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D. I. A. L.

**Développement des Investigations
sur l'Ajustement à Long terme**

14, bd. Saint-Martin

75010 PARIS

**Tél : (1) 42.08.33.88
Télécopie : (1) 42.08.81.60**

AN ENDOGENOUS GROWTH-EMPLOYMENT PROCESS

First Draft

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Marie-Paule / **VERLAETEN**

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INTRODUCTION

1. The concern about the present employment situation and prospects, particularly in Europe, and the increased use of robots and increasing application of ever more efficient computer (the fifth generation i.e. the thinking machine) have led to further debate on the macro employment impacts of technological change in the medium and long-run. The debate is rather complex because the macro impacts of technological change on employment can only be described by a long run process of growth comprising different phases of development during which forces interact within an ever changing framework comprising the structures of the whole society.

2. The framework is the society's reponse to the diffusion of technological change or more precisely to the technologically induced growth process given the value system of the society, its aspirations and its mode of regulation. The complexity of the dynamics is reinforced because technological change as it is diffused, is itself changing as a consequence of the changing framework. Further, diffused technological change modifies the value system, the aspirations of the society and its mode of regulation and is also modified in conjunction. Cause and effects are inextricably interrelated. The growth process is the diffusion process at the macroeconomic level. A relevant example is Fordism.

3. Fordism or the fordist model features a process of growth originated from a limited of established and up coming branches in industry such as the motor car industry, the electro-technical industry and the petro-chemical industry, coupled with a mode of income distribution, a social security system and a pattern of economic policy aiming at creating a mass social consensus based on mutual interests. As such the fordist model linked the evolutions of production and purchasing power in a way to equalize mass consumption and production given a target of quantified well

being. In this process the government was given a clear function in guaranteeing purchasing power and social reproduction, by acting as regulator in processes of collective bargaining, social securities and other collective services. So, Fordism implies a particular mode of regulation. Fordism was based on a certain equilibrium between process and product innovations, the latter initiated demand growth while the former matched increases in productivity with rises in wages. Fordism expands throughout the industrial countries, differences being due to countries historical and political tradition and the power relation between and within the various participants. Fordism enters into crisis hidden at the end of the sixties open in the seventies and eighties.

4. Although some economists put the emphasis on the long run when discussing the macro employment impacts of technological change, not many of them do so consistently using a pedagogical static description of the diffusion or growth phases. This is dangerous for society because it permits economic policy to continue focusing on short term aspects of growth neglecting the fact that growth is a structural phenomenon fed by a never finished comparison between the aspirations and results issued by the society capability. As such the present debate on the macro employment impacts of technological change is nothing but a way of adressing the following question : what would be the level of the achieved aspirations in the future i.e. in the post-industrial society given the level of achievement in the present or mature industrial one. The answer is the main constraint on the implicit consensus of democracy in the future.

5. On the basis of the above it seems natural to devote the next sections of the paper to a description of the growth phases based on what has appeared in the past. That will be followed by some policy considerations and areas of action. Analysis is first given at the micro level. It focuses on innovation. Then it looks to what happens at the macro level.

I - INNOVATION : A MICRO LEVEL PHENOMENON

6. Innovation relates to product and process. Often it is difficult to distinguish between both notions. Simply stated, it can be said that a process innovation changes the existing input-output coefficients for a given list of products while a product one modifies consumption pattern both in range and quality. So given, a process innovation improves efficiency in physical and economic terms. It affects economy mainly through cost reductions and the enlargement of markets through price elasticities of demand. The product one depend on income elasticities (1).

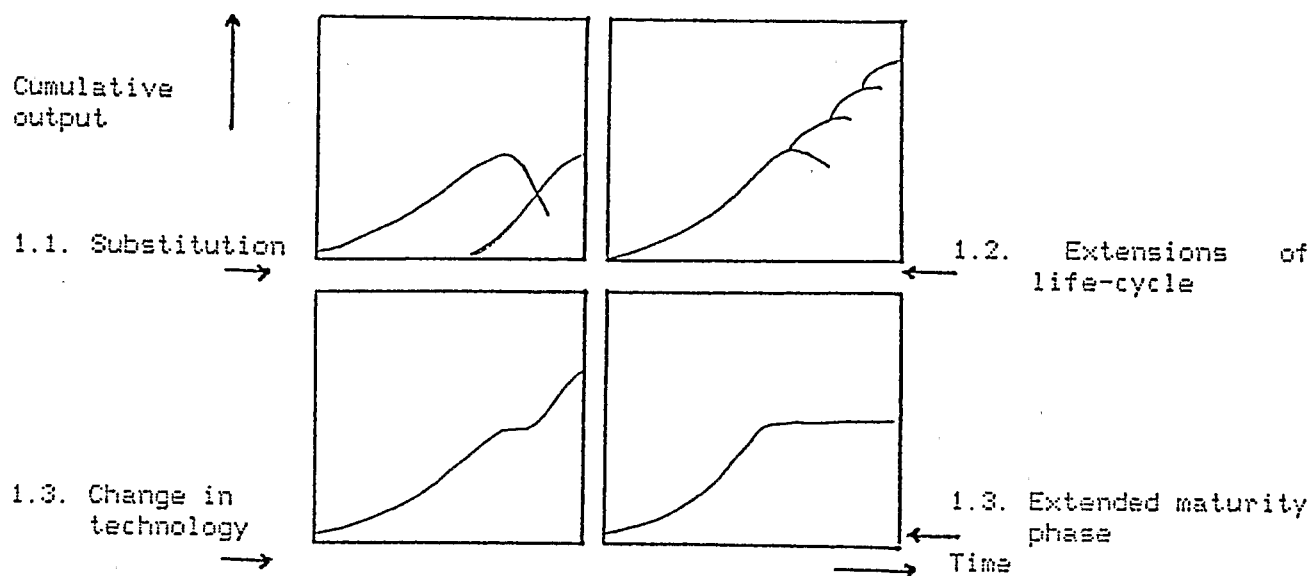
7. At the micro level each innovation whatever it is i.e. a product or process has a life cycle or curve which indicates how it develops over time measured as the output accounted for by that innovation. The life curve comprises four main phases namely the pioneer, growth, maturity, saturation or decline ones (2). It is usually assumed to be S-shaped up to their decline phase with gradually decreasing growth rates of output. While various interpretations and applications of the S-shaped growth curve exist, they can be reduced to two main types : limited possibilities for further technical improvements given a certain state of technology, versus the limited possibilities for further market penetration given a certain rate of penetration. Usually the two aspects will be interrelated : cost-reducing improvement innovations can increase the rate of diffusion of a product ; market saturation will be a strong incentive for product improvement, to prevent or postpone a decline in sales.

1 An illuminating discussion of the definition to be given to a product or a process can be found in O.E.C.D. ; D.S.T.I./S.P.R. 82.44 - Workshop on patent and innovations statistics, 28 th-30 th june 1982, 29 p.

2 We deliberately neglect the gestation phase for we focus on innovation rather than on invention. An innovation is defined as the first commercial production or use of a new product or process. At the macroeconomic level it is innovation which matters for invention without innovation has no meaningful wealth impacts.

8. The decline phase should be considered an open-ended phase. Absolute decline resulting in complete replacement, is but one of the possible courses of an innovation following its maturity. Several variations to the standard life cycle pattern exist, representing the different ways industries may react when faced with saturated markets. Little can be said about the length of the various phases of an innovation life cycle. Innovations are too diverse in nature and area of application to allow any generalization with respect to the length of their lives. Also the market conditions at the time and place of introduction will vary considerably. Despite uncertainty, about the duration of an innovation life cycle, the question of life cycle length is very important for growth for the latter one depends strongly, among other things, upon the phase of the life curve. Insight into the duration of various phase would give insight into the growth potential of an economy.

Fig. 1. Variations in the innovation
Life cycle



Source : Van duijn J.J. : "Another look at industry growth patterns", Faculty working paper 667, College of Commerce and Business Administration, University of Illinois at Urbana-Champaign, April 1980.

9. Life cycle also exists for innovations on an international basis. During each phase, both production and distribution costs favour specific countries. Respectively the innovative and the imitative ones, i.e. firstly the semi-industrialized and secondly the developing countries. This indicates that both international trade and capital flows are linked to the innovation life cycle given an international market diffusion model. This model is not given once and forever. It depends upon many parameters amongst which countries' policy towards invention, profitability, and training and re-training of labour. Well known examples are Japan and Germany.

II - GROWTH : A MACRO LEVEL PHENOMENON

10. At the macro level the life curve transforms into a curve of saturation of the milieu. It represents the diffusion of the innovation to the whole economy (bandwagon effect) in the form of creation of new industries tending to exploit a wide range of applications supplied by the innovation and as such changing the household demand pattern both in range and quality. The phases of the saturation curve are featured by interacting growth forces or dynamic interdependencies between macro supply and demand i.e. resource allocation and income distribution. The forces depend upon the allocation of the productivity and/or quality gains due to innovation between the capital owners, consumers and workers of the innovative country on the one hand and between the latter and its competitors on the other.

11. Growth or diffusion dynamics is mainly constrained by :

- *The input availability and specificity*

The first one means domestic versus foreign supply. It reflects both the capacity of a country's industrial structure to achieve user-supplier coordination and barriers to innovation at the international level. The second one is related to product/process interaction and production system complexity.

- *The product/process interaction* refers to the extent to which differentiation of the final product involves that of crucial inputs, components and manufacturing equipment which may constrain delivering firms.

- *The production system complexity* refers to the technical interdependence of equipment, operating practices and procedures both within and between the various stages of manufactures. The more complex a production system, the greater the constraints to changing any of its component parts. These constraints are in part material : if the different physical components of the system are interdependent or are to interact, each component must be adjusted to the particularities of the others, for example, in terms of speed, precision, tolerances, interfaces and so on. However, these constraints also arise from operators and engineers' acquisition over time of specific knowledge of system behavior e.g. of how to organize maintenance and fix "bugs". Changes which make the knowledge obsolete are likely to prove costly, in that a new cycle of "learning by using" will be needed before full effectiveness is obtained. As a result, in industries with complex production systems, major new inputs must be tailored to the constraints imposed by each firm's existing set-up ; and these later ones are likely to diverge over time, as firms differ in their expansion paths, product strategies and learning behavior. The constraints imposed by the "systemicity" of the production process are particularly clear in the industries with managed large scale physical networks, such as electricity and telecommunications (3).

³ Notes extracted from Ergas H. : "The inter-industry flow of technology. Some explanatory hypothesis", OECD, DSTI/SPR 83-85

- The speed of diffusion

It is not given. Several reasons may be put forward. When information is costly to acquire, as it is, and the innovation typically has several technical attributes, firms can resort to an indirect form of "learning by doing" i.e. learning by observing the experience of existing adopters. At any point in time, firms view differently the advantages offered by the innovation to their own operations, but, over time, the process of adoption involves a gradual convergence of viewpoints as all adopting firms acquire a common perception of the innovation's worth. Another important aspect of the speed of diffusion is profitability. This aspect is a two-sided problem as not only profitability for potential adopters matters, but also as is it perceived by the producers. So, the speed of diffusion depends on supply-side constraints, just as much as it does on constraint to adoption. In other words, profitability influences the speed of diffusion but equally the latter one will influence profitability. Both adoption and supply constraints of the diffusion process therefore diffusion itself, vary over time because the environmental framework of the innovation is changing. Indeed, improvements to the innovation either in the production technology or in the utilization one or both, international catching-up process, general economic growth and policy, changes in relative commodity and input prices, in other complementary or competing innovations and expectations of future technological change can be expected to occur during diffusion. All of the factors will affect the innovation and consequently its growth process.

- The market evolution of competing enterprises

Theirs goods are substitutes to those produced by the innovating sector of which competition increases. If the competing enterprises do not innovate there will be a loss of market share at given cost and selling price. That will initiate a depressing effect transmitted to the whole economy via input-output relationships.

- *The macroeconomic technology framework and the preventing stance of economic policy, their expected evolution, the expectations of future technological change and by social, managerial and training changes.*

All of these variables interact. For instance the social, managerial and training changes may be enabling and facilitating circumstances permitting the potential applications of innovation in many sector (diffusion) to be realized in practice while the speed of diffusion also favours these requisite changes.

12. The macro growth process related to innovation vary according to innovation being of wide rather limited adaptability, having a long time span, being interrelated and simultaneously appearing. In that case one speaks about a new technology "system". When simultaneously appearing basic innovations converge in energy sources, transport, tools (or the production goods industries) and in manufacture and there is a reservoir of labour the growth process picks up with the blossoming of industrial revolutions supported by leading sectors (4). Further the growth process is also influenced by natural trajectories of some technologies, i.e. technological advances which seem to follow other ones in a way that appears inevitable. This concept due to Nelson and Winter (5) may featured either specific technology or a wide range of these. In the 20th century there were two still opened up natural trajectories i.e. the exploitation of understanding of electricity and the resulting creation and improvement of electrical and later electronic components and the similar developments regarding chemical technologies. It is apparent that industries differ significantly in the extent to which they can exploit the prevailing general natural trajectories and that these differences influence the rise and fall of different industries and technologies.

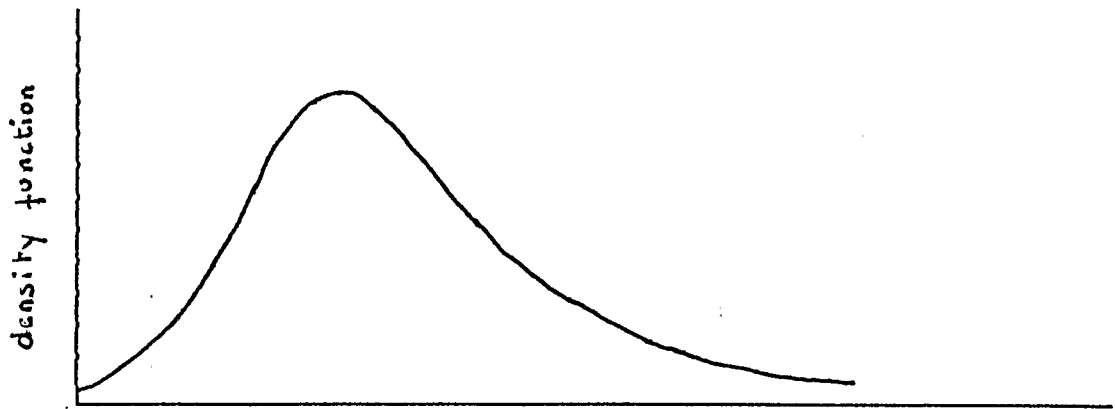
4 Results issued from Piatier's works : "Innovation, Information and long-term growth", *Futures*, oct.1981

5 In search of useful theory of innovation, *Research Policy* 6, North Holland, 1977

III - SCHUMPETERIAN DYNAMICS (6)

13. The innovation based growth process is an evolutionary one. That means that enterprises are always innovating and imitating although at varying speeds. So an innovator's monopoly position is only temporary. As soon as an innovation is made "the spell is broken", and the way for others to imitate is opened up. A bandwagon is set in motion. Schumpeter called that process the one of creative destruction. The evolution of the state of technology in a capitalist economy is determined by the interaction of these two dynamic forces. The tendency towards technological uniformity among firms is bound to be upset by a sudden introduction of a new and better production method (product) by one or several firms. So innovation is not a single-shot phenomenon. By nature it is a recurrent process. Consequently the state of technology is a state of constant flux.

14. Under the joint pressure of imitation (diffusion) and innovation the industry will not reach a neoclassical equilibrium supported by a price vector with perfect technological knowledge even in the long run. While new technological knowledge constantly flows into the industry, actual production methods of a majority of firms always lag behind it and a multitude of diverse production methods with a wide range of efficiencies (cost gap) will co-exist forever. Indeed, it is merely the statistical regularity of the relative pattern of these microscopic disequilibrium that characterizes the long run of the industry and permits to shape it as a well known smooth bell curve skewed to the left.



Cost gap : Unit cost of given production method
in excess of the potential unit cost
prevailing at time t

Fig. 1 : The theoretical long-run average density function of efficiency (i.e. cost gaps) due to K.Iwai

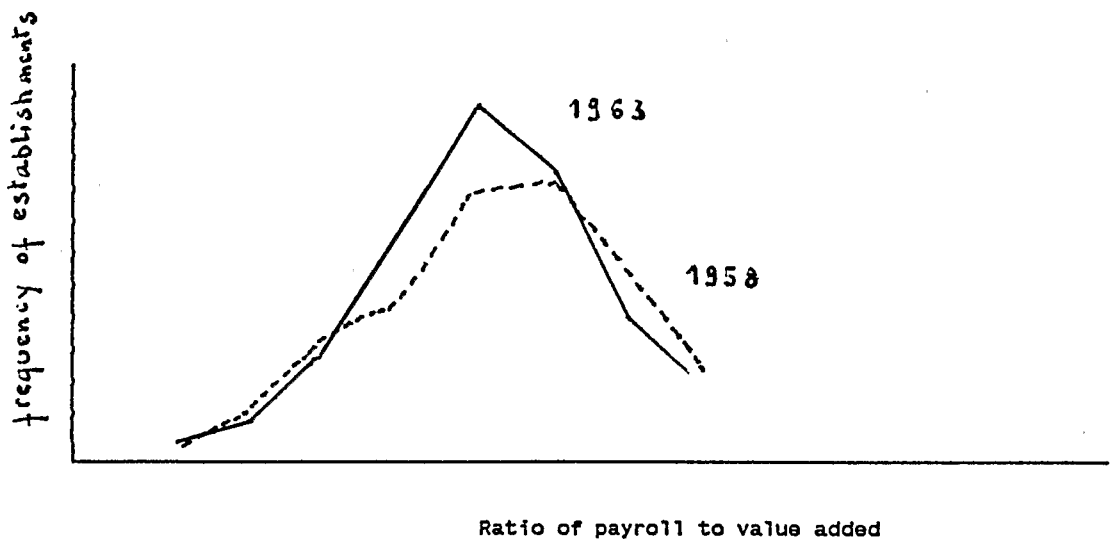


Fig. 2 : Applied long-run average density function of ratio of payroll to value added in the U.S. metal stamping industry (*)

(*) K. Iwai found similar patterns in Japanese cotton-spinning industry and Norwegian fish-food products and non-electrical machinery industries.

IV - DETAILED DYNAMICS

15. Let us now add some flesh to the stylised description of the growth process. For pedagogical convenience the interacting forces are presented schematically. It is worth remembering that past experience is used as a guide line, but obviously, the future is more (ever ?) than the product of the past.

16. Pioneer phase

1) There are a large number of potential product innovations, as different technological options exist, and little is known about the nature of demand.

2) The number of firms (or countries) entering the market is rather small.

3) Firms generally enjoy a strong, though unstable monopoly position, so that their pricing decisions ensure that most of the labour productivity gains accrue to the capital owners.

4) Employment impacts are weak.

17. Growth

1) There is increasing acceptance by customers, permitting the installation of completely new capacity and the building up of the associated capital goods (capital widening). There is an increased number of new firms (or countries) entering the market. This is even more true when the original innovating firms (countries) are unable to "appropriate" their own innovations.

2) Customers' choice being better identified (in industrialized countries initially, but tending to become the reference for the rest of the world) market uncertainty falls, reducing the range of product innovation while rewarding the successful ones, and the firms which picked these. As a result, further new product innovations will gradually appear to be less important in firms' strategies, which progressively focus more on keeping market shares, rather than systematically attempting to increase them. Product innovation shifts gradually in favour of process innovation.

3) An increased number of firms (in developed and semi-industrialized countries) on the market provokes a shift in industry's pricing behaviour i.e. from monopoly to a more competitive situation. This also means a shift of the productivity gains from the capital owners to the consumers in the form of lower selling prices.

4) Input costs, especially labour costs, increase. Indeed, there are skill shortages as the generation and spread of new technology, by definition, call for the deployment of skills which have not hitherto existed or only partially existed. Furthermore, firms in the most rapidly expanding sectors will tend to pay a premium for conventional skills in order to attract good-quality labour for their new plants. These firms are also passing productivity gains on to real wages. To the preceding, one has to add that there are wage increases in the economy as a whole on the basis of the induced growth process and of the mechanisms of comparability claims with wage and salary increases attained in the leading (technologically advanced) industries. Increased wage costs and competition mean that gradually the income generated by productivity gains is differently distributed i.e. from the capital owners to consumers and workers.

5) Sales lead to standardization, needed to realise economies of scale (itself a major source or productivity gain) and to product differentiation. Countries tend to specialize.

6) The pursuit of economies of scale affects the industry's demand for inputs through its impacts on product/process interaction and production system complexity. Input specificity acts on industrial structure. Its impact depends on the characteristics of the supply of new intermediate inputs and more particularly on the economies of scale and scope involved in their development and manufacture (8). Input specificity also affects international trade for it reflects the capacity a country's industrial structure to achieve user-supplier coordination.

7) International capital flows tend (slowly) to move to more favourable countries, i.e. those with lower costs and hence higher profit potential.

8) Employment growth is strong. Nevertheless, several factors which will eventually interact to reduce the employment generated per unit of investment as maturation proceeds are already present : costs rise and competition increases ; standardization and induced economies of scale are progressively exploited, international capital flows adjust. As a result, cost-reducing process innovations tend to increase. Their outcome for employment does not dominate job evolution because demand (output) is strong enough.

18. Maturity

1) The good is completely standardized, often around a dominant design so that competition shifts markedly from being centred on design expertise to being primarily cost oriented ; Some developing countries can produce it.

8 While economies of scale refer to single products, economies of scope refer to the extent of cost interdependence between a range of different products independantly of each product's output volume. Thus, if certain products share a common set of overhead costs - for R & D, production capacity, administration, distribution, advertising or whatever - or involve joint production, the cost function for each of these products will be lowered when the activities are carried out together. Even if each of the products is unique, extending the range of products generates cost reductions similar to those arising from the conventional scale economies (form Ergas H.)

2) Industry's technology base stabilizes. This, added to limited scope for further exploitation of scale economies and diminishing scope for product differentiations encourages industry fragmentation and reduces input specificity both directly and indirectly. The supply of inputs increasingly becomes the domain of independent specialized firms, which exploit the scale economies arising from the large size of the market.

3) The output rate in industrialized countries and perhaps, in some semi-developed countries slows down because the saturation level is approached i.e. the percentage of households possessing the good resulting from the innovation tends to reach its ceiling.

4) Standardization and cut-throat competition produce price decreases sometimes dramatically so.

5) Profits are squeezed both by competition and by the pressure of input costs. This reduces the attraction of entry for other firms.

6) The preceding results in growing non-price based competition, permitting market segmentation, cost reducing process innovations - namely under the form of labour-saving ones (capital deepening) - and concentration.

7) Once the growth due to falling prices has been clearly identified, there is a gradual shift from relatively open price competition structure to a more oligopolistic closed pricing behaviour. To the extent that oligopolistic pricing deters potential new entrants sufficiently, firms might become more ready to distribute the productivity gains to their employees. Oligopolistic pricing behaviour may be upset by foreign competition, based on some absolute cost advantage. Again, the productivity gains, here primarily trade gains, will accrue primarily to consumers through lower prices. Downward wage inflexibility will normally lead to exchange rate adjustments or increased pressure for protectionism, leading to possible further reprisals, etc... In the long run, the most probable outcome is, however some "new" form of international oligopoly structure, with agreed international price setting, "voluntary" export restraint, etc...

8) As a result of all the interacting forces which can be synthesized by the interaction of weakening demand and increasing costs (supply) pressure, investment shift i.e. rationalisation and replacement increase vis-à-vis new capacity investment ; whereas economies of scale in the newly expanding industries were a major source of productivity gains, the opposite effect is engendered through working below capacity ; productivity gains may exceed output growth so that employment growth per unit of investment may be reduced.

9) Low general levels of profitability and pessimistic business expectations inhibit or delay basic innovations, while job insecurity and the rising level of unemployment conspire to reduce the co-operation of the labour force in the implementation of new innovations, which may require a wholesale reorganization and structural change with many plant closures.

19. Decline

1) Declining sales and market deterioration. The use of labour-saving process innovation continues but firms modify their strategies. Firms are trying to reduce market vulnerability (that is the risk of the firm losing market shares to lower cost or technically superior competitors) ; to increase manufacturing flexibility (that is, the speed with which the firm can adapt to changes in customer requirements, demand levels and technical possibilities) and to minimize capital risk (that is to minimize a firm's vulnerability to reductions in the overall level of demand). As such, firms are

- Pursuing strategies of closely related diversification, that is operating in products using a similar technology base ;

- Using this base to achieve greater product differentiation and customisation ;

- Co-ordinating this product (i.e. differentiation) policy more closely with manufacturing, especially through "postponed" differentiation and "focussed" manufacturing (9) ;

- Tending to specialize their operations in their areas of greatest strength, through greater recourse to subcontracting and joint ventures on the one hand, and to centralized procurement and purchasing procedures on the other (9).

2) Employment falls. That impact can be smoothed if corporate strategies in transition succeed.

9 These notions can be summarised as follows :

a) An increase in product differentiation and customisation is inevitable given greater competitive pressures ;

b) However, so as to maintain cost discipline, reduce inventories and reap economies of scale (both in manufacturing and design) differentiation should be concentrated in the final stages of production or distribution i.e. "postponed" ; operational research techniques have been developed for determining the optimal stage at which differentiation should occur ; A particular effective way of postponing differentiation is to utilize modular design : this allows economies of scale in the production and distribution of components while facilitating the design engineers' task in product development ;

c) Given modular design, and determination of the optimal stage for differentiation manufacturing operations should be "focussed" : that is large scale, high volume operations should take place in one set of plants, while small scale, low volume operations take place in another, (these notes are from Ergas H. "Corporate strategies in transition" in Jacquemin A; (ed.), Industrial Policy and International trade, C.U.P., 1983).

V - POLICY CONSIDERATIONS AND AREAS OF ACTIONS

20. The policy considerations are as follows :

a) The growth process generates rigidities which may hamper it and/or put an end to it.

The channels of rigidities are :

- a price mechanism which shows a weak link between productivity and the selling price determination ;

- a cost mechanism which shows a weak link between wages and productivity ;

- a factor price determination which shows an uncertain link between wages and unemployment ;

- a change of weight between product and process innovations during the various phase favouring processes as innovations mature ;

- a decline of positive externalities such as economies of scale and/or scope ;

- a change in the speed of adjustment between the social, managerial and training changes required and achieved.

21. The first two channels acknowledge that price are basically, a mark-up over wages. The third channel reflects wage negotiations. At the beginning of the bargaining process, wages are fundamentally perceived by both partners as an expected income allowing them to buy (consume) the production with an assumed level of profit. The link between the first three channels is that one has a nominal wage system because one has a price i.e. an income system and not vice-versa. The price system excludes unemployed people from the growth process.

22. These channels may explain the gradual appearance of an inflationary trend which is difficult to combat because it is initiated by the growth process itself. So, output growth tends to be inflation constrained (10) in a vicious circle (the fourth channel). Indeed, inflation tends also to be "growth" constrained for it may require a change in the pattern of demand (more products than processes) before it will be under control. The existence of this range of channels also explains why it would be difficult to "cure" technological unemployment on the basis of wages i.e. a sole "aspect" of the growth process. Such unemployment has to be dealt with in the framework of the growth process itself.

23. b) It indicates that "technological unemployment" is caused by an increasing mismatch between the growth rate of productivity and that of "demand" (sunset) ;

c) It takes time, varies through the various phases, is unevenly distributed across sectors and regions, interacts with many factors ;

d) It does not assure full employment at all skill levels ;

e) It does not assure that innovations will continuously take place ;

f) It is not compatible with the notion of market defined as an isolated area for it is based (fed) on (by) the concept of circuit i.e. communicating channels.

10 Obviously the dynamics may be worsened in the case of exogenous shocks on costs e.g. oil shocks or embargo !

24. The policy areas of action are :

a) The innovation induced growth process presents a strong case for governments to adopt long-term strategies based on a broad consensus. They would be based on a careful assessment of current and future technological, economic, social needs and problems and on an awareness of technological trends and associated commercial possibilities. These strategies would be adopted on the basis of "information" of whatever sort coming from the whole society in an interacting participation process. This is a prerequisite given that macroeconomic policy is based on a decentralized process of decision (micro level) and there is no complete macro coordination mechanism (market or plan). This also indicates that a very important task for civil servants would be to help information circulate throughout society.

b) Macro policy should focus on innovation. That means, it should treat consistently and in conjunction with structural policy both credit, technological and training policies. While technological, training and structural policies may appear rather obvious, credit policy may surprise a little bit. This has to be explained by the fact that innovation implies financial risks particularly at the beginning of the growth process and also during the invention period (not touched in the paper (2)). Basically an innovation is a wager on the future which will via the related investment (the putting) generate an income distribution and so, a resulting savings. Therefore, innovation is at the core of a credit economy featured by dynamic interdependencies (circuit economy) between banks, firms and households. Given increased number of nonbank financial intermediaries competing strongly with banks, credit policy has to be ruled out over the full rang of financial institutions.

c) Credit, technological and structural policies should be accompanied by supporting policies amongst which public investment, industrial, foreign trade... retraining and incomes policies. While the first in this lot are well known, the remainder may surprise but may be more necessary than the first. Incomes policy is fundamentally an attempt to improve the price-income system in a way less unfavourable to employment and a way to combat inflation. Indeed incomes policy will assure a fine-tuning of the productivity gains between the capital owners, consumers and workers during each phase of the growth process. Further, it may also permit a reallocation of the gains between the three already mentioned groups and unemployed people if technological unemployment may be improved by such a way. Incomes policy therefore would feed a transfer policy during each stage of the growth process. Given increasing decentralized wage negotiation such an incomes policy would be an incomes recommendation policy at the macroeconomic level. But if governments are explaining to people as much as it is needed what is the growth process of the society long-term (growth) strategy democratically chosen then the macro incomes recommendation policy will fulfill its target : to introduce more "harmony" between resource allocations and income distribution. Put it another words it will try to "reconcile" capital and labour through a micro income bargaining process.

CONCLUSIONS

25. As Schumpeter mentioned innovation produces a creative destruction process that incessantly revolutionizes the economic structure **from within**, incessantly destroying the old one, incessantly creating a new one. The orthodox theory of competitive equilibrium consists of assuming this fundamental fact about capitalism away. So trade matters, it prevails over production. In such a framework participants to the market take price (or cost gap) as given and determine demands and supplies accordingly. There is thus no one within the system who has any motivation to change the reached position, not to mention the one who strives for creation or destruction. Indeed, from the perspective of the orthodox analysis, the existence of entrepreneurial profit (i.e. a change in the cost gap position) which arises from successful innovation must be treated as an example of the imperfection of competition ; the wave of imitations which relentlessly follows the first success must be classified as an externality to markets and the entire process of creative destruction is merely an adjustment process which transfers the economy from one equilibrium to another. What Schumpeter considered to be the essential fact about capitalism is regarded as an aberration from the competitive equilibrium a slip of the Invisible Hand.

26. At the international level a focus on innovation is missing when discussing macro policies to be implemented to cope with a lack of jobs. Behavioral prerequisites assume often a trade price equilibrium mechanism based on countries comparative advantages at diffused technological change. That is fully irrelevant in the framework of growth impulses incessantly revolutionizing by innovation and imitation. Accordingly growth and employment do not fall like manna (trade) from heaven. They are embodied in an endogenous process itself embodied in the economic structure. **Macro Policy should treat this process consistently i.e. via a focus on innovation.** So, given it should particularly put the emphasis on incomes policies to assure a fine-tuning of the productivity gains between the capital owners, consumers and workers during each phase of the endogenous process. The quality of the induced bargaining process might be one of the most detrimental fact to democracy in the future.