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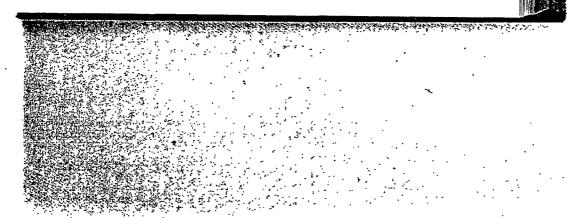
Development and Production

The main debates on industrialisation and development over the past thirty years have focused not on production, but on what was classically termed the sphere of circulation. The argument has been that if things can be got right with markets and/or with income distribution, then production will look after itself. There have of course been disputes about what it means to 'get it right'. Should domestic industry be protected, or should it be subject to the discipline of world prices? Is capital too cheap and labour too dear? Does income inequality favour accumulation through its effect on savings, or hinder it by skewing consumption towards imports and luxury goods?

For both right and left questions such as these have been the stuff of development theory and government practice in the post colonial world. The right have favoured free market solutions. The left have argued that there are externalities and structural factors which inake free markets detrimental to growth. Theories of unequal exchange, of import substitution, and of the distortions resulting from multinational investment all fall within this approach, as does dependency theory more generally. What distinguishes them is that they imply there could be an alternative price or institutional regime which would allow markets to work in favour rather than against peripheral development.

For some interventionists, the desired macro goals cannot be achieved solely by modifying markets or strengthening a developing country's bargaining power. What is required is planning. Whatever the goal, be it a capital goods industry, or indigenous technological capacity, the market by itself will not be enough. Institutions will be required which can override the market to bring about the desired effects. This has been the justification for a whole range of initiatives, from planning ministries to development banks and public enterprises. The point to register is that the problematic of planning is also primarily an issue of circulation. It is about the allocation of resources and the achievement of certain proportions. In the classical theories of planning, notably the works of Oscar Lange, the parallel between exchange theory and planning theory is particularly marked.

What all these approaches largely ignore is the material practice of production. This has remained a black box, the province of engineers and managers. Issues of a firm's product strategy or plant lay-out, its stock turns or methods of quality control have not been considered the concern of industrial economists. It is as though economics stops at the factory gate.



There have been two exceptions. One has been the body of work on appropriate technologies. Typically a researcher in this field will visit an industrial plant making soap, or sugar, or some such commodity, compare it with a handicraft method of producing a similar output, and analyse the structure of relative prices and/or institutions which lead the modern to be preferred to the archaic. The value of this approach is that it has shown that there are alternative workable technologies, that in the field of technology there is no 'one way'. Its weakness is that it tends towards a narrow and undynamic view of technology, emphasising technical choice rather than technological strategy.

The second exception has a longer history. It originated with the early Soviet theorists, and takes the opposite line. For Lenin, Trotsky, Preobrczensky, as for Stalin, the task of industrial development was that of raising labour productivity through the introduction of what was variously called 'Americanism' or 'Fordism'. This was a military model, whose goal was the economy of time, drawing its inspiration from the American engineer, F.W.Taylor and from the factories of Henry Ford.

The most celebrated feature of the Ford method was the production line, which allowed the synchronisation of many different processes by the movement of the line. But this was part of a more general principle of flow, whose aim was to have materials and components moving through the various phases of their transformation and assembly without interruption. It required the whole process to be standardised and planned. Parts had to be interchangeable. There needed to be standard timings for each operation, which meant set procedures. As with a railway timetable, the system depended on meticulous central planning, on performance to planned norms, and on a central chain of command. It was no friend of uncertainty¹.

Nor was it a friend of manual skill. Skill was required in setting up the system, planning, building dedicated machines for particular processes, working out how each job should be done. But once set up, the task of operatives was to work according to instructions, and to specified times. Mass production thus implied a particular type of work process, a division between conception and execution, the de-skilling and fragmentation of manual jobs, and hierarchical control. Similar principles applied in the managerial structure.

There was one necessary implication of a system based on such pre-planning and purpose-built machinery. It was that it only made economic sense if once in place it could produce long runs of standard outputs. This was the basis of its democratic appeal. The greater the production, the cheaper it became. The only constraint could be the availability of monetary demand. Ford believed his wages would provide that demand. The Bolsheviks thought the constraint should be removed altogether, by the state producing directly for need. But for West as for East, the Promethean vision was the same: to conquer scarcity with scale.

¹ One of the best short summaries of the Ford method is the entry on Mass Production in the Encyclopedia Brittanica, 1929 edition, which was written by Henry Ford himself. Among the most interesting of the many works on Fordism are: Sohn Rethel, A. (1976) The dual economics of transition In: *The Labour Process and Class.* Strategies. pp. 26-45 Stage 1 Books, London; Aglietta, A.M. (1979) Theory of Capitalist Regulation. Verso, London and chapters 1 and 2 (pp. 29-73) of Michael Best's recent book (1990) The New Competition. Polity Press, Oxford.

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In the Soviet Union Stalin imported US technology to build in the words of one economic historian 'new gigantic mass production units to manufacture large quantities of simplified standard models based on proven Western design without a design change over a long period'². Ford himself – who became a cult figure, better known than Stalin himself in the mid 1920s – was persuaded to build a massive automotive plant in Russia in 1929. The Caterpillar crawler was produced at Chelyabinsk with a capacity three times that of Caterpillar's entire US output. United Steel helped to construct Magnitogorsk, the largest integrated iron and steel plant in the world. It was factories like these that led Western businessmen to visit the Soviet Union in the late 1930s to witness the achievements of 'Soviet Fordism'³.

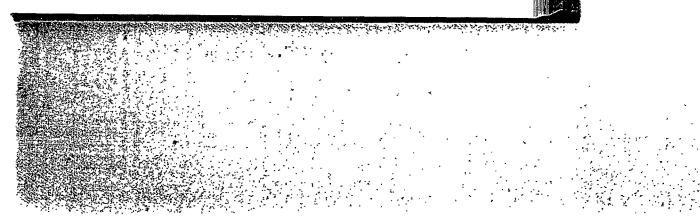
Fordism thus became synonymous with development. Indeed it was celebrated as an emblem of modernity. The Bauhaus made it into an aesthetic. Schools and hospitals were re-organised according to its principles. Social democrats took it as a model not only for production but for a new politics. Revolutionaries saw it as a battering-ram against the old order, and as the material basis for the new. Fascism made it the inspiration for its organisational and spatial architecture, and for the operation of a war economy. There were romantic and liberal objections to such universalisation of the machine ethic, but not to the legitimacy of its rule within the sites of economic production. Indeed until the 1970s it remained the dominant model for production in the capitalist as in the socialist world.

This may help to explain the absence of discussions of production in the development debates. In one sense the post-war preoccupation with markets appears as a retreat from the themes opened up by the Soviet theorists of industrialisation. And yet what more was there to say on a subject on which so many agreed? If this was the model that had developed both East and West, the key development issues were how to get the capital, the technology, the management and the input-output flows which would allow the model to take root in the periphery.

In the past decade it has come to be recognised that the difficulties of peripheral industrialisation may have as much to do with the model of production as with the working of markets. The central issue is the following. Efficient mass production depended on high capacity utilisation, mass markets and stable conditions to allow continuous flow. Because of high fixed costs, any interruptions or shortfall in the use of capacity would sharply raise average costs. In this sense Fordism was inflexible to fluctuations in the conditions of demand and supply.

Already, by the late 1960s and early 1970s, Fordism was running into difficulties in the West. Demand growth was slowing down and becoming less predictable. There was the emergence of market fragmentation, with distinct market segments, and a shift in demand from standardised to customised products. Throughout the West there were waves of labour resistance within the factories. Profit rates fell as interest rates and oil prices rose.

³ I have discussed the links between Fordism and the Soviet economic model in: Il Fordismo nell'economia sovietica. In: *Il Ponte*, XLVII, No. 5 and 6, May and June 1991, pp. 30-53.



 ² Sutton, A.C. (1971) Western Technology and Soviet Economic Development. Stanford, Vol. 2, p. 299.
³ I have discussed the links between Fordism and the Soviet concerning method in T. Fundi.

Stockholding, which had been a shock absorber helping to maintain flow, became increasingly costly. The long-post war boom had provided the stability within which the mass-production system could flourish and expand. The downturn, which dramatically quickened in 1974-5, exposed, as had the inter-war depression, the costs of Fordism's inflexibility.

If this was the case in the developed West, the problems of mass production were even more evident in the Third World. Internal markets tended to be small and/or unequal. As a result there was no mass consumption to match mass production. There were long supply lines for materials and components. The smaller the economy the more had to come from abroad, and the more vulnerable were the producers to the uncertainties of the import market to transport delays, customs, and the shortage of foreign exchange. Imported technology was prone to be inflexible and difficult to adjust to changing macro and material conditions. With peripheral economies so marked by fluctuations and instability, it is hard to think of a less appropriate production system than high volume mass production.

The results are those features of Third World industry which have been widely documented: strikingly low rates of capacity utilisation; high stock levels; frequent break downs and down time; outdated product design and poor quality due to the centralisation of R&D and production skills in the developed world. When the goods were destined for the home market, they required high rates of protection. When they were destined for the developed world, production control and profitability tended to be in the hands of Western producers, and the returns to the developing economies were too often confined to the subsistence wage⁴.

These features of peripheral industrialisation have been blamed on structures of circulation (like tariffs) or of ownership (like nationalisation or multinational control). But it is now clear that a key part of the problem is the adoption of a mass-production model in circumstances which were hostile to it. The whole international technological system which supplied peripheral countries with feasibility studies, machinery, technical advice, product designs, models of management and labour organisation had been founded on the presuppositions of Fordism, and this has been true whether the technology came from East or West.

There are of course experiences of the successful development of peripheral Fordism, principally in Asia, but they all highlight the conditions which are necessary for an effective mass-production regime – strong state intervention, a significant home market, and severe labour discipline. In as much as they have grown in part on the basis of off-shore assembly of products destined for developed country markets, there are limits to the volume of such production that can move to peripheral locations, and the domestic value added that can be derived from it. What is equally important is that in all four of the

⁴ For an excellent discussion of the failure of the mass production model in Africa see Mytelka, L. (1989) The unfulfilled promise of African Industrialisation. In: *Africa Studies Review*. Vol. 32, No. 3, pp. 77.137, For Latin America see Gillen, C. (1991) La Flexibilidad de Los Sistemas Productivos y Las Nuevas Formas de Competencia. paper presented to the XIV Latin American Symposium on Small and Medium Enterprises, Lima, November 1991.

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original Asian 'tigers', mass production is itself being modified, notably through the influence of Japan⁵.

Both successful and unsuccessful experiences of industrialisation have prompted a renewed interest in the production process, and have highlighted the limitations of Fordism in its classical form. In doing so they have opened up a new approach to analysis and policy which already promises to re-define a range of traditional development debates. The approach has become known as flexible specialisation and it is to this that I now turn.

Flexible Specialisation

Flexible specialisation indicates an area of enquiry as much as a settled theory. It has been stimulated by the competitive success of areas whose production systems were clearly distinct from traditional mass production. Japanese Just-in-Time Production was one instance. Another was to be found in the industrial districts in Western Europe, which expanded their international market share on the basis of networks of small and medium sized firms, with high degrees of specialisation and co-operation between them. Large US and UK firms like Rank Xerox, Hewlett Packard and Lucas have developed structures and production methods which they see as embodying new 'post Fordist' principles. Flexible specialisation has emerged as one way of understanding the reasons for the success of these diverse industrial experiences.

There are three technical features of the new systems. The first is that they have found ways to break through the key limit to traditional Fordism – its inflexibility with respect to products. Ford was confined to single product flow. He estimated that 30% of his machinery was specific to particular products and that to switch products involved long changeover times and the scrapping of dedicated equipment. When he introduced the Model A after the Model T in 1927 he had to close down production for six months, and lay off 60,000 workers in Detroit alone. The new model had nearly 6,000 parts, most of them new, and this involved the rebuilding of 16,000 existing machine tools, and the purchase of 4,000 new ones. Even after production of the new model started, it took six months for the line to get up to full speed⁶.

The new production systems have found ways to extend the principles of flow to multiple products. There are limits, of course. A car plant cannot be switched to making bicycles and back again without a Model A type retooling. But a Japanese motor assembly line can alter the specifications of each car on its line without interrupting the flow. If the variation is one of colour, or the shape of the mirrors, this may be relatively easy. Switching dies in the giant presses to allow for body changes is more difficult. In the mid-1980s General Motors were still taking 14 hours to change these dies. Toyota have cut the time to 3

⁵ On peripheral Fordism and in particular the need for domestic mass consumption, see Lipietz, A. (1987) Mirages and Miracles. Verso, London, Chapter 6 (pp. 131-187).

⁶ Lacey, R. (1986) Ford. The Men and the Machine. Heinemann, London, p. 102.

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minutes. Such reductions of changeover times have made the line flexible and set mass production free⁷.

In the clothing industry the flexibility has been achieved through automated dyeing plants (as with Benneton) or through maintaining a range of machines to which each operator can turn depending on the item to be made. In the engineering industry CNC machine tools have cut set-up times, and plants have been reorganised away from a process based lay-out to one which centres round the progress of the product through successive machine operations within semi-autonomous work cells. The cellular groups have the flexibility to respond to the immediate requirements communicated by later stages of the production process rather than making for stock, and exemplify the more general shift from 'push through' to 'pull through' production.

One impact of these changes has been a sharp reduction in stocks, and consequent improvement in stock turns. In the mid 1980s while American motor companies turned over their stocks once every 19 to 30 days, for Toyota the figure is once every four days⁸. This is a measure of the difference between the old production systems and the new. Cutting stocks means a saving in factory space and working capital. But it goes further than this. For stocks hide bottlenecks and imbalances on the line. Toyota have a picture which they like to show of rocks underneath the surface of the sea. The rocks are production problems. The sea level represents inventories. Lowering inventories exposes the rocks.

Inventories serve to make each stage of the production less dependent on the others. The Just-in-Time system does the opposite. It underlines interdependence, by cutting out the safety net of stocks. As a result the system as a whole operates at a higher pitch and intensity. A Japanese factory floor with its flashing andon lights and musical calls for help gives the impression less of the juggernaut of Charlie Chaplin's Modern Times, than of a highly tuned system which needs constant retuning.

In terms of capital turnover, any interruption of production, any tying up of capital in stocks, is a waste. So, too, is low product quality. The American production engineer, W.R. Demming, estimated that between 15 and 40% of US ex-factory costs were accounted for by quality problems. They lead to reworks, mark-downs, customer returns and scrap. An apparently efficient physical flow of production will be inefficient if the final products are defective. The concept of flow contains within it the principle of quality.

A second major change is that science and design are drawn into the process of flow. Each part of the production process, each piece of equipment and raw material, each

⁷ The central importance of multi-product flow has been emphasised by Michael Best in The New Competition, op.cit. See also Womack, J., Jones, D. and Roos, D. (1991) The Machine That Changed the World. Harper, pp. 52-53, for evidence on the die changes, and Monden, Y. (1983) The Toyota Production System. Institute of Industrial Engineers, Atlanta, for a summary of the ideas of Taiichi Ohno, the Toyota engineer who played so decisive a role in the development of flexible production systems.

systems. ⁸ Hoffman, K. and Kaplinsky, R. (1988) Driving Force. Westview. See also Womack, J., Jones, D. and Roos, D., op. cit. p. 81, who record an average parts inventory of 2 weeks at the General Motors plant in Framingham, compared to 2 hours at Toyota's Takaoka plant.

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product, is subject to the continuous pressure of innovation. In part this stems from the development of multi-product flow, and the reduction in delivery times. Instead of long runs of standard products, based on elaborate market research and forecasts, manufacturers are moving to shorter runs of a wider range of products, gearing production capacity to respond to actual market sales. The clothing retailers Next, for example, have a four-day cycle time to replace particular garments sold in their shops. Competition has come to depend on the capacity to design and develop new products, backed up with flexible production systems. As a result product lives have become shorter, and the range of products more numerous.

It is but a short step from rapid response to making for order, or *pronto modo* as the ltalian knitwear industry calls it. Many manufacturers now see themselves as providing a service to particular customers. In some cases this is no more than choosing the preferred mix of colours and accessories for a car. In others, it is tailoring a product to a customer's needs, providing advice, and working jointly on the product specification. This is the case with fitted kitchens, for example, or construction. In such instances design becomes part of the process of flow, in what has come to be called mass customisation.

Similar changes apply to capital equipment and raw materials' manufacture. The textile machinery makers of Southern Germany have succeeded where the traditional large-scale producers in Massachusetts have failed because the former provided customised rather than standard machines⁹. In raw materials the change is even more striking, for the large mono materials companies of aluminium, copper, chemicals, and zinc, now see themselves as multi-materials service companies, providing customised or 'designer' materials for particular requirements. Materials and components production now commonly takes place side by side and in some instances are part of the same process. What has happened is that the super computers of the late 1970s and 1980s have allowed the quantitative modelling of the micro structure of materials, and the tracing of the processing path of materials in real time. Scanning tunnelling microscopes allow scientists to see the atomic structure of matter and to shape it to needs. The competitive strength of a materials firm is now determined more by its scientific and technologic capacity than by plant scale and control of raw materials sources as in the earlier Fordist period¹⁰. The development of fine chemicals and speciality steels are part of a similar process.

The Japanese talk of *kaizan* or continuous improvement, referring generally to the daily process of production – to plant lay-out, machine operation, and so on. But this is only part of a much wider movement in the continuous change of all products and processes. Physicists see matter as constant movement rather than a thing at rest. The same can be said of the material side of the economy. The improvements touch both flow, and the redesign of that which flows – cutting the parts in a product, reducing its material and energy content, and increasing its qualities.

¹⁰ Kaounides, L. (1989) New Advanced Materials: Implications for Industrial Policy in Developing Countries. In: New Technologies and Global Industrialisation. UNIDO, Vienna.



⁹ Herrigel, G. (1989) Mechanical Engineering in the Federal Republic of Germany. In: Katzenstein, P. (ed.) *Industry and Political Change in West Germany: Towards a Third Republic?* Cornell University Press, Cornell.

The third major change reflects the previous two, and concerns synthesis and synchronisation. A Just-in-Time system of production involves not only time but timing. Each part of the system needs to be consistent with the other parts, and to be co-ordinated with them. Within Henry Ford's plants these functions were performed by the design and operation of the production line. Today the range of synthesis is wider, and its precision requirements more exacting. It involves the process of design as well as value accounting. It covers relations with final markets as well as suppliers. Computer-aided design data can be stored on tapes that are used to programme machines, and issue schedules for components. Retail data is fed back and automatically transferred into orders, and the documentation of those orders. As the Venezuelan economist Carlotta Perez put it, information technology does for the firm what the production line did for the plant¹¹.

Just as there developed in the late 18th century a new awareness of the systemic interdependence of particular elements – of words in language, as of organs in a body – so in the late 20th century systemic interdependence has become a key theme of the economics of production. Economies of system take their place beside economies of scale and scope. We can distinguish three types of system economy: that of standardisation and rationalisation, that of operations, and that of innovation. The first is structural, the second conjunctural, the third generative. Each is necessary to handle the complexity of the process of multi-product flow, and its continual transformation. The whole is now prior to any one of its parts. The adaptive system has taken over from the planned machine.

I want now to look at these systems from the viewpoint of their social relations, since it is changes in these relations – within the factory and office, as well as between firms, and between producers and their markets – which have been at the heart of the emerging flexible specialisation.

Take first the immediate work process. Taylorism concentrated the planning and control of work in the hands of management, leaving workers as de-skilled operatives whose task was to carry out orders. Production engineers like Demming regarded this as a waste of human capacity. For over forty years he argued that line workers were in the best position to monitor quality, maintain machines, collect and analyse production data, and contribute to technical improvements. Leading Japanese firms have now embraced this idea, giving greater autonomy to work teams in the organisation of their tasks, and delegating responsibility for product quality and process improvements to them. In one limiting case I visited, Hammamatsu Photonics, the production line was staffed with teams of R&D workers on the grounds that producing what they had invented would encourage further improvements to the product and the production process. To this extent the sharp division in Taylorism between conception and execution has been partially broken down.

¹¹ Perez, C. (1985) Microelectronics, Long Waves, and World Structural Change: New Perspectives for Developing Countries. In: World Development. Vol. 13, No. 3.

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Similar principles have been applied to managerial organisation. Greater autonomy has been given to plant managers. Co-ordination between departments is established through teams of specialists rather than through middle and senior management. Horizontal links are strengthened, vertical chains of command shortened and confined. As with line workers there has been a growth in constrained autonomy for those staff and line managers closest to production.

In part this is a recognition of the informational advantages that those closest to production have over those separate from it. Demming's point was that Taylorism wasted the knowledge and ideas of those in the best position to know. But the delegation of responsibility also draws on the argument long made by the human relations school of management, that workers work better when they identify with their work. Such an approach has always faced two problems. First, the force of the market is to intensify labour, so that all line-worker autonomy is bound by the ever tightening imperative of time. Second, the problem for managers has been how to get workers to identify with the goals of a firm which they do not own and from which they may be dismissed. With Taylor and Ford the labour contract was clear: an above average wage in exchange for submission to managerial authority over the work process. For post Taylorism, the issue is not so simple. For now it is active not passive labour that is required, a labour that takes initiative and responsibility, that makes suggestions and solves problems, all within the context of the tyranny of the line.

There have been various managerial responses to these problems: life contracts, team discipline, performance prizes, and collective bonuses. There has been a drive to weaken autonomous unions and establish a dominant company 'culture'. Workers have been given shares and representation on the Board. What all these reflect is the tension between a modern production process which requires an active engagement by workers and a form of property ownership which separates labour and capital. The organisational forms of flexible specialisation can only be understood in this light.

There is a similar tension between different units of capital. Under Fordism corporations were organised as closed systems, with arms length, even antagonistic relations between a firm, its suppliers, its competitors and its clients. Each firm was a planned space in a sea of competition. With the growing centrality of innovation and the new density of systemic interdependence, these inter-firm relations are inappropriate. What a firm wants from a supplier is the capacity for innovation, and reliability, rather than a supply of products at specified prices. That cornerstone of market relations – the contract – is no longer adequate. Much that is required of a supplier cannot be detailed, and that which can be is too often outdated by the time the contract is signed. The same goes for a firm's relations with its competitors and its clients. Both are potential sources of ideas, and potential partners in joint projects. Seen from the outside, they are members of a common production system.

The decisive feature of the regions where flexible specialisation has flourished is that they have developed institutions which accommodate autonomy and direct interconnection. Japanese firms, like Fuji and Toyota, are distinguished not only by their internal structures, but their external networks. Fuji for example has a formalised network with its suppliers, another with major firms in the sector, and another with the banks. Some of

Fuji's suppliers have recently set up their own network, with Fuji's approval, to develop new markets and make themselves less dependent on Fuji. Fuji like Bosch in Germany want to extend the industrial worlds with which their suppliers are in touch, for this they believe will encourage new ideas in ways that could never be planned.

In the Third Italy, the industrial districts have succeeded because they have matched the corporate decentralisation of small firms with institutions that provide cohesian and joint services. Prato, for example, a town in Tuscany with a population of 160,000, has 14,500 clothing firms. The key co-ordinators are 100 or so merchants houses – the *impannatori* – who assemble designs, make prototypes and secure orders from the trade. In 1990 this system produced 84,000 different samples, for a substantial export trade. In the clothing industry of the Veneto the synthesis is provided by a few large firms like Benneton and Stefanel, in the Carpi area of Emilia Romagna by inter-firm consortia and a centre for 'real services'. All these regions have managed to combine a remarkable strength in design, with a responsive and high quality network of production¹².

We are now in a position to see the significance of the term 'flexible specialisation'. The new production system is critically dependent on freeing itself from the constraints of a static single product flow. The lowering of changeover times and the introduction of multi-product flow permits the adoption of pull through rather than push through production, and creates the responsiveness of modern production systems. It is in this sense that we can speak of them as flexible.

At the same time, the increased complexity of multiple flow, and of the requirements of a Just-in-Time system each point of which is considered as a site of continuous improvement, means that centralised planning and control is no longer adequate. Operational and development responsibility have to be lodged first and foremost with those who specialise in the particular operation – the shop-floor worker, or the component supplier. Adam Smith and F.W. Taylor both described the economies of manual specialism. Just-in-Time production recognises manual labour's technical and innovatory capacities. In one sense, greater line flexibility means a firm need be less specialised. But the significance of the Just-in-Time system is that it devolves responsibility to the level of the specialist producers. The task of the corporate centre is no longer that of a planner and controller of specified tasks but a co-ordinator and technical support for the producers. The emphasis has shifted to monitoring, system design and strategic planning.

I have put the emphasis on the economies of time, of quality, of materials use, of innovation and systemation. This is the heart of flexible specialisation and explains its significance as a new era of production, comparable in impact to the development of scientific management and mass production at the beginning of the twentieth century.

¹² For the Third Italy see Pyke, F., Becattini, G. and Sengenberger, W. (1990) Industrial Districts and Inter-Firm Co-operation in Italy. International Institute for Labour Studies, Geneva; Goodman, E. and Bamford, J. (eds.) (1989) Small Firms and Industrial Districts in Italy. Routledge, London, and Michael Best op cit. Chapters 7 and 8 (pp. 203-250).

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What implications does flexible specialisation have for the developing countries?

First it sets limits to the international movement of manufacturing to the periphery. After the shift of labour intensive processes to low wage countries in the 1970s, the share of such production in world industrial output has stabilised in the 1980s, and in some industries there are signs of assemblers and retailers shifting their supply sourcing back to the First World so that they can be integrated into Just-in-Time delivery¹³.

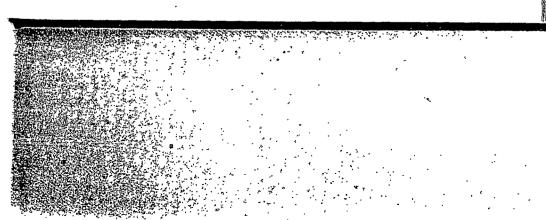
Second it provides a new reading of the industrial landscape. Structures which were regarded as barriers to modernisation – small family firms for example insulated from national and international capital markets – can now be seen as the potential subsoil for alternative paths of industrialisation. There is increasing interest in the 'collective efficiency' of small firm industrial districts in developing countries like the South Brazilian shoe industry which has been so successful in international markets, the Brazilian textile towns of Americana and Petropolis, the Egyptian furniture districts, the metal machine shops of Kumasi in Ghana, the West Javan rattan industry, the cotton knitting district of Tirippur in South India, and the marble producers of South Rajistan¹⁴.

Third this alternative reading of the industrial process and its organisation, suggests new directions for industrial management and industrial policy. It on these that I want focus, drawing in particular on the experience of two small island economies, Cyprus and Jamaica, which are both attempting to follow a strategy of flexible specialisation for their manufacturing industry. I shall deal first with issues of industrial management¹⁵.

Domestic manufacturers in Cyprus and Jamaica fall primarily into two camps. There are small batch producers, who are flexible, but have little conception of flow. They are in this sense pre-mass production. The Jamaican furniture producers, for example, refer to themselves as makers of samples, and the same would be true of much of the furniture industry in Cyprus. On the other hand there are proto-mass producers, whose focus is on runs of standardised products, using relatively inflexible equipment, and semi skilled labour. For them the problem is how to increase the flexibility of their lines, and improve their quality and design.

For the small batch producers, one strategy is to introduce single product flow through specialisation, seeking to develop a 'niche product' or to rationalise via merger and takeover. There are many examples of such 'nicheing' by small companies in both countries, firms selling branded sauces, cheeses, liquors, children's wear and so on, to

¹⁵ The work on both Cyprus and Jamaica has been supported by UNIDO. The first stage of the Cyprus work is reported in Murray, R. (ed.) (1987) The Cyprus Industrial Strategy. 8 Vols., UNIDO, Vienna. A summary appears in Murray, R. (1992) Flexible specialisation in small island economies: the case of Cyprus. In: Pyke, F. and Sengenberger, W. (eds.) *Industrial Districts and Local Economic Regeneration*. International Institute for Labour Studies, Geneva. The reports of the Jamaican work are as yet unpublished.



 $^{^{13}}$ The UK clothing industry is one example, where the new wave retailers like Burtons, have increased domestic sourcing from 50% to 80%, to increase their capacity to respond to frequent fashion changes and re-orders.

¹⁴ The ideas of collective efficiency, and the details of third world industrial districts can be found in Schmitz, H. (1990) Small firms and flexible specialisation in developing countries. In: *Labour and Society*. Vol. 15, No. 3, pp. 257-285

domestic and overseas markets. But specialisation in non branded products, whether introduced through the market or through planned rationalisation by large firms, has faced a number of barriers.

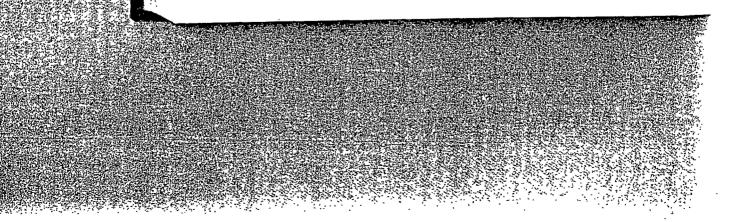
The Cypriot government, for instance, had sought to promote such rationalisation through encouraging public shareholding companies and a stock exchange. But at the end of the 1980s overall manufacturing firm size had got smaller, principally because of the reluctance of family firms to abandon their independence either through merger or through a public share issue.

In the furniture industry there was a further barrier to specialisation. Many of the producers had their own retail outlets, which meant that they had to produce a full product range, for the most part in very small quantities. It was in these circumstances that an alternative strategy was tried out, aimed at establishing specialisation by agreement.

A group of twelve small furniture firms in the South of Cyprus formed a consortium to establish a common showroom in the capital Nicosia. They agreed on a division of labour for supplying it, and as a result cut production costs by 25%. They also found that they could provide services which each on their own could not: interior design advice in the showroom, and a substantial advertising budget for example. Their joint committees introduced strict quality control and delivery schedules, circulated production and design advice within the consortium, and also began joint purchasing. The range and quality of their output meant that their shops multiplied, and although they are still nominally separate firms, as a group they count as the second largest manufacturing employer in Cyprus, with a growing export market to the Middle East¹⁶.

This type of collaboration was a means both for establishing specialisation, and for providing indivisible services normally available only to larger firms. Neither function is necessarily linked to flexible specialisation. But what the Italian and Danish experience suggests is that when specialisation and common services are established through association rather than through centralised hierarchical structures, the group as a whole retains a plasticity and creativity which is a mark of flexible specialisation. They can draw on the advantages of an enterprise structure embedded in the social relations of a particular area – the relations of trust, of reciprocity, of non market forms of circulating information, and the continuity and organisational cohesian provided by family firms – and at the same time counter the diseconomies of fragmentation through collaboration. Each member of the group has the scope to move to a process of specialised flow. But as a whole the group or district has a capacity for rapid flexible response that larger mass producers commonly lack¹⁷.

¹⁷ In addition to the furniture consortium, Jamaican furniture makers have recently started to collaborate on common production and marketing problems, as have the island's fruit canners and spice makers. There is much to learn for inter firm co-operation in manufacturing from the experience of such cooperation in agriculture, where its benefits have been more widely recognised.



 $^{^{16}}$ An account of the A-Z consortium is given in (1989) The Third Report of the Cyprus Industrial Strategy, UNIDO, Vienna.

I want now to consider the proto-mass producers. In some cases the problems of inflexibility are locked in technologically at the time of establishment. The developing world has too many large plants whose feasibility studies took too little account of the instability of markets and supplies. Yet even for large volume plants there be ways of increasing their flexibility. Take the bottle making plant in Jamaica. It operates three lines for three shifts a day but achieves only three quarters of its potential capacity because of down time in changeovers, machine breakdown and defective products. To change from one shape of bottle or jar to another takes eight hours, and from one colour of glass to another, three days. As a result the plant manager aims for long runs of standard shapes, which the firm holds as stocks. Their stock:turnover ratio is 1:4.

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For beer companies serving the local market with standard bottles this production strategy is satisfactory. But it is far from adequate for the jam and spice makers selling in overseas markets for whom container design and cost is critical. They need short runs of customised jars, and many are currently forced to import them, with the result that packaging accounts for 60% of product cost,

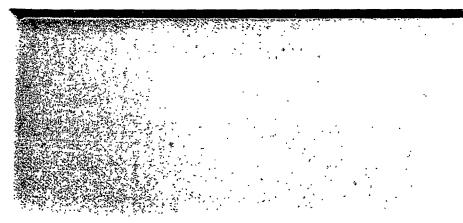
What are the alternatives? The food processors could form a design and purchasing consortium, which would allow them to import news dies and finance the three-day run which is the minimum current economic run of the plant. Alternatively the plant itself could cut its changeover times, either by investing in new automated equipment, or by reorganising production, establishing a fourth line which would allow changeovers with little or no interruptions. They would also need closer links to the local diemakers in order to cut die costs, and integrate design and production.

The latter is the approach that has been followed by a number of proto-mass producers with striking results. One Cypriot clothing manufacturer found that within six weeks of adopting 'pull through' methods, stocks had fallen by half, delivery times had been cut from 90 to 28 days, and the once and for all savings in factory space and working capital more than covered the cost of restructuring. Discontinuous improvements of this kind have been observed in clothing, furniture, and food processing factories in Jamaica¹⁸.

To achieve such results requires much more than re-organisation of plant lay out. It involves closer links with markets, and suppliers, more investment in design, and a new approach to job design and payment systems. The Cypriot firm already had 10% of its eighty employees working in the design department producing branded children garments. With its new production strategy, it found it necessary to set up its own retail outlets in order to secure the rapid feedback on product performance. It also developed an internal computer system to keep track of what had become multi-product flow, and the General Manager himself organised the training of all staff in the overall approach and the wider range of skills needed.

The scope in the developing world for Just-in-Time production and all that it entails is partly reflected in the successful adoption of Japanese methods in a number of the larger industrialised countries, notably South Korea, and in the greater consciousness of such

¹⁸ The details of the savings made in the Cypriot clothing firm are given in Kaplinsky, R. (1990) From Mass Production to Flexible Specialisation: a case study from a semi industrialised economy. Institute of Development Studies, Brighton.







issues as quality, design, and corporate decentralisation which has spread via business schools and international business periodicals to many Third World managers. There has also been a growth of international consulting firms offering elements of the approach in Africa and the Caribbean, primarily to larger firms¹⁹. Between the espousal of the new principles and their coherent implementation lies a shadow, but it is already clear from the cases where they have been successfully adopted that there is no case for accepting a new international division of labour, with flexible specialisation in the First World and cheap labour mass production in the third.

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The main entry points for the application of flexible specialisation has been within firms. Much less has been done on co-ordinating groups of firms, either horizontally (through consortia) or vertically (through collaborative links along a supply chain). The latter is particularly important since flow must be seen as applying to sub-systems and not merely within plants, and it is these inter-plant flows which are often so difficult to establish in developing country conditions. There are what Latin American economists refer to as 'disarticulations'. A key firm in the sub system may have its main linkages overseas. Wholesalers, retailers, and hotels often find it easier to import than to manage a fragmented domestic supply line. There may be barriers to flow caused by the state – at the customs for example, or in the regulation of standards. One of the key issues for firms and for the economy as a whole is how to establish more stable, interactive links within a chain of production. Changing relative prices, or the form of ownership is not in itself enough. What matters is the quality of inter-firm relationships.

The issue of sector strategy takes us into the border country between private capital and the state. Both are implicated, yet it is only rarely that they have successfully combined to produce effective strategy. Among the causes for this failure has been a particular direction of industrial policy, a certain conception of how it works, and a set of institutions all of which are associated with an age of mass production. To establish flexible specialisation at the sectoral level requires a change in all of them, and it is to these issues of public policy and the form of the state that I now turn.

As I indicated earlier, industrial policy has largely centred round issues of circulation and ownership. It has relied on incentives and regulation as implemented through specialist government institutions. Even development functions such as export promotion, technology transfer and extension services have been carried out through highly structured central state institutions. Flexible specialisation prompts questions on each.

Take first the policy debate between import substitution and export expansion. The moment markets are seen not simply as outlets but as arenas of learning, then export and domestic markets become complements not alternatives. The domestic market (not least visiting tourists) can be used as a test bed for new products, prior to exporting. Equally Cypriot firms working as suppliers for large European supermarkets have found that the



¹⁹ During a recent visit to Jamaica I was struck by the widespread knowledge of Deming's work on statistical quality control among Jamaican managers, and by the willingness of Jamaican firms to finance visits by international consultants to advise on quality strategies. Carlotta Perez reports a similar climate in Venezuelan industry, and a current Institute of Development Studies (IDS) research project undertaken by my colleague John Humphrey is already reporting a substantive spread of versions of the Japanese system in Brazil.

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tight quality and production standards required under the export contract, and the technical advice provided by the purchaser have raised the standard of production for the domestic market.

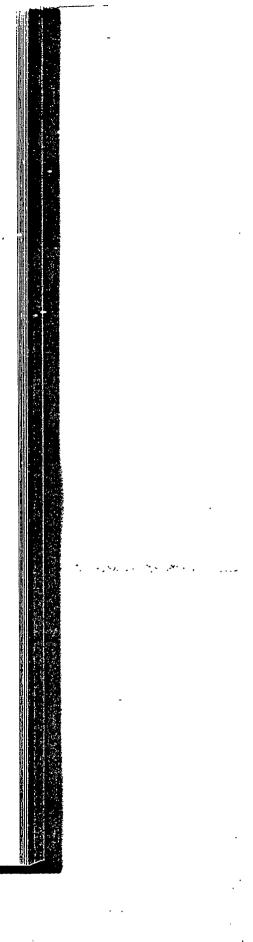
Or consider an ownership question, that of foreign investment and technology transfer. What matters with any foreign investment, or overseas sales or technology contract is how much the domestic producer learns through the arrangement. In some cases where the local firm is contracted to produce to a specified design for a given cost, there is little that remains after the contract finishes. This can be called Fordist sub-contracting. In others, overseas designers have worked besides local designers, the First World purchaser has encouraged new products and designs from their sub-contractor, and has not restricted the sub-contractors sales of the product to regional markets. This is developmental sub-contracting, and should be distinguished as such in public policy.

The criterion here is learning. Another one would be the effective operation of the supply chain. Ownership issues – between public and private for example – should in part be considered from this point of view. In some instances public monopolies have acted like private Fordist monopolies, and need to be broken up and subject to other public or private competition. In other cases, some form of public control may be critical for a sector. Thus the World Bank's insistence that the Jamaican bottling plant be privatised has meant its takeover by the major beer companies and thereby institutionalised an interest against increased production flexibility. Ownership should be seen not as an abstract substitute for industrial policy, but as a specific tool in support of sector strategy.

The same is true of industrial incentives. These are usually provided as a standard package, comprising a mixture of tax incentives, duty reliefs, deprecation allowances, sometimes subsidised interest rates. They are made available to firms falling in to specified categories, and the task of public administrators is one of classification, deciding whether or not firms are eligible.

There are a number of problems with this traditional package. It assumes that tax allowances confer benefits to the investing firm, that fixed investment is the key factor to promote and that standard financial incentives are the most effective way to promote whatever is desired – investment, exports, new product development and so on. A study of incentives in Cyprus raised questions on each of these. Only 30-40% of Cypriot firms actually filed tax returns, and those which did commonly showed little if any profit. Tax relief was therefore a blunt instrument. Further many of the things which were important for flexible specialisation – design, training, marketing organisation, and management information systems,– were not covered by the incentives, and it was funds for this kind of 'software' investment which – together with working capital more generally – were hardest to raise from the banks. Finally the provision of 'disembodied' financial incentives may even retard the development of new production systems, by encouraging over-investment in machinery (as in the Cypriot meat industry), or the expansion of low value added mass production exports²⁰.

²⁰ Bessant, J. (1989) Financial Incentives. Cyprus Industrial Strategy working papers, UNIDO, Vienna.



One alternative is to have a series of intermediary schemes and institutions which can gear state aid to particular requirements. There has been a trend towards such 'customised' support in the developed countries in the 1980s. Both Britain and Germany have developed schemes of consultancy advice, whereby firms are assisted to employ a general consultant (along the lines of a medical GP) to identify key areas of difficulty, then to get specialist help on say design or new technology, and only at that point to prepare investment plans and apply for incentive funds. One of the by products of this in the UK has been a stimulus to the business services industry, with design consulting growing particular rapidly over the last decade.

Schemes such as these have often been organised through semi public institutions, particularly at the regional level. Massachussetts have set up a series of small, specialist 'quasi publics' to give support to company turnarounds, new product development, small and medium enterprise expansion, and the promotion of machining skills. Baden Württemberg has a remarkably effective technology transfer network, linking firms and higher education/research institutions. The regional governments of the Third Italy have supported centres of real services. Many regions now have their own development banks. The experience of these quasi publics is that finance is rarely the key problem . What enterprises need is help on formulating strategy, together with specialist advice – the kind of support which is so lacking from the British and North American banking systems²¹.

In a sense these initiatives can be seen as the application of flexible specialisation within the state itself – replacing arms length, standard products (traditional incentives schemes) with interactive, specialist support. In a Third World context, there has been a mixed experience with the latter. Many specialist institutions have been set up to encourage exports, technology transfer, and training, or to provide extension services more generally. Those that have worked best are the ones which have been clearly separated from the structures and routines of the Government ministries, and are responsible to boards in which those receiving help (whether industrialists or trade unions) are strongly represented. The same is true of development banks, which have often been key developmental agents because of their day to day involvement in the enterprises they support, but which have also been required to carry the costs of non-commercial developmental funding, while being judged on balance sheet performance.

Quasi public institutions cannot be guaranteed to perform well, any more than an individual enterprise. Like firms, they are frameworks for initiative. What is important is not to try and realise ideal conduct through detailed rules and procedures, but to provide a structure which allows the productive to flourish and the unproductive to be reformed. This suggests a plurality of institutions (competing development banks for example), strong user representation, quality audits, and a clear specification of financial and non financial aims. It suggests in short a new form of the state.

Flexible specialisation provides a way of re-thinking not just the direction of economic policy but the relationships implied in it. In the past there has been a disjunction between

²¹ I have discussed the use of quasi publics in European regional economic development in Murray, R. (1991) Local Space: European and the New Regionalism. Centre for Local Economic Strategies, Manchester.

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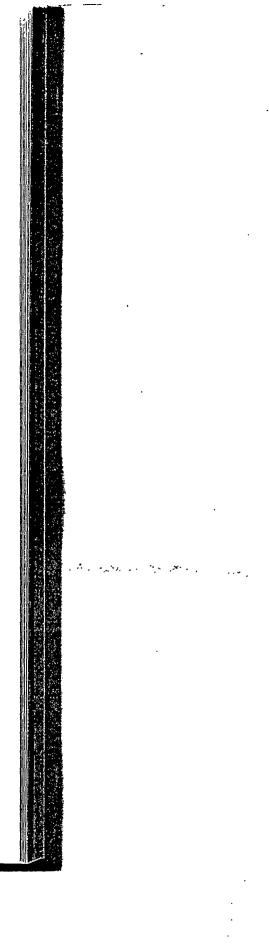
policy and implementation. Policy is the province of economists, consultants, civil servants and politicians, most of whom are distant from the direct producers. Implementation is intended to be a technical matter, taking its direction from policy, and enforcing it over clients. As in Taylorism there is a separation of head and hand, and of consumer from producer. This has worked well for the supply of standard services but it is quite unsuited to developmental functions. Here effective policy depends on close interrelations between implementers and clients. It is they who are commonly in the best position to contribute to effective policy, and to see what works and what does not.

It is against this background that I want to return to the question of sector strategy and how it is produced, or not produced. Cyprus was typical of many developing countries. There were no specialist bodies working on sector strategy, neither among the sectoral branches of the employers' organisations, the banks and the trade unions, nor in the government's industry and planning machinery. There had been some individual foreign consultants, whose reports were restricted, and whose recommendations were taken up according to particular interests of the Ministries involved. There was no unifying perspective on any sector, nor any common body of strategic information.

In such a circumstance the production of a strategic document can be a first step towards a new structure and a shared perspective, both of them necessary conditions for any effective action on industrial policy. In Cyprus, the drawing up of a flexible specialisation strategy involved overseas sector specialists contributing to daily workshops and meetings with industrialists, and public officials, discussing international trends in the sectors and how Cypriot industry related to them. First drafts of the sector strategies emerged out of these sessions, and were then translated into Greek and circulated more widely. The employers organisations held further workshops to discuss the ideas. They invited specialists in flexible manufacturing systems to talk to one day sectoral meetings, The new President of Cyprus established a small group headed by one of the progressive clothing manufacturers, to advance the ideas that emerged, and to establish a structure for continuous revision and discussion of industrial strategy.

This process led to actions – by firms and public bodies – which did not depend on formal recommendations and committee approvals. They were prompted by a changed perspective on the industrial process. Industrialists purchased CAD equipment and reorganised their factories. The Ministry of Finance took up the ideas on incentives. The Industrial Training Authority re-assessed its training programme in the light of the demands for multi-skilling and new types of operative skill. The Development Bank expanded its design services, established sector specialism, and took the lead in developing the furniture consortium described above. Anything which required joint action always took longer, and formal cabinet approval of the whole strategy was delayed for nearly a year because of inter-Ministerial rivalry. But this only underlined the significance of ensuring that the process of strategic planning was first and foremost educative and democratic. It was not about producing disembodied recommendations to be implemented by the Government, but about developing a common orientation which all involved could use to inform their daily activity.

The key to the progress of such a strategy is the identification and support of what the French call 'animateurs' – people who – in whatever branch they work – can push



forward the ideas, encourage others, put things into practise. The process of making a strategy, trying it out, revising and deepening it, is a way of identifying such people. They will have the scope, however limited, for re-orienting action.

The movement for Scientific Management in the United States in the early part of this century was rooted in factories in which it had been applied, and then promoted by meetings, societies, and a network centred on F.W. Taylor himself. It was taken up by politicians from the Progressive movement like Theodore Roosevelt, and applied in municipal government, in environmental conservation, in schools, universities and hospitals. In the many journals and articles devoted to Scientific Management there was also a blend of general principle and specific cases. It had the force of a managerial enlightenment²².

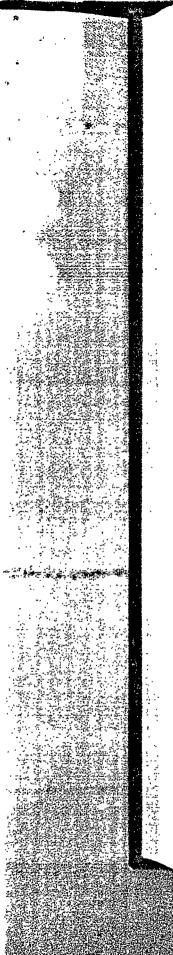
Something similar is needed for flexible specialisation. The plants where the principles are applied need to be open to others to visit. There need to be videos and articles charting progress. TV, newspapers, workshops and evening meetings become more important for industrial policy than a percentage off the interest rate. Once the changes get going they fuel themselves. The Cypriot clothing manufacturer who was first to adopt flexible specialisation finds his factory visited with the regularity of a museum, and is now spending time in Jamaica helping a number of the clothing firms with their reorientation. As with Scientific Management, flexible specialisation provides its own expertise.

Flexible specialisation and Eastern Europe

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I come finally to the question of how this discussion might inform the restructuring currently taking place in Eastern Europe. I shall argue it is relevant in two ways; first with respect to the understanding of the Bolshevik economic model which is now in crisis, and second as providing a distinctive approach to the process of 'perestroika'.

As to the first, I earlier suggested that the Bolshevik economic model was heavily influenced by the principles of F.W. Taylor and Henry Ford. We can with some justice speak of 'Soviet Fordism' – not simply because of the Soviet approach to the work process, scale and the structure of management, but also because the idea of central planning represents scientific management applied to the whole economy. It presupposes that the central authorities can gather the requisite information to allow them to specify the details of production. It assumes they know enough to co-ordinate different areas of production, to provide incentives and penalties with respect to performance, and undertake the research, development and investment necessary for the balanced growth of the economy as a whole. The key features of Taylorism are all to be found here – the division of conception and execution, the control of technical knowledge by management, hierarchical authority, the weakness of horizontal ties, and the focus on the economy of time of individual 'atoms' of production. It was an information intensive system, which viewed production primarily as a technical issue. It was no accident that Strumelin, who



²² A useful survey of the impact of Taylorism in the early 20th century can be found in Merkle, J. (1980) Management and Ideology – The Legacy of the International Scientific Management Movement. See also Haber, S. (1964) Efficiency and Uplift, Scientific Management in the Progressive Era 1890-1920. University of Chicago Press, Chicago.

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was an active participant in the debate on scientific management in the early 1920s, was also one of the architects of the First Five Year Plan.

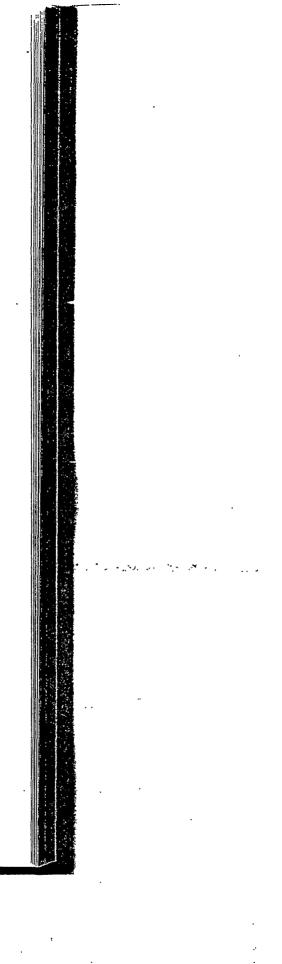
Why this is important is that many of the criticisms made of the Soviet system are similar to the criticisms made of Fordism in the West. The difference is that because the Soviet economy suspended the disciplines of the market and competition, the Fordist approach to production was taken to extremes. The scale of production is one example; the standardisation of outputs a second; another was the application of flow principles to sectors like machine tools which had been resistant to Fordism in the West. It was because of this that Western manufacturers were so struck by the Soviet system.

The absence of market disciplines posed problems for this model of production. Take labour as an example. Western Fordism sought to control 'Taylorised' manual labour by a mixture of the threat of unemployment, and the payment of an above-the-average wage with which workers could buy consumer goods. The Soviet priority for capital goods removed the carrot of consumption, while its commitment to full employment deprived it of the stick. As a result workers were able to exert considerable control over even semi-skilled jobs and forced a whole series of concessions out of management with respect to work intensity and pay from the 1930s onwards.

A second example was the attempt to run a centralised system without making any substantial use of financial data. In the large multi-divisional corporations of the West, financial information allowed decentralisation of operating responsibility to divisions, with the centre judging performance on the basis of financial returns. This was the organisational innovation of Alfred Sloan of General Motors. Soviet planners could not do this, and thus had to rely on qualitative data which made decentralisation more difficult.

There are other areas where similar points could be made – the lack of an effective mechanism for controlling quality, or of incentives for saving on materials and energy. But what should be noticed is that all these things are also limitations of Western Fordism. It too was a materials and energy intensive system. It had a major problem with quality. It invested in stocks and backward integration as a means of securing supplies. It faced worker resistance because of the intensity of work and the alienation of labour. In spite of Sloan's innovations, Western corporate organisation still faced problems of effective co-ordination and managerial planning. In short, almost all the weaknesses of the Soviet system echo those now exposed in Western mass production, with the difference that in the former, the problems were more intense.

What follows from this is that the introduction of the market may limit these weaknesses, but they will not eliminate them. At the very moment when the Fordist model is being challenged in the West, its market version is set to be introduced in the East. From the evidence to date, primarily from Eastern Europe, it is a version which is likely to exhibit the features of peripheral Fordism, rather than those of the industrial heartlands of the long post-war boom. In Hungary and Poland, it has proved difficult to sell many of the factories to foreign companies because of their backwardness. Of the four major Hungarian chair factories only the most modern had been sold by mid 1990. It was bought by a German company, which also accounted for 80% of a second factory's



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exports, and thus had no need to buy it, rather using it as a source of oak and cheap labour (wages were 25% those of Western Germany at the time) for the production of its own brand of chairs. The German company provided no help on production engineering, in spite of severe problems of flow and quality (30% of the hardwood chairs were second quality and were sold in the home market), supplying only the designs and quality checkers.

In the former East Germany, Grabher in Chapter 13 of this volume suggests that foreign investment has either been in semi-skilled production where the investor is seeking a source of cheap labour, or in a stage of production which is then removed from the former GDR chain of production in favour of one centred in the former West Germany. This has left the remaining GDR factories in the chain with key stages missing, and has 'deregionalised' the industry in the east. Work by a team in Berlin confirms this picture of Western Fordism picking over the assets of East German Fordism as if it was a liquidation sale.

In the Soviet Union, the reformers have tried to convert Soviet industry to market Fordism while maintaining largely indigenous control. Gorbachev's strategy included the development of consumer goods and of a labour market, with unemployment used as a means of restoring managerial control over labour. The provisions for workers' elections of managers, for co-operatives, and for the wider promotion of an independent civil culture can be seen as ways of re-engaging the identification of workers with the productive system. The problem, however, is that it is difficult to get Taylorised manual workers to identify with their workplace. This has been one of the lessons of Yugoslavia whose system of self-management contradicted the mass-production labour process on which Yugoslav industry was based. Equally, as the Soviet miners have pointed out, it is difficult to identify with a system in which there is still so much demonstrable waste of the product of one's labour.

As of early 1992, the attempt to restructure East European economies through changes in circulation, has traumatised production, and led to extensive industrial collapse. In these circumstances it is worth considering flexible specialisation as an alternative strategy.

Its starting point should be the re-engineering of production to provide smaller and more adaptable plants and 'cells', each with a specialisation. Part of this restructuring would be the revision of the relations between suppliers and final markets. This involves first multiple sources of supply at each stage of the process of production and distribution; second it requires strong user groups and sources of product information through specialist magazines, and newspaper articles. One of the lessons of recent Western industrial history is how important such groups have been to the quality and character of products in fields like food, consumer durables and the cultural industries. It may be that retail chains would form one productive interface between final markets and suppliers. The danger with mass retailing however is that it favours mass production, and it is striking that Italy and Japan, both countries which have been in the forefront of new production techniques, have had fragmented retail sectors.

Another alternative is for groups of producers to set up their own retail outlets, as they have done in Germany and Scandinavia. Or there is the Benneton model of an

Intermediary controlling design, product strategy, and one or two key stages of production, linked into franchised retail outlets on the one hand and medium sized local subcontract producers on the other. Whichever the form, it is important that there is a close connection between the movement of the final market and the producers, using market intelligence, and electronic point-of-sale systems.

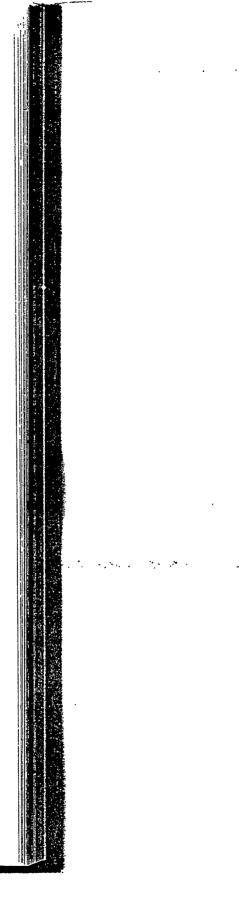
What is required is to introduce what I have called a plasticity into production. This means smaller operating units, linked through the kind of networks and simple informational devices to be found in the Third Italy – registers of suppliers with details of their equipment; informal places to gather like technical colleges or collective service centres; close proximity within specialised industrial districts. Studies of Hungary have indicated that the second economy already operates in similar ways to this – being based on informal networks, specialisation, and reciprocity²³.

The Western European experience also suggests that there needs to be some institution which ensures that relations between the decentralised units do not turn into negative forms of competition through price wars. In Japan such regulation is provided through the industry associations, and certain dominant firms. In Italy sectoral associations, federations of artisans and local government all contribute to a similar kind of regulation. The aim is always to foster co-operative competition rather than the 'competition of the jungle', the kind that is commonly found in agricultural districts.

What types of initiative would stimulate such forms of re-organisation? My earlier discussion suggests that the starting point should be local and regional sectoral studies, used as vehicles for promoting discussions throughout the area about how to 're-regionalise' economic activity. From these would emerge pilot plants or joint initiatives which would make their own links – within the locality, the republics, or abroad. One of the most interesting recent developments within the European Community has been the establishment of links between municipalities and regional governments on areas of common interest like fish farming or the auto industry, and join action of this kind will often be more valuable and targeted than ones which are made through central governments.

't would also be valuable to establish, where they do not exist, a network of enterprise boards, whose task would be to act as initiators and agents for particular development programmes. On the basis of the experience of development banks and agencies in Jeveloping countries and at the municipal and regional levels in the West, these banks should have a clear distinction made in their balance sheets between market and nonmarket operations, with the latter funded separately and subject to qualitative monitoring. Some of these banks might develop sectoral specialisms. Others might concentrate on particular support or consultancy services. There should be a measure of competition between them, and at the same time a collective infrastructure of support, including training colleges, and some joint services.

²³ Joffe, A. (1990) Fordism and Post Fordism in Hungary. In: South African Sociological Review. Vol. 2, No. 2, pp. 67-88, See also Chapter 14 in this volume.



Regional Development and Contemporary Industrial Response

These are no more than illustrations. The point to emphasise is that such an approach cuts across the axes of many of the contemporary debates on socialist economies. The approach assumes markets, but considers the key question to be the types of relations within which markets are embedded. It assumes planning, but rooted in and directing the strategies of the front-line producers, in relation to the broader social priorities. It assumes that there will be a plurality of forms of ownership, co-operative, municipal, franchised, and private, with public control exercised at those points which are critical for restructuring a sector. It seeks to promote structures and technologies of decentralisation, and at the same time new means of synthesis and centralisation. Put more generally it suggests that the issue at the heart of the crisis of the socialist economies is not one of aims but of organisation, and that centralised planning, and Atlanticised markets are both highly restrictive organisational forms. In place of these utilitarian and mechanistic models, flexible specialisation is informed by a more organic perspective.

Flexible specialisation is not a substitute for an effective state, but a condition for it. The major issues of economic development – redistribution, macro economic management, growth, the quality of working and social life, and of the environment – all require public co-ordination, regulation, and direction. The question is how this should be done, how the work of public agencies can be imbricated with that of the direct producers. The approach I have outlined here proposes that the state be seen as itself part of production, and that the structures of this production, its administrative organisation and disciplines, its internal and external economies, are just as open as manufacturing to the principles of flexible specialisation. Votes, parties and a plural media may be a necessary condition for this; but they are not sufficient.

Too often in the past there has been a rupture in development thinking between economic policy and the means of implementation. This rupture, and the dominant models of the economy and administration which underlie it, have been major factors in the crisis of development in the Third World and now in Eastern Europe. Approaching these issues from the viewpoint of production, and the changes in production which are currently taking place, will, I hope, have indicated new ways into the dark wood of industrial strategy, and – by healing the rupture – will have pointed to some new ways out.

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