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A SUMMARY OF FIRST YEAR RESEARCH ACTIVITIES AND SUGGESTIONS FOR FURTHER RESEARCH.

The first year of study has been carried out under the somewhat broad title of 'A Keynesian Approach to Structural Change', but in retrospect a more appropriate title would have been: 'Co-ordination Problems and Organizational factors in the Economics of Structural change'. In the 1930s Keynes' own work had analysed the likely origins of and remedies for unemployment due to a lack of demand within a framework which differed from orthodox economics in its emphasis (explicit or implicit) of uncertainty, transactions costs and durable goods and dared to deny that the price mechanism worked and suggested that perfectly flexible markets (the labour market and the foreign exchange market) might not be desirable. Since then this has been something of a minority approach to the subject, held by what Coddington (1976) has labelled the 'Fundamentalist Keynesians'. In the 1970s the main barrier to the use of Keynesian policy measures as a solution to mounting unemployment has been a balance of payments constraint which has recently begun to bite with an increased vigour due to structural problems becoming critical after several decades of poor growth performance as is well documented in Singh (1977) and Woodward (1977). Also in recent years there has been a revival of interest in the theories of F.A.Hayek, (1972,1975), Keynes' old sparring partner of the 1930s, whose denial of the validity of the General Theory's contention that wage cuts do not solve unemployment requires that all unemployment should be structural in nature. Hence it seemed timely to examine the problems an economy undergoing structural change and facing increased international competition might encounter, particularly given the disputes over the best way to solve the problems presently faced by the United Kingdom.

The following areas of interest emerged after research which served to highlight how far economics has neglected the processes of adjustment in its pre-occupation with equilibrium analysis... (Only the main references are cited here but there is a complete bibliography at the end to show what material has been examined and found to be useful.)

1) The relationship between structural unemployment and unemployment due to a lack of effective demand, in pure theory and for policy-making. This is the main area of dispute between Hayek and Keynes and research suggested the following points:

a)While Keynes in the General Theory confined his attention to an economy with a given capital stock, population, tastes and technology, Hayek is completely wrong to accuse him of totally ignoring structural questions as he developed his macro theories. This is shown especially in Keynes (1977) where he considers when wages cuts might solve unemployment and shows how they could help, by permitting changing relative prices, to bring about the redirection of demand along old lines following a change in tastes which had caused structural unemployment. Also, Keynes' 1937 paper 'How to Avoid a Slump', reprinted in Hutchison (1977), reveals the extent to which Keynes was worried about the dangers of using his policies in an open economy which faced structural difficulties as well as a lack of aggregate demand with the result that he advocated the additional use of more ad hoc micro measures (which, admittedly, he failed to specify in detail).

b) In developing his critique of Keynes' inability to cope with the micro economics of structural change Hayek (1941, pp370-6) reveals a gross misunderstanding of Keynes' theory of capital.

c)Hayek's policy prescriptions are more likely to worsen things when applied regardless of the kind of unemployment that exists - flexible wages might solve structural unemployment but cannot be advocated generally as a solution because of their disasterous effects when the problem of unemployment is tied up with a lack of aggregate demand. For a discussion of the dangers of money wage flexibility, but with no mention of structural questions, see Davidson (1978) and Minsky (1975).

d)Even in a closed economy or one with flexible exchange rates, unanticipated structural change could cause asfailure of effective demand and lead to the emergence of both kinds of unemployment. The only previous consideration of this question that I could find in the literature is a brief mention in Lipsey (1965) which does not go very far but makes some useful points. Essentially this issue is tied up with changes in the propensity to consume due to changes in the distribution of income, the magnitude of which will vary according to pricing policies of firms and the behaviour of the labour market; and there being a net decline in investment due to reduced investment in threatened sectors not being made up for by the growth of activity in expanding sectors due to a failure to appreciate opportunities (just as when there is a shift in favour of future consumption, but in this case a signal is being positively generated by consumers) or bottlenecks in areas of the capital goods industry.

e) It was suggested by Fisher (1935) and Reddaway (1936) that there would be a tendency for economies to suffer from insufficient aggregate demand as they adjusted their structures away from producing lnecessities in favour of luxuries through a reluctance to invest because of the peculiar characteristics of the demand for luxury goods, regardless of any long run tendency to saving-induced stagnationsas incomes rose. Their views about the inherent instability of demand for consumer durable is confirmed by the demand studies of Katona (1960, 1976) and Smith (1975), the last of which being an explicitly Keynesian study of demand.

f) Economic theory appears to have neglected the problems caused by non-malleability of capital when there is wage flexibility but insufficient machines on which to employ workers; i.e. Marxian unemployment. The kind of Marxian unemployment I have in mind is that due to rationalisation following crisis-induced search by firms (ruled out by neoclassical theory) and the consequences of scrapping machines in time of slump causing difficulties as the economy recovered - a point given emphasis recently by Hicks (1974) and Malinvaud (1977). Clearly, a flexible wage economy would be completely out of equilibrium in such circumstances.

g) Finally, and related to a), there is the question of whether, in an economy with rising structural unempoyment, it is wise to step up aggregate demand and rely on the efficiency of the labour market and flexibility of production techniques to redistribute labour to growth sectors. In a highly critical article Killingsworth (1969) points out that this appeared to be the view of the 'New Economics' of the Kennedy administration at a time when there was a dispute over the extent of structural unemployment.

These issues, in an expanded treatment, clearly comprise the basis for an article (perhaps with the addition of a much-needed reconsideration of the different approaches of Hayek and Keynes to the origins of the trade cycle) but I doubt whether there is scope for a sufficient amount of wholly original work to lead to a Ph.D. if specialised study were undertaken in this area.

2) Co-ordination problems in the economics of structural change. This entailed a considerable expansion of some arguments I had raised in a 1976 essay for the Adam Smith prize (which did not win, but which received an honourable mention by the judges), written in blissful ignorance of the concept of the contingent commodity and the work of G.B.Richardson, in which I suggested that price signals provided no way of achieving equilibrium in a frictionless economy where futures markets were largely absent. Among those questions considered were the following:

a) Could G.E. theory provide a way of ensuring, in theory at least, that an economy underwent an equilibrium process of structural change which involved no unnecessary waste of resources and surprise of economic agents if the assumption of perfect foresight were excluded? The introduction of the concept of the contingent commodity, as used in Debreu (1959) and Meade (1971), coupled with a tatonement process appeared the only way that this kind of economics could answer Adam Smith's question of why the pursuit of self interest by a myriad of individuals does not lead to chaos; but even this had problems.

b) Contingent claims contracting in the absence of an auctioneer as deus ex machina would be insufficient to provide Pareto optimal full employment since i) Agents need to be aware of all possible outcomes in order to do the best for themselves so someone must call out the prices of all possible goods before choices are made. ii) In a state of information impactedness where information is not freely available some one would have to make an unbiased pronouncement as to which state of the world had come about but the best informed person might find it in his interests to lie, if it were left to him, cause the implementation of the wrong contracts and render future contracts inoperable, a point emphasised by Williamson (1975). iii) Should trade be allowed at false prices even the presence of futures markets would not be sufficient to prevent unemployment. iv) Arrow and Hahn (1971) admit that the narrowness of most of these markets would conflict with perfect competition.

c) While contingent claims contracting could cope with the possible deaths of agents and their choices about how to spread their consumption through time via economic growth, causing a changing structure of production even with given preferences; it cannot handle the appearence of new agents or technical change.

d) Because goods and labour supply activities have to be so rigorously defined to avoid the need for post-auction, non-market decisions (within firms) a G.E. economy is completely taut and no contingency must be missing since after it had occurred (say an unexpected earthquake destroying a factory) remaining contracts would be inoperable. Completeness of markets is impossible without assuming zero transactions costs. With transactions costs, as Loasby (1976) has argued, 'rational' choice breaks down and the desirability of complete markets falls away as well. The problems of a taut economy adapting under uncertainty compared with an economy containing slack are evidently akin to those of the two watchmakers in Simon's (1967) parable on decomposability.

e) Thus, to adapt Coddington (1975) G.E. theory's contribution to the understanding of an economy where adjustments and time are involved is 'rather akin to the contibution of flatness to mountaineering' and instead of a presumption in favour of frictionless and perfect markets it becomes pertinent to examine what I have chosen to call 'the Richardson Problem' after Richardson (1956, 1959, 1960, 1964, 1971, 1972), Loasby 1977a. Dobb (1937) saw the problem as well but was inclined to advocate socialism rather than to stop and ask, as Richardson did, how the problem was to a large extent mitigated in the real world.

3) Pros and cons of taut and slack economies where unexpected change is a feature. Richardson's contention that economies work because of imperfections rather than in spite of them appear to apply generally and not just with respect to the entry question.

a) If all firms were informed of market opportunities at current prices and costs but not of their rivals' plans and all were able to respond to some extent there would be enormous scope for over-entry in response to profit opportunities. This is something which actually happens on a relatively small scale outside primary product markets although two good examples of the problem in action are the chemical industry in 1971-2 - see Beck (1972) - and domestic appliances in the late 1950s- early 1960s.

b) In a slack economy a more limited response may be expected (though the prisoner's dilemma problem will arise whenever there are two or more firms) for a number of reasons: i) Firms may specialise in particular areas of activity and limitedtheir search agendas to fields with synergistic potential - see Ansoff (1965) - and so be unaware of profit opportunities. ii) Profit signals may fail to appear because prices are not adjusted with regard to demand in the shorter term, being determined with regard to average costs at normal output. Araoz and Malmgren (1961) note that output may be flexible due to investment ahead of demand by existing firms in the industry and the holding of capacity for goodwill preservation which saves consumer search costs. There is also inherent flexibility in the production functions of the real world. iii) Firms which are aware of profit opportunities and feel that they can judge their competitors' responses may be held back in the short run by managerial factors - Penrose (1959) effects - such as faced I.C.I. in the 1960s (see Turner, 1969) and Honda, whose break into the car market was at the expense of their motorcycle market performance (see Boston Consulting Group, 1975); or by their financial positions, pointing to the importance of history as a factor that economists should bear in mind when discussing firm behaviour. iv) The important more general problem of a failure of aspirations to meet the attainable.

c) There is a conflict between specialization (tautness) and stability in an uncertain environment, the classic problem that Ford faced on a grand scale when it stopped making the model T, as is well shown in Perrow (1971). In this case slack was provided by considerable financial reserves. However it is worth pointing out that had the British motorcycle industry been using highly specific machinery it would not have been able to concentrate its production further and further 'up market' without large scale investment and would thus have been forced more seriously to consider its long term strategic position.

d) 'Perfect capital markets' need not be a good thing in an uncertain world. Richardson (1953) argues that an entrepreneur needs to be given a second chance to prove that he has been unlucky rather than incompetent.

e) Perfectly informed consumers would also tend to create instability; a point forcefully made by Hirschman (1970). Companies which slipped behind on quality would be knocked out before they had any chance to correct things. The erring companies will not be protected in the long run by goodwill, since as Andrews (1949, 1964, 1975) was at pains to point out, consumers would have to be irrational not to change to a cheaper supplier of the same product or a better one at the same price once they are aware of its existence. In the short run firms may be given a chance because of uncertainty about alternatives which limits the growth of their rivals or of sales of totally new commodities; on this see especially Bain (1964) and Ironmonger (1972).

f) The parallels between these arguments for certain kinds of market imperfections and the attacks by Keynes on wage flexibility are only too clear; perfect markets are only unambiguously good in the G.E. world.

g) In a world of imperfectly known production functions and economies of scale, Myrdal's cumulative causation process would lead to dramatic instability if firms or countries could never fight back becuase economies were in other respects completely taut. Downie (1958) also realized that unless there was scope for rationalization, which he labelled 'the innovation process', markets would very soon become monopolised. (See also section 6 below on this.)

The problems of Tautness v Slackness appeared to be tied up with the existence of uncertainty in a double-edged way. On the one hand imperfect knowledge of the production functions of rivals and the quality uncertainty of entrepreneurs in capital markets required the presence of slack for orderly behaviour to occur and on the other the existence of slack was dependent on the presence of uncertainty. Section 2) had suggested that agents logically could not behave in the way assumed by axiomatic theory and begged the question of how instead they actually did behave and this, coupled with an impression that Britain's problems stem from <u>under</u>-entry with adequate products in particular market segments which allows increasing import penetration, turned me towards the investigation of...

4) The nature of slack and the origins of persistence.

The literature associated with Cyert and March, Simon and Leibenstein was naturally the main source here with many additional pointers suggested in the writings of Loasby whose notions of slack appear to be much wider than the narrow definition of organizational slack of Cyert and March, emphasising the scope for better decision-taking methods. I would go even further than this in my listing of possible escape routes for firms under threat. Here I list only some less familiar observations and references:

a) Loasby (1976), in his treatment of theories of the firm appears to propose that the behaviouralist approach is a form of Keynesian theory of the firm which parallels Keynes' theory of money and expectations (especially Keynes, 1937). Goodhart (1975) had pointed out that both institutions - money and firms - arise only in situations of uncertainty and transactions costs. My researches on the role of money in Keynes' theory of unemployment (see below, section 5) showed that, given the state of expectations, and contrary to the views of Hahn (1976), a failure of effective demand and involuntary unemployment can only occur in a flexible wage economy if money is the means of payment. The indeterminacy in the world seen by the fundamentalist Keynesian is thus tied to the use of a device for avoiding complete specification of activities, namely money. The Keynesian approach to the theory of the fimm adds to this indeterminacy by introducing slack (c.f. speculative balances and their role in the financial crowding out arguments) through viewing the production function as a subjective rather than objective feature and scope for dramatic changes in policy due to shifts in the relative strengths of coalition members (c.f. Bulls and Bears and the rate of interest). For Keynes the policy problem (see Leijon hufvud, 1968) was how the authorities could lower the long rate of interest fast enough to prevent the emergence of unemployment once there had been a shift in liquidity preference - market forces would not do the trick alone and might merely aggrevate things. For those concerned to prevent the emergence of a structural disequilibrium in a world of cumulative causation the problem is one of managing <u>supply</u> rather than demand. Even if threatened sectors and firms have enough slack to fight back they may misuse it and allow the cumulative causation process to get a grip; market signals cannot force the correct outcome. Government policies have to provide slack <u>if necessary</u> (e.g. import controls or scrapping allowances) and at the same time ensure that it leads to the correct response - the behaviouralist, unlike the neoclassical economist does not assume it always will. This view is not very popular in Cambridge but seems to be shared by Stout in a recent NEDO paper: "Devaluation by itself might be a temporary expedient allowing a country that is in relative decline to avoid tackling the problem for a little longer. This position is at least as plausible in principle as the old argument that it would stimulate the requisite adjustments."

b) Leibenstein's approach seems to suggest that more concentrated attention by managers and supervisors could make workers work harder and that while production functions are imperfectly known they do exist to be discovered as objective features. A contrary view is implied by the work of Gouldner (1955) and Roethlisberger and Dickson (1942).

c) Smyth's (1967) critique of mark-up theories 'A price minus theory of cost' implies that we should not ignore the problem of satisficing in product design. In the car industry we have an excellent example of this in the development of the leyland Marina (Turner,1971) to be contrasted with the case of the Ford Fiesta (Sunday Times,1976).

d) Search does not always tend to reduce the uncertainty which is perceived in any scheme. On the contrary, it may increase it. So while too narrow an agenda may lead to disaster, Littler and Pearson (1972) suggest that too much caution and a greater willingness to appraise risks before deciding to proceed with a project might have excluded path-breaking discoveries such as Pilkington's float glass process.

e) If we agree with Arrow (1974) that a large part of human capital is specific to particular firms (this being linked to March and Simon's work on the sunk costs of investment in organizational procedures) then we cannot always agree with the view that the failure of one firm does not matter so long as another appears and takes up the unemployed workers. However, in saying this we should not forget that even human capital may become obselete.

f) I have yet to discover an article pointing out the similarity between the arguments of Kuhn (1962) on inertia in scientific revolutions and those of Selznick (1957) and Perrow (1971) on persistence in organizations. If profit maximisation is logically impossible because the alternative policies are not freely known some kind of strategy must be used to guide search but once adopted it may lead to a blinkered approach and take years of work by zealots before it can be changed. See, for example, Coleman (1969) and Knight (1974) on the rise and fall of successive strategies in Courtaulds.

g) More work needs to be done to examine the origins and extent of short horizon decision-taking that leads to two disasterous forms of behaviour in the economics of structural change - wasteful and doomed defensive investment (Lamfalussy, 1961) and segment retreat strategies (e.g. the Boston Consulting Group (1975) report on the British motorcycle industry along with the similar case of the Northampton shoemakers) where firms maintain their scales of activity when threatened by imports by specializing in certain segments of a growing market (usually 'up-market') where their rivals are not yet strong.

h) While it is accepted in satisficing theiry that stimuli must exceed certain threshold levels before responses are forthcoming, the consequences of different levels of threshold for long term company viability have been rather ignored even though they seem crucial for understanding whether Britain's deindustrialisation problem will be corrected by any of the proposed remedies. The essential question is one asked by Checkland (1970): "Is it inherent in the growth of a firm and indeed of all great organizations that they cannot adjust continuously but reach some critical level of vulnerability before a response is forthcoming?" If the threshold of response is low little search should be necessary in order to bring performance into line with aspirations. If the threshold of response is large a far-reaching search will be necessary and there is more scope for discovering ways of achieving a quantum jump improvement in performance such as Weinstock brought about at GEC-AEI (see Turner, 1969). Low threshold organizations which lack strategic planning will be particularly prone to disaster in the face of structural change and rising overseas competitiveness. They will, by taking up small doses of slack found by piecemeal search, maintain their profitability if not their market share against their cumulatively rising competitors but such behaviour will not be sustainable in the long run and so long as they avoid introducing new products or production techniques their positions will become increasingly fragile, tending towards tautness, before they are eventually squeezed out of existence. (The process will be especially long drawn if it combines defensive investment, segment retreat and the reduction of organizational slack/X-inefficiency and all the while factor incomes will be lower than they could have been.) The position is much more hopeful for firms with large response thresholds, providing there is enough slack of whatever form available to be discovered to enable an offensive strategy to be started successfully. Courtaulds provides a model example of this type of company while the work of Chandler (1962) reveals many reasons why thresholds might be large. (In a sense, the peculiarly defined one of Cyert and March, the large threshold company <u>is</u> taking up slack as its performance declines - some coalition members' returns are coming closer to their transfer levels as they become disatisfied with profit or growth performance.) Finally one should mention that response thresholds might be so large that a company is forced into receivership before anything important happens - an obvious example being British Leyland. (Turner, 1971, and Ryder, 1975) In this case what is wrong seems obvious to managerial economists but has not been to members of the organization itself.

i) Multi-product firms that are not being threatened in all of their activities can use profits form one division to subsidise the recovery of another through the development of a new product range. However, cross-subsidisation may also be used to preserve a non-viable sector longer than would be wise - e.g. the Rank Organization's ailing entertainments interests have been supported from its Xerox earnings.

j) Other things being equal, slower-growing economies not only achieve fewer learning by doing advantages but also become relatively more fragile because fewer new avenues for subgoal pursuit (and hence new forms of slack) appear and they will be likely to experience rapidly diminishing returns to the use of management consultants.

My final area of research so far, already mentioned in 4a), has been in the somewhat unrelated area of:

5) The nature of money and its role in Keynes' theory of unemployment. I was concerned to examine the validity of a recent and otherwise unchallenged claim by Hahn (1976), namely that "Money really has nothing intrinsically to do with the matter, and indeed, when it is brought to the forefront leads to muddles."

In doing this I was fortunate to be able to use a draft copy of the forthcoming volume XIVb of Keynes' Collected Writings which consists of some recently discovered documents including further early drafts of the General Theory where Keynes is in no doubt as to the central role of money and, more importantly, correspondence between Keynes and Hugh Townshend which greatly clarified the notion of liquidity. Also useful were papers by Leijonhufvud (1969), Davidson (1972), Townshend (1937a,b) and Shackle (1972). After I had worked out what was peculiar about a monetary economy I found that Shackle (1974, ch.1) had arrived at a similar view to my own exposition, realising that in a barter economy risks are largely borne by the workers instead of the employers; business risk ultimately reducing to the problem that relative exchange values might not be what had been hoped for.

Hahn's paper correctly argues that liquidity preference can be introduced into a barter system as long as it contains some durable, non-reproducible goods but his conclusions on unemployment depend on there being wage rigidity in his barter world. Keynes did not assume wage rigidity and argued instead (1977) that "In a barter or co-operative economy only miscalculation or stupid obstinacy can stand in the way of production, if the value of the expected real product exceeds the expected real costs." The essential point is that in a barter economy goods do not have to be 'sold' <u>in the first instance</u> to anyone not directly involved with their production. How initially the produce shall be divided up (and hence the expected factor returns when the goods are delivered and can be exchanged at prices presently unknown should this be desired)is worked out <u>before</u> production takes place. I am currently preparing a revised paper on this issue as an entry for the Stevenson prize in Cambridge and with a view to possible publication.

6) The main problem I now face is deciding where all this leads, apart from to the papers suggested by sections 1) and 5). Once one has grasped the implications for economic theory and policy of the obscure work of Richardson and Andrews (the Oxford School?), the Fundamentalist Keynesians and the Behaviouralists it is very easy to write critiques but much more difficult to be constructive as an academic in a science which tends to insist on general hypotheses rather than 'ad hocisms' - in great contrast to the management consultant who earns his living exploring the latter!

Clearly there is scope for an interesting book combing and expanding upon the arguments of sections 2,3 and 4) since each of the major works in the area - Richardson (1960), Loasby (1976), Williamson (1975) and Hirschman (1970) - does not set out to consider how firms respond to changing circumstances, with an emphasis on industrial inertia and the differences between taut and slack economies. Without the addition of empirical work, however, such a book could not claim to be sufficiently original for a Ph.D. and if published would be bound to be dismissed, as was Richardson's in its A.E.R. review, as interesting fireside reading. The following potential empirical work comes to mind:

a) Chandler (1962), Ansoff (1966) and Williamson (1975) put great emphasis on the gains in performance to be obtained through the adoption of a multi-divisional form of management structure in place of one arranged according to functions. Channon (1973) has carefully documented the emergence of the M-form structure in major U.K. companies but his study stops short of investigating to what extent this led to an improvement in performance, how long any improvement in performance took to achieve, and whether the adoption of the M-form structure was a response to a decline in performance with an examination of the size of the response threshold. Empirical investigation of these questionsswould form a useful contribution to knowledge.

b) More ambitiously, and probably inclüding the first study as just one section, I would suggest the testing of Singh's (1977) contention that the cumulative causation process has gone so far that Britain's structural problem requires the use of 'unorthodox trade arrangements' (import controls) as a corrective measure and to prevent further deindustrialisation. In Cambridge import controls are often spoke of as though they were a panacea but little attention has been given to the underlying microeconomic questions. A behaviouralist would have strong grounds to be wary of them (see 4a) and to the extent that one accepts Klein's (1977) thesis and also believes that threatened industries have not yet become so fragile that they cannot fight back, one would be suspicious of anything that reduced the pressure for search activities. However Klein's arguments for increased competition as a means to better growth performance do neglect a very important factor - how long it takes firms to change their stances with regard to risk-taking. This may, more than anything else, help to explain the sudden emergence of the U.K.'s structural problem in the 1970s; U.K. firms were slow to respond to the increased competition entailed in E.EC. membership since it is in our trade with the E.E.C. rather than Japan or OPEC (pre North Sea Oil) that our troubles lie. (I am grateful to Andrew Cosh for bringing this little appreciated fact to my attention).

To test the validity of Singh's thesis on cumulative causation it would be necessary to examine the following: i) The net excess downward slope of the learning curves of overseas rivals in the period of falling U.K. market shares in particular industries. ii) How far further along their learning curves the rivals will have got in the gestation periods of new investment and slack removal by U.K. firms. iii) Since demand and market shares are not solely a function of the prices of imports but also of the learning curves of consumers (e.g. as information spreads like a contagious disease) it would be necessary to isolate the roles these have played and will play in allowing import penetration as U.K. performance has declined and affecting the rate at which U.K. market shares may recover with increased domestic competitiveness. The consumer learning curves affect those of the producers by a feedback process. N.b. There are problems of working out learning curves in international markets due to data availability, different pricing strategies and the effects of exchange rate adjustments. It is a lot easier in very large economies like the United States. The Boston Consulting Group report on the U.K. motorcycle industry did not find it impossible, however. iv) Having worked out the performance gap so far and how much it might widen before responses were forthcoming (noting the implications of exchange rate changes as did the motorcycle report) it would be necessary to see whether enough organizational and financial slack existsto overcome the gap and how fast responses would have to be for success to be achieved. Here data is going to be difficult to obtain without getting access to particular companies but useful conclusions might be possible so long as the industries investigated do not consist wholly of poor performers so that leading companies could be taken as yardsticks in assessing the scope for performance improvement. This would essentially involve an updating of the calculations made by Downie (1958) using 1935 and 1948 Census of Production data (in which he received some assistence from the census office to preserve confidntiality). I would imagine that the Business Ratios organization and calculations made for various trade associations and EDCs (e.g. Wool Textile EDC,1969) would be helpful if access to them could be obtained. v) It would also be useful to isolate how far companies have improved their performances already in response to import penetration and the magnitude of the response thresholds so as to answer the question raised by Checkland (see above, 4h) and make further judgments on various policy suggestions such as those in favour of the use of import controls.

Leijonhufvud (1969,1973) asked why multiplier processes often did not appear to work too drastically and concluded that systems only become disaster prone once they have been squeezed dry of buffering. Mindful of the organizational aspects of industrial inertia, I should like to discover whether or not the structural problems of the U.K. have become so critical as to put the economy in that unfortunate situation.

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(With apologies for the left margin stop on my typewriter, typing errors, some incorrect ordering in the Bibliography and the omission therein of

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