 A much deeper empirical investigation of the phenomenon analysed here - referring to the four European countries here included - can be found in Arrighetti (1999), whose findings, based upon a different data set, show a more remarkable fall in the Adelman index both for Germany and the UK.

36 "Such acquisitions thus reflect the same phenomenon that appears to underlie most friendly takeovers in the 1980s: firms buying other firms in a closely related industry" (p. 44).

37 The dynamics of self-employment (commonly observed in similar contexts; see for example Davis and Henrekson, 1997) measures the performance of that part of self-employment working not only without any employees but also without resorting to *other* self-employed co-workers. As on the basis of this data the analysis would simply be limited to free-lance

workers, we consider here the *whole* of self-employment (including co-workers in firms which make anyway use of employees). Even without considering the problems posed by the lower reliability of estimates concerning free-lance self-employed, this figure identifies more precisely (when set against total employment) all those people who work as *entrepreneurs* within firms.

38 Obviously the whole question must be evaluated taking into account also the pressure exerted by the very existence of high levels of unemployment on the propensity to self-employment. For a review of this problem see for example Meager (1992).

39 When considered in relation to the decreasing trend shown by total unemployment in absolute terms (*infra*, section 2), such trends show how the creation of new firms accompanying the de-verticalisation process is probably linked to spin-off effects (the growing number of self-employed is paralleled by a *decreasing* number of employees).

40 The case which is being made can be highlighted by considering the importance assumed, as the corporate economy reached its climax, by state-owned firms in the Italian case.

41 For a deeper discussion of Simon's analysis, see Traù (2000).

42 It has to be borne in mind, in this connection, that in the late 1990s a new merger wave has began to spread in many industrial countries, which may have altered to some extent the long run pattern here outlined - leading towards a "re-emergence" of large-scale economies. The question falls largely outside the boundaries of this work, which refers to a specific phase (spanning from the early 1970s to the early 1990s) of the industrial development of advanced capitalist countries; nevertheless, it can be said that, whatever the future development of such tendencies, in the new context large size

will probably play a quite different role with respect to what happened in the course of the Golden Age - economies of scale (if any) tending more and more to develop within non-productive activities, and affecting the overall size of industrial *groups* much more than that of *firms*.

TABLES AND FIGURES

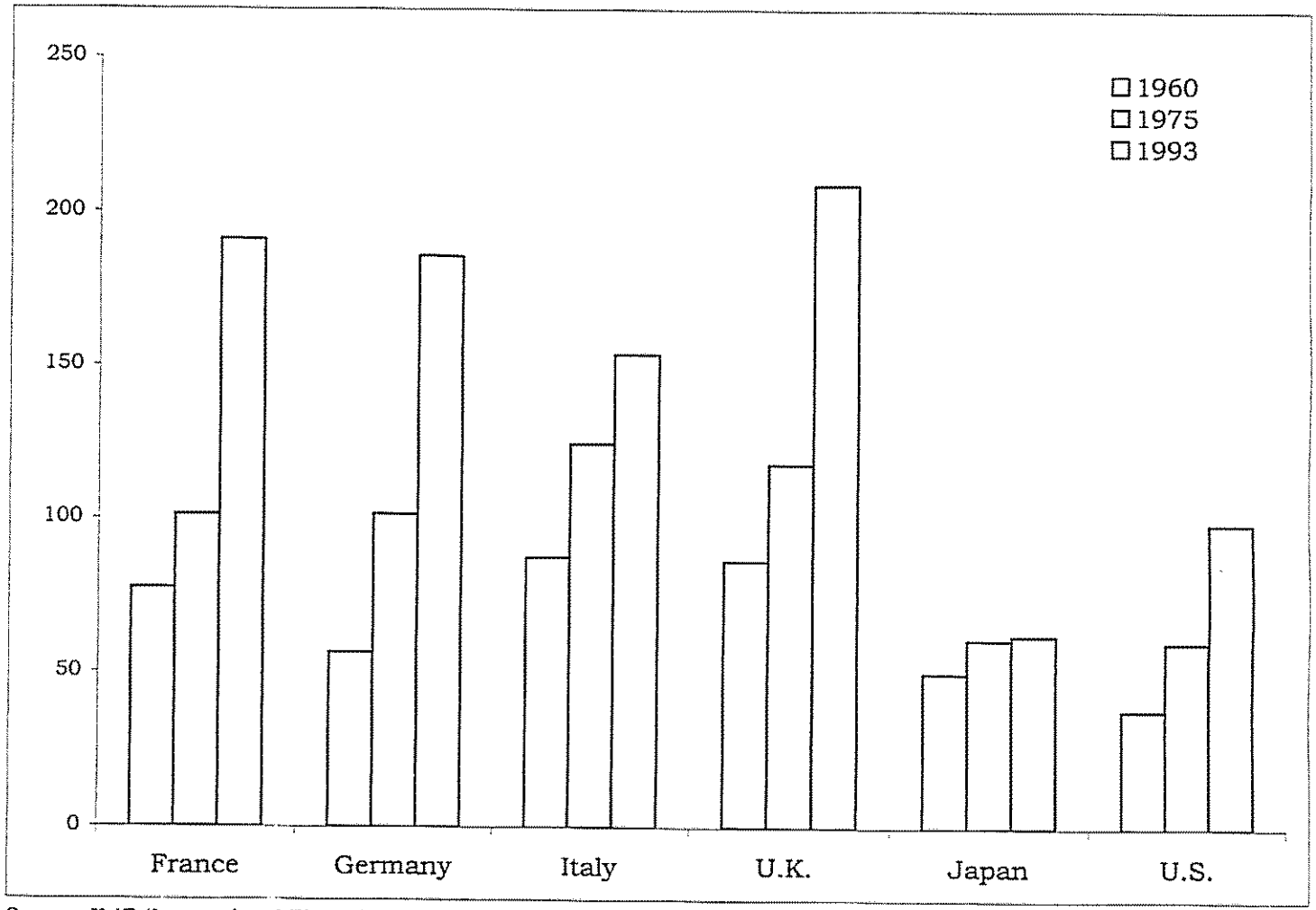
Tab. 1 - Annual rates of growth of (long-run) interest rates and consumer prices

Countries	interest rates				prices			
	average		variance		average		variance	
	1957-73	1973-97	1957-73	1973-97	1957-73	1973-97	1957-73	1973-97
France	6.09	9.84	1.52	6.94	5.30	6.49	10.33	19.91
Germany	7.00	7.37	1.09	2.14	3.01	3.35	2.76	3.54
Italy	6.73	12.90	1.16	11.60	3.98	10.39	7.76	37.93
United Kingdom	7.17	10.96	2.84	5.86	4.45	8.36	7.53	36.53
Japan	7,07 *	6.08	0,04 *	5.39	5.30	4.06	8.53	26.20
United States	5.06	8.76	1.57	4.92	2.92	5.55	3.81	10.71

* :1967-1973

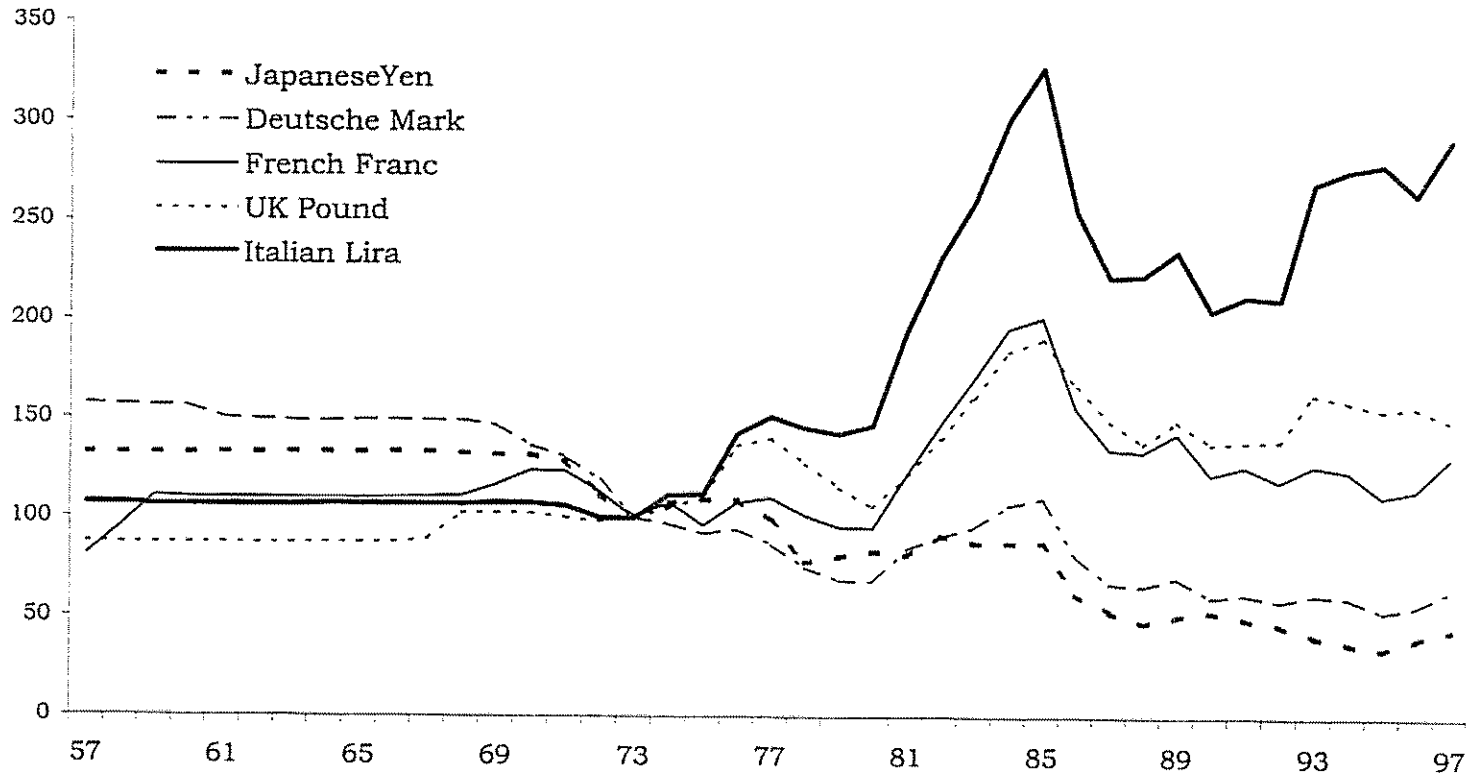
Source: IMF (International Financial Statistics)

Fig. 1 - Exports plus imports of goods as a share of manufacturing value added
(national currencies, constant prices).



Source: IMF (International Financial Statistics), OCSE (National Accounts)

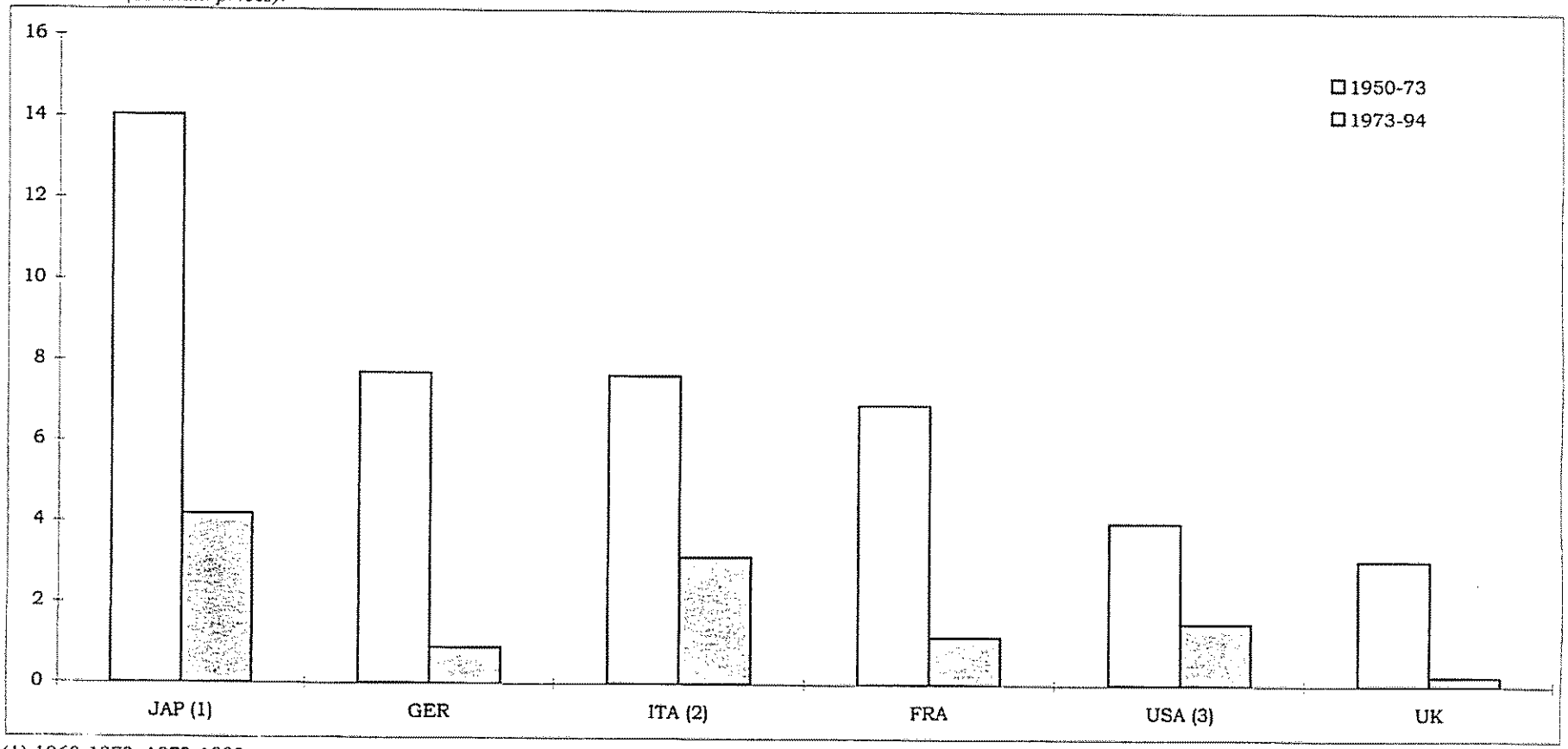
Fig.2 - Bilateral Exchange rates against the US Dollar (1973=100)



Source: IMF (International Financial Statistics)

Fig. 3 - Annual average growth rates of manufacturing value added

(constant prices).

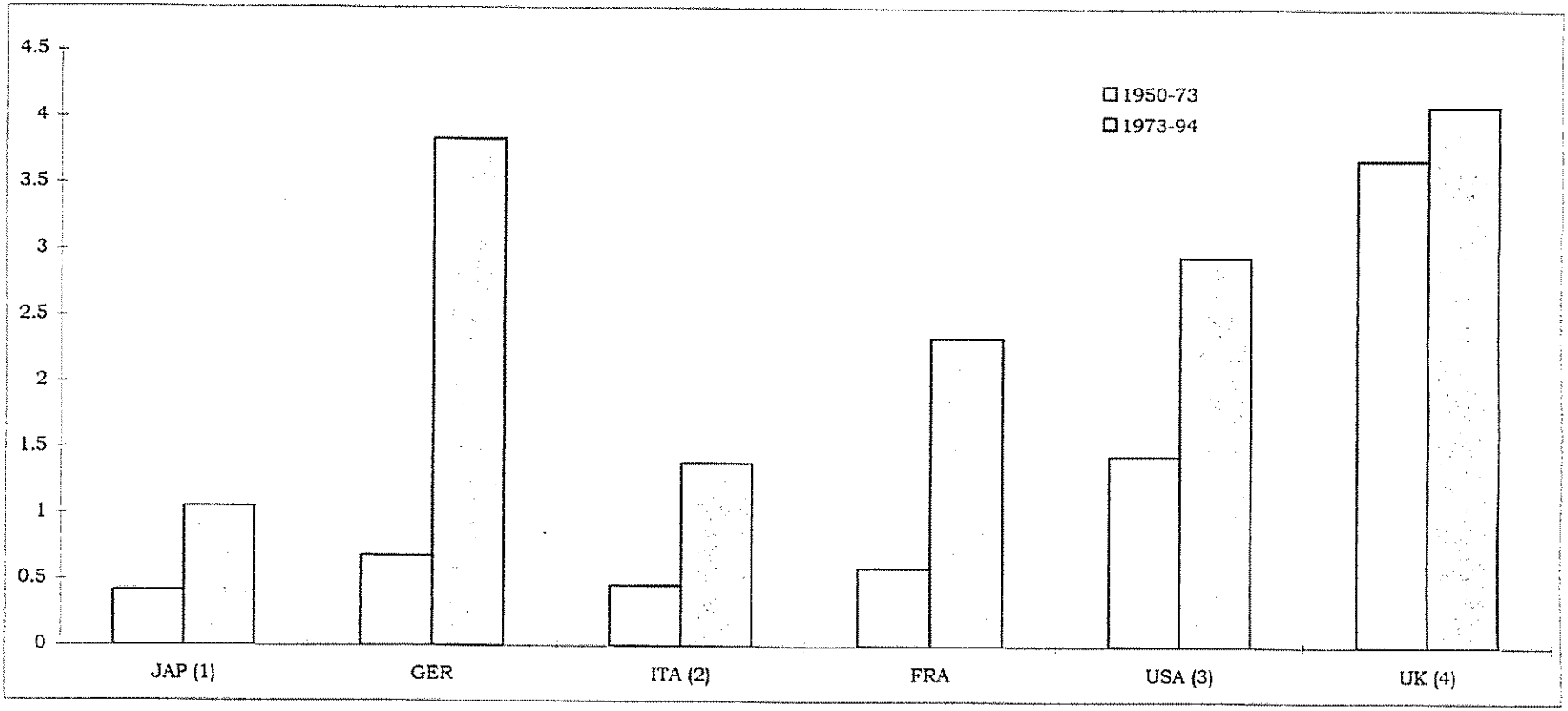


(1) 1960-1973 1973-1993
(2) 1951-1973
(3) 1973-1993

Source: OECD (National Accounts)

Fig. 4 - Manufacturing value added, relative standard deviation of annual growth rates

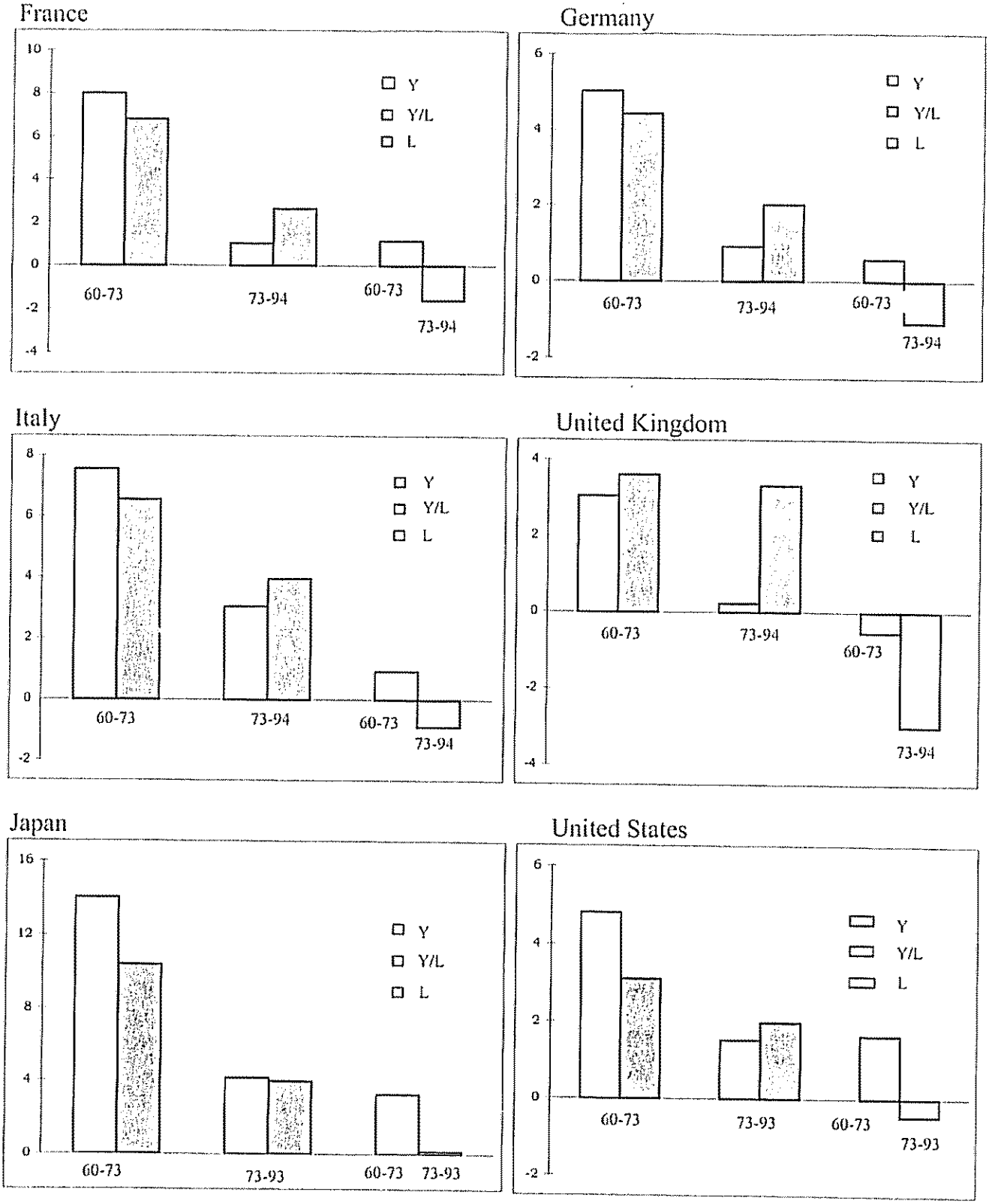
(costant prices).



(1) 1960-1973 1973-1993
(2) 1951-1973
(3) 1973-1993
(4) s.q.m. * 100

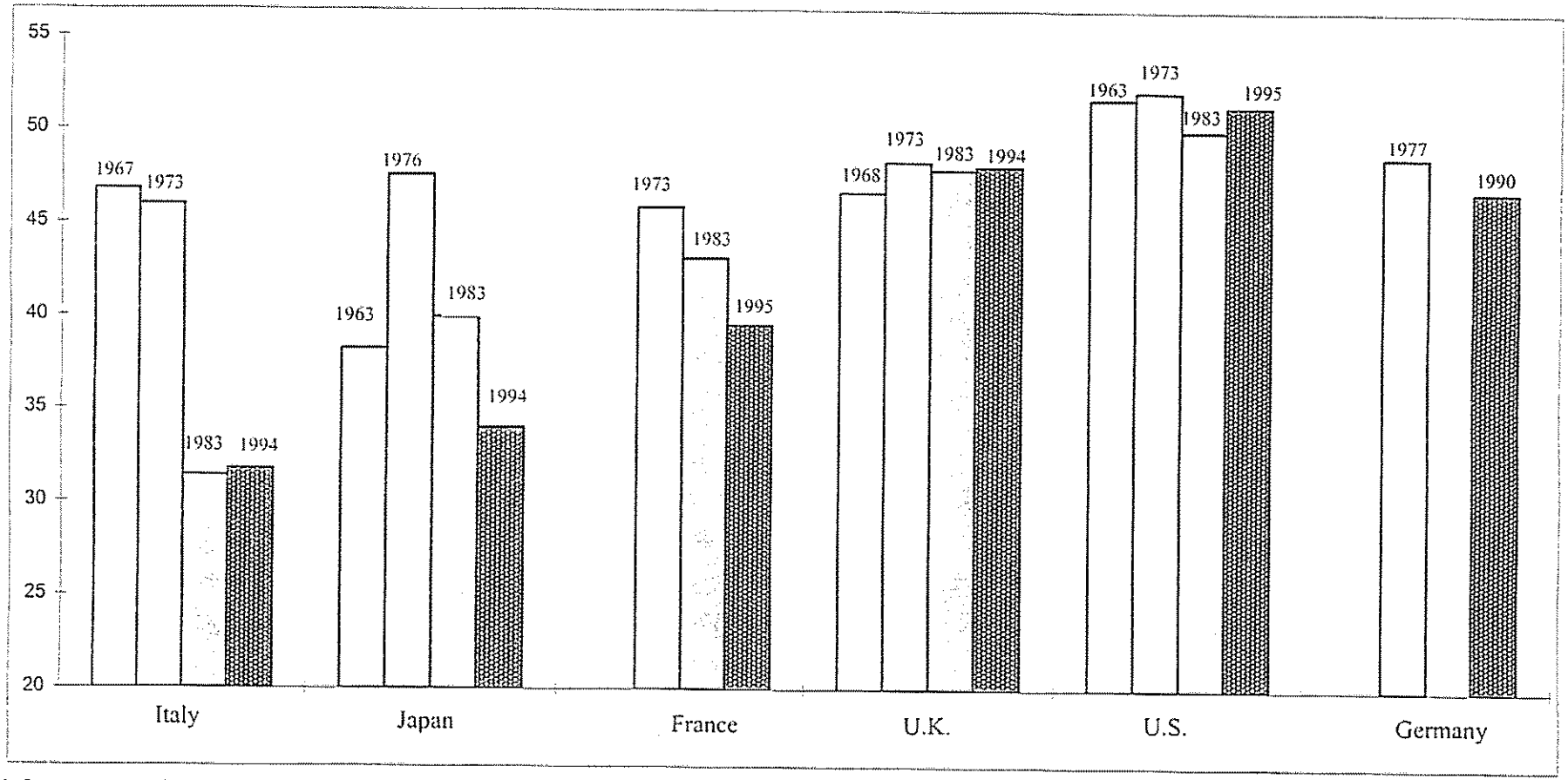
Source: OECD (National Accounts)

Fig. 5 - Annual average growth rates of manufacturing value added (Y), labour productivity (Y/L) and employment.



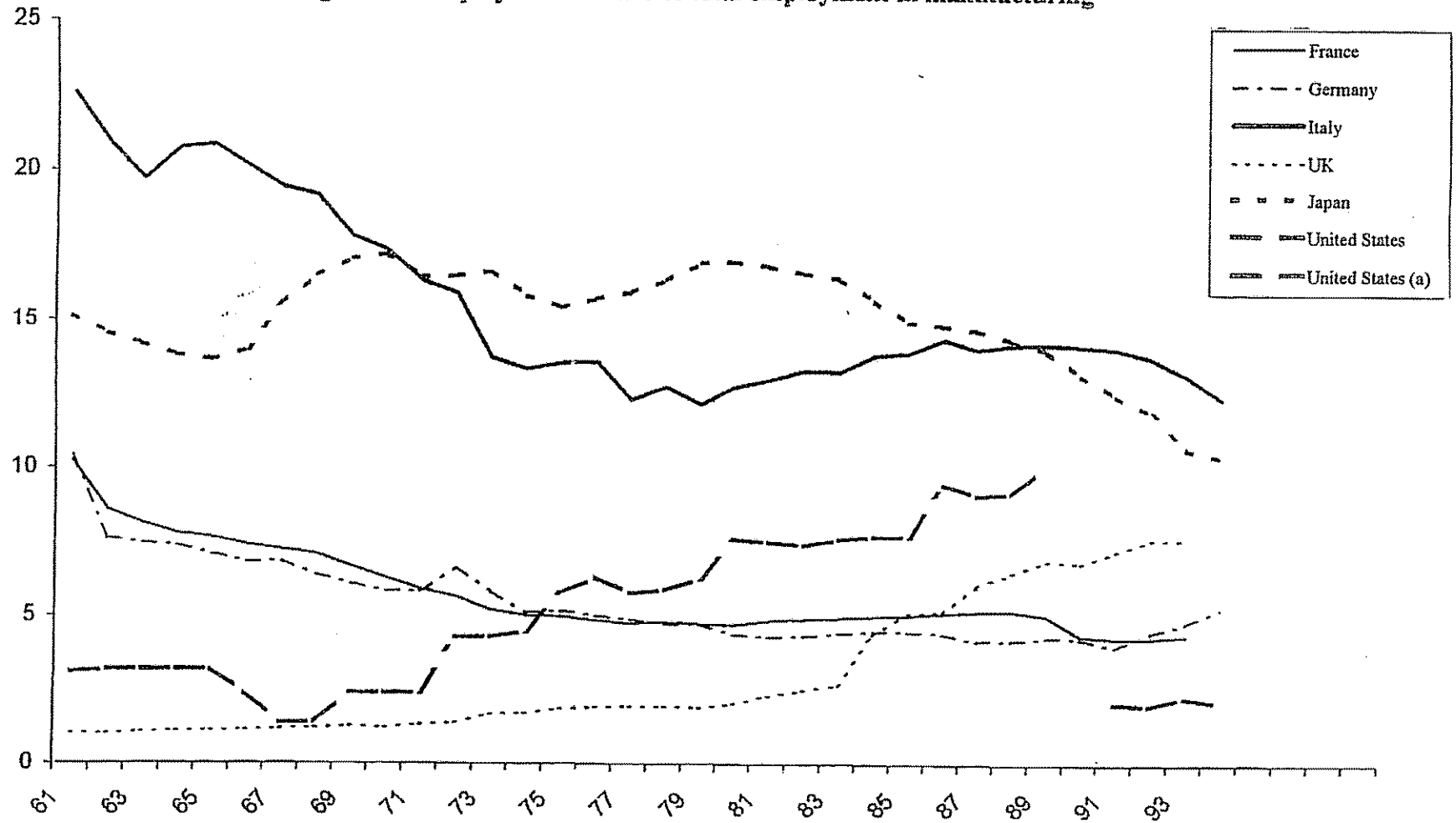
Source: OECD (National Accounts)

Fig. 6 - Adelman Index in manufacturing industries (value added as a share of gross output, average of sectoral values)*
(national currencies, constant prices).



* See Appendix
Source: ONU (Yearbook of Industrial Statistics)

Fig. 7: Self employed as a share of total employment in manufacturing



Source: OECD (Labour Force Statistics)

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Appendix

Table A1 – Isic (Rev 2) Codes refer to activities included in the calculation of the Adelman Index

Italy (1)	Japan (2)	France (3)	United Kingdom (4)	United States (5)	Germany (6)
311+312	311+312	311+312+313 +314	311+312	311+312	311+312
313	313	321+322	313	313	313
321	321	323+324	321	321	321
322	322	331+332+390	322	322	322
323+324	323+324	341	323+324	323	323+324
331+332	331+332	342	331+332	324	331+332
341	341	351	341	331	355
342	342	352	342	332	356
351+352	351+352	355+356	351+352	341	361
355+356	355+356	362	355+356	342	362
361+362+369	361+362+369	381	361	351+352	369
381+382	381+382	382+385	362+369	355	381
383	383	383	381+382	356	382
384	384	384	383	361	383
385	385+390		384	362	384
390			385	369	385
			390	381	390
				382	
				383	
				384	
				385	
				390	

(1)Value added and gross output at factor costs, firms with more than 20 employees.

(2) Value added at factor costs, gross output at market prices; 1983 and 1991 establishments with more than 4 employees.

(3) Value added and gross output at factor costs.

(4) Value added and gross output at factor costs.; 1994 establishments with more than 20 employees

(5) Value added and gross output at factor costs.

(6) Value added and gross output at factor costs.