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Theories of Economic Development and Growth

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PREFACE

This book is based on courses of lectures to university students in Ghana. The lectures were welcomed and I am encouraged to hope that the book will be useful to students elsewhere.

I found that my students had unusual difficulty with the theories of the Neoclassical economists and consequently expanded my treatment at this point to ensure understanding. Those already familiar with the Neoclassical school may therefore yield to the temptation to skip some pages.

Y.B.

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CHAPTER I

Early Theories

THE MERCANTILISTS

We begin with the age of mercantilism. It was during this period that the 'theological mould' which had shaped the world of the Middle Ages was breaking up. Reason was taking the place of revelation and the criterion of institutions became expediency rather than religious authority. Religion ceased to be the master-interest of mankind[1] and although an objective and passionless economic science developed more slowly than the corresponding movement in the theory of the state, elements of a theory of economic growth were already discernible in early mercantilist writings.

Mercantilism, originally a tern of opprobrium and lacking a clearly defined meaning, came in time to be understood as the expression of a striving after economic power for political purposes.[2] Mercantilist statesmen wanted to use the resources of a unified State 'for strengthening the power of the same in its competition with other states. While the medieval conception of the object of human effort was the salvation of human souls and while economic liberalism, or *laissez faire,* aimed at the temporal welfare of individuals, mercantilist statesmen and writers saw in the subjects of the state means to an end, and the end was the power of the state itself'.[3] Therefore the mercantilist ideas about economic growth were always concerned with aggregates and ignored the possibility that indivi-

[1] For a good and detailed study of this transition see R. H. Tawney *Religion and the Rise of Capitalism*, 1926.

[2] W. Cunningham. *The Growth of English Industry and Commerce*, 1910.

[3] For a general discussion of the term Mercantilism see Eli. F. Heckscher Mercantilism in the *Encyclopedia of Social Sciences*, 1962, Vol. 9/10.

dual and aggregate indicators may run contrary to each other.[4] They never really bothered to analyse the relationship between per-capita and total output and implicitly believed that a country's output was directly related to the size and degree of employment of its labour force. This dual contents of the labour problem at times when real[5] and imaginary[6] fears of declining population were current and, when little increase in per-capita output was evident,[7] dominated much of mercantilist theory on economic growth. A further problem which received no less attention was that of stimulating enterprise. Mercantilists believed in universal egoism.[8] Consequently, they assumed that enterprise would best be served if entrepreneurs were permitted to seek their private interest[9] while the Government merely acted as a corrective agent for channelling 'private benefit' to make it coincide with the advantage of the state.[10] They regarded the entrepreneur as the catalyst of economic progress and were convinced that no effort should be spared to assist him within the framework of the state's pursuit of power. While labour and enterprise were very much in the foreground of mercantilist analysis land was relegated to a far less central position. It was treated like an indirect determinant of trade rather than an independent economic factor. The price of land, the purpose, way, and extent to which it was used were

[4] T. Hobbes appears to be an exception in this respect. See *Leviathan*, Chapters 11-13. More recently a well known American expressed this good mercantilist idea when he stated that 'What is good for General Motors is good for the U.S.'

[5] E. H. Phelps Brown & Sheila V. Hopkins, 'Seven Centuries of Building Wages' *Economica*, 1955; 'Seven Centuries of Prices of Consumables compared with builders' wage-rates,' *Economica*, 1956; & 'Wage-rates and Prices: Evidence of Population Pressure in the Sixteenth Century.' *Economica*, 1957.

Y. S. Brenner, 'The Inflation of Prices in Early Sixteenth Century England' *Economic History Review*. XIV, 1961, pp. 232-34. & 'The Inflation of Prices in England 1551-1650.' *Economic History Review* XV, 1962, p. 284.

[6] M. M. Postan & W. C. Scoville, 'The Spread of Techniques' *Journal of Economic History*. (Supplement) XI, 1951, pp. 339-60.

[7] F. J. Fisher, 'The Dark Ages of Economic History', *Economica*, 1957. Phelps Brown & Sheila V. Hopkins *op. cit.*, 1957.

[8] See F. B. Kaye, *Mandeville. The Fable of the Bees*, 1924, for the same sentiment expressed in the writings of Hobbes, Locke, Erasmus, Spinoza, La Rochefoucauld, Pascal and others.

[9] J. Viner, *Studies in the Theory of International Trade*, 1937. John Hales' 'Discourse of the Common Weal . . .' in R. H. Tawney & Eileen Power *Tudor Economic Documents*, 1924.

[10] N. Machiavelli, *The Prince*, Ch. 15, 17, 21, and *Discourses*, Ch. 2, 4, (I). T. Hobbes, *Leviathan*, Part I.

known to effect wages and the price of raw-materials, i.e. the cost of production of manufactured goods and therefore indirectly – the country's foreign trade. Money and much later capital held a similar position in the mercantilists' order of priorities. Initially, when money still implied gold and silver, its importance was mainly related to the country's balance of trade. Later, however, with the spread of paper money, its significance was recognized with regard to the rate of interest,[11] liquidity for transactions, demand for labour, the importation of foreign raw materials and the aversion from deflation. Eventually, with the progressing spread of new technical discoveries and their application in manufacture[12] there grew the need for ever larger amounts of money for fixed capital which led to mercantilist concern about the real shortage of the latter.

Man's longing for material welfare did not begin with the era of mercantilism nor did the waning of the Middle Ages totally dissipate Christian ethics. There was a gradual change in emphasis through which the ancient vices of avarice and parsimony became 'respectable' by being made subservient to what the mercantilists called the 'public good'. Usury to the medieval man posed a clear cut choice between moral and material welfare, 'he who takes (usury) goes to hell, he who does not – goes to the workhouse'.[13] The merchant of the mercantilist era was spared this choice. He could take usury without forfeiting his 'life hereafter' as long as his actions were not contrary to the mercantilists' public good when they would anyway be forbidden by law. In other words mercantilism no longer derided man's quest for wealth but made it serve public objectives and above all the political power of the state. This

[11] Eli F. Heckscher, *Mercantilism*, 1955, Vol. II, pp. 198-206. J. Viner, *op. cit.*, pp. 31-32, 45-49, and J. M. Low, 'The Rate of Interest British Opinion in the Eighteenth Century', *The Manchester School of Economic and Social Studies*, XXII, 1954, pp. 115-116.

[12] E. F. Heckscher, *op. cit.*, II, p. 126. G. N. Clark, *Science & Social Welfare in the Age of Newton*, 1949. Thomas Pratt, *The History of the Royal Society*, 1667. A. P. Usher, *A History of Mechanical Inventions*, 1954. H. T. Pledge, *Science Since* 1500, 1939. A. R. Hall, *The Scientific Revolution*, 1500-1800. D. C. Coleman, 'Technology and Economic History, 1500-1700', *Economic History Review*, XI, 1959, pp. 506-514.

[13] 'Qui facit usuram vadit ad infernum; qui non facit vadit ad inopiam'. Benvenuto da Imola, *Comentum super Dantis Comeadiam*. Quoted from R. H. Tawney, *op. cit.*, notes to Chapter I.

is the reason for the paradox in the mercantilists' theories of human motivation. They believed that high profits would stimulate and high wages dissuade people from economic activity.[14] On the one hand they decided that man's wants are unlimited and redefined the concept of achievement to make the acquisition of wealth a symbol of social distinction, utility the end of all knowledge[15] and vices the father of all progress;[16] while on the other hand, they assumed that workingmen's wants were constant and limited, and recommended low wages in the conviction that this would force labourers to work hard and long for their existence.[17] Mercantilists further argued that low wages help to augment the labour force by the fuller employment of women and children who would be left with no choice but to seek employment in order to be able to supplement the men's insufficient incomes. This situation, then, would reduce the cost of production of manufactured goods, improve the export trade and as a result strengthen the country politically. So, an inescapable logic led the mercantilists, whose primary concern was the power of the state and not the welfare of its individuals, to the conclusion that economic growth can best be stimulated by the entrepreneur through the promise of good profits and by the worker through the cold fear of starvation. They believed in State Intervention whether to prevent workers from combining to improve their wages or to stifle entrepreneurs appetites for gain where it was not in the 'Public Interest'. Indeed, their theory is contained in the great number of their recommendations for regulating the economy and setting up the necessary institutions to do so. Essentially they wanted taxes and penalties to discourage 'undesirable' operations, and bonuses and privileges to encourage others. Without formalizing it, or even being completely aware of it, they produced something in the nature of fiscal and

[14] In fact this paradox is still with us in its modernised form. We are told that 'wage restraint' is a short-cut on the way to paradise and high profits a sound road to capitalisation. Then as now labour is promised its rewards some time in the future. ('Pie in the Sky' is the name trade unionists give this).

[15] 'Lord Bacon' in *The Works of Lord Macaulay*. (ed. Lady Trevelyan), 1866, VI., p. 204.

[16] Mandeville, *The Fable of the Bees; Or Private Vices, Public Benefits*. Ed. F. B. Kaye, *op. cit.*, I, p. 369, Vol. II, p. 452.

[17] Eli F. Heckscher, *op. cit.*, II, pp. 152-168, & E. Lipson, *The Economic History of England*, III, 1947, pp. 118, 131, 134, 169-172, 180, 248-273.

monetary measures of economic control which through their influence on costs and prices allocated resources in a way congenial to the mercantilist concept of economic progress. They even suggested that the state should take active part in enterprise where and when private enterprise was unable or not willing to take the risk.[18] True to the ancient belief that gold and silver were the 'sinews of war' they constantly stressed the need to increase the country's stock of money. Where no specie could be mined at home or in the colonies it was to be attracted by a favourable balance of trade with other countries and by the clever juggling of the exchange rates.[19] To achieve this the government was to assist trade by bringing about improvements in land and water transport, by the enforcement of the Navigation Acts and Commercial Law, by imposition of duties on the export of raw-materials and the import of manufactured goods, and by prohibiting the admission of luxuries. Manufacture was to be helped by the bestowal of government protection to colonial ventures, by the creation of suitable financial institutions, by Joint Stock company legislation, by protective patents, and by trade monopolies. There was even a suggestion to establish a permanent government agency to control and regulate the country's economy. Together with this, mercantilist writers recommended austerity. They believed that this would be conducive to saving, and saving was thought to be followed by low rates of interest, increased borrowing and more production.[20] Yet, although mercantilist protectionism never took the form of a comprehensive 'theory of growth' notions of such a theory were revealed by the state of mind which underlies their way of thinking. As the middle of the eighteenth century drew closer mercantilist attitudes towards enterprise and labour began to undergo a change. The protectionist restrictions were gradually relaxed and the belief

[18] B. F. Hoselitz, 'Patterns of Economic Growth', *Canadian Journal of Economic and Political Science*, 1955, & Eli Heckscher, *op. cit.*, I, p. 326-455. II, pp. 273-285. In practice we find that in France the state created and supported factories and other economic undertakings. In Russia, Prussia, Austria and the German states many factories were opened directly by the governments (Eighteenth century). And both the Spanish and the Portuguese rulers financed and regulated trade.

[19] Eli Heckscher, *op. cit.*, II, pp. 231-237. B. E. Supple, 'Currency and Commerce in the Early Seventeenth Century.' *Economic History Review*, X, 1957.

[20] This sequence would hardly appeal to a modern economist. Or would it?

that workers' wants were limited withered away in the face of the slowly expanding domestic market for manufactured goods. Grudgingly mercantilist writers discovered that workers' wants are no less expansible than those of their employers and that they too may be stimulated to increase production by the 'love of gain'.[21] The relative labour shortage in the first half of the eighteenth century[22] had already made the policy of low wages impracticable and it was therefore becoming easier to begin recognizing workers' gradually mounting importance as consumers.[23] The progress of technology also played a significant role in bringing about the change in outlook. In the course of the eighteenth century mercantilists recognized the true significance of the new inventions and advised their application in manufacture.[24] These early industrial improvements, which may well have been stimulated by, among other things, the decline in the rate of population growth during the first half of the eighteenth century,[25] transformed mercantilist perceptions about the nature of the labour problem. When in the later part of the century growth gained once more in momentum the mercantilist ideas about the labour force-output relationship had already undergone certain changes. Their main concern by this time was the scarcity of skilled labour rather than the old fear of a general shortage of workers. One solution which they proposed was that the state should make a determined effort to attract skilled immigrants and of course restrain emigration. Another solution was to train the young. The new skills lay to a great extent outside the sphere of restrictions by the old guilds and crafts, and the guilds themselves were already beginning to adapt their system to the new techniques. 'Workhouses' and 'schools' were sometimes used for the 'education' and 'training' of the poor with, needless to say, dismal results. Real education was not recommended for

[21] A. W. Coats, 'Changing Attitudes to Labour in the Mid-Eighteenth Century', *Economic History Review*, XI, 1958. D. C. Coleman, 'Labour in the English Economy of the Seventeenth Century', *Economic History Review*, VIII, 1956. See views of Cantillon, Melon, Berkeley, Cary, Defoe, Steuart and Mandeville.

[22] Y. S. Brenner, *op. cit.*, I, p. 232.

[23] Eli Heckscher, *op. cit.*, II, pp. 152-168. E. Lipson, *op. cit.*, III, pp. 273-278. J. Viner, *op. cit.*, pp. 56-57.

[24] See footnote No. 12, page 3.

[25] Y. S. Brenner, *op. cit.*, I, p. 232.

the poor. Mercantilist writers did not believe that this could solve their problem. They knew only too well that no educated person would willingly become a worker – even a skilled worker – in their age and society.

Although they never grasped the significance of money as a substitute for other factors of production mercantilists were aware of its rôle in the process of economic development. In fact they overstressed its influence. They assumed that investment depended above all on the rate of interest and the rate of interest on the money supply. The latter, however, hinged on the rate of profit and the virtue of thrift.[26] This simple theory, which ignored almost all other influences except that of the quantity of money, greatly contributed to the inflationary trends which developed with the spreading of paper money. Their conception of the dynamics of economic activity was similar to Harvey's (1628) of the circulation of blood in the human body. The rate of interest took the place of the heart/pump and money substituted blood. If money reached the system in adequate supply it would be pumped by low interest rates ('the heart' of the system) into the veins of business enterprise and stimulate all agents of production. Once the latter were fully employed more labour and raw materials would be attracted from outside, sales enlarged and profits increased. Eventually the profits would keep interest rates at a low level, prevent deflation, and stimulate the whole process anew at a higher scale of production.[27] The increasing circulation of paper money and the development of financial institutions and an international system of exchange payments, in the course of the eighteenth century, reduced the importance mercantilists attached to the bullion earning industries.[28] This, however, did not alter the belief that one country's gain must be another one's loss. The competition for specie merely gave way to the competition for raw materials and markets for labour-intensive manufactured goods. A country which imported raw materials and exported manufactures did in mercantilist opinion sustain a double success. In their illusion-

[26] Petty, Davenant and King are very outspoken on this subject.
[27] See footnote No. 12, page 13.
[28] See footnote No. 19, page 15, & J. Johnston, 'The Monetary Theories of Berkeley', *Economic History Review*, III, 1938.

ary world of limited resources and demand, they thought it a good policy to deprive all countries but their own of raw materials and markets. They hoped to prevent others from making full use of labour while they themselves would fully employ their own. As they were under the impression that the size and degree of employment of the working population was the source of the country's strength – they hoped to increase their country's political power by directing resources to the most labour intensive export industries. Their regulative interventionism became gradually more and more determined in this direction and turned away from the earlier preponderance of the scramble for specie. Trade still remained the major source of wealth but wealth no longer merely meant gold and silver. The rising significance of colonies as repositories of raw materials and the monopolization of their trade was in harmony with these relatively newer mercantilist theories. The emphasis which mercantilists placed on trade, and the distinction they afforded those who were engaged in it, undoubtedly contributed to the changes in the social structure and the ideological framework which were gradually taking shape in this period.[39] Their fears that resources would flow from the crucial sectors, trade and manufacture, to the less decisive one, agriculture, forced them to review some of the more sanctified beliefs of medieval society. What emerged was quite revolutionary. The merchant, and particularly the one who was engaged in foreign trade (like Shylock), was to replace the lord of the manor at the head of the social scale. The fact that this point of view was continually stressed by generations of mercantilist writers is in itself evidence that it was never universally accepted. It is evident that in spite of their efforts to dissuade people from investing their earnings, which were most often made in commerce, in the purchase of land – many continued to do just that. They did it because the prestige which came with the ownership of land was slow to disappear and land, then as today, was a relatively very safe investment. The vehemence of mercantilist opposition to investment in land varied of course in accordance with the specific intentions how the money was to be employed. Enclosure, and later technical improvements, were among the least offensive. It

[39] In England the medieval nonsense of titles persists to this very day.

was true that even for these purposes money was diverted from the most favoured activities commerce and manufacture but there was some degree of compensation. Enclosure was believed, and in fact did, stimulate the movement of labour from rural employments to what was taken to be more crucial work in manufacture. Technical innovations were supposed to keep down victual prices. In effect, however, these innovations did not make an impact on agriculture until the end of the eighteenth century. As the mercantilists did not believe in the expansibility of the domestic market through a rise in the standard of living of the working class it was only natural that the only way in which they could envisage agriculture's contribution to the state was in maintaining low prices for food and for some raw materials. In as far as they were concerned with the landowners' welfare they were content to assume that international trade would lead to population growth and the latter to more profits from the sale of foodstuffs and from higher land values.[30] It appears that they were expecting an increase in food production to be accompanied by a constant rate of profit per unit of output and they ignored the likelihood of rising prices.[31] Basically the outlook on agriculture remained the same until the nineteenth century; it was believed to be less expansible than commerce and manufacture and its function was to produce cheap food so that wages and costs of production in manufacture should be low.

For mercantilists then 'Upon the whole, to sum it up in a few words Trade is the Wealth of the World; Trade makes the difference as to Rich and Poor, between one Nation and another; Trade nourishes Industry, Industry begets Trade; Trade dispenses the natural Wealth of the World, and Trade raises new Species of Wealth, which Nature knew nothing of: Trade has two Daughters, whose fruitful Progeny in Arts may be said to employ Mankind; namely *Manufacture* and *Navigation*.'[32] The mercantilist concept of national wealth was one of

[30] This assumption which must appear preposterous to a modern economist in a developed country is far less absurd if one studies similar problems in West Africa.

[31] S. J. Brandenburg, 'The Place of Agriculture in the British Economy . . ' *Journal of Political Economy*, XXXIX, 1931. E. Lipson, *op. cit.*, Ch. II. Eli Heckscher, *op. cit.* F. J. Fisher, *op. cit.*, XXIV, 1957.

[32] Daniel Defoe, 1728.

power and they hoped to gain power by achieving the following objectives: 'increase of population, the protection of agriculture and industry, the economy of low wages, a favourable balance of trade, the development of a colonial system, the accumulation of capital with a resulting low rate of interest and a reform of the revenue system'.[33] Mercantilist notions of economic development focused upon aggregate output – and not on the per capita rate of production and consumption – on power, and not welfare. The people for whom progress was desired were the 'people who mattered', namely merchants, manufacturers and the rich landowners, and not all classes of society. That what was desirable in the one class – the entrepreneurs 'love of gain' – was evil in another. They believed that the world's resources and domestic demand were strictly limited, which led them to the conclusion that low wages are the best incentive to hard work and maximum production, unlike modern economists who study growth in terms of the multiplier and the acceleration principle – i.e. in terms of the rate of expansion of domestic demand. Finally they saw the purpose of economic growth in the sphere of political strength and not in the advancement of equity and welfare.

THE PHYSIOCRATS[1]

Physiocracy was a school of thought which arose in the middle of the eighteenth century and dominated French economic thought for a relatively short period. The name of the movement comes from the Greek word *Phusis* – nature, and the term physiocracy itself means 'government according to natural order'. The founder of the school was F. Quesnay who maintained that society should be ruled according to an inherent natural order, in which soil was the only source of wealth and in which private property and the right to acquire it unmolested by government interference was essential. Physiocrats, in common with many others in their time, believed that the world is governed by a number of simple laws of nature and that it was the duty of mankind to discover these laws and then shape the laws of society to conform to them. Physiocrats dispensed with the study of history, and of the

[33] Eli Heckscher, *Encyclopedia of Social Sciences* (Economics, p. 347).

[1] A good discussion of the subject see J. Higgs, *The Physiocrats*.

intricacy of reality, searching instead for the basic underlying rule or principle. Once the principle was found the rest would explain itself by logical deduction and be proved right by mathematical verification. They were indeed convinced that any idea which was correct could and should be proven by mathematical analysis. In fact, they 'used and abused Cartesian evidence and the rigor of mathematics, and in their writing the geometric mode of reasoning sometimes impaired its finesse' thus, 'disdainful of history and even of a patient study of the contemporary world, they too easily believed that they had ascertained *a priori* absolute laws, to which they ascribed a universality of application matched only by the simplicity of the underlying principles'.[2] In common with the mercantilists they believed in man's universal egoism and in the identity of the public and the private good. They differed, however, from the mercantilists as to the mechanism which was to bring about this harmony between the public and the private interest. Mercantilists allocated to the State the rôle of co-ordinator of the opposed interests; the physiocrats gave it to the natural order of the world, which was supposed to operate through free competition. Private interest is the 'born servant of the general interest' and unrestricted competition 'the mainspring of human perfectibility'.[3] *Ex natura jus*, the natural state of justice, could only come about through equality before the law, which neither is, nor should be, equality in fact, because inequality alone breeds competition which is the source of human progress. In this unlimited adherence to 'freedom' the physiocrats reflected French exasperation with government intervention in economic affairs. No less significant was their disagreement with mercantilism concerning the true source of a country's wealth and the most dynamic sector of the economy. They had little patience with the bullionist theories and none with mercantilist glorification of trade and manufacture. They believed that exchange of real goods for specie was mere folly,[4] and that trade and manufacture were 'sterile'

[2] G. Wenlersse. Economics: 'The Physiocrats', in *Encyclopedia of Social Sciences*, Vol. V-VI, pp. 348-351.

[3] Quoted from G. Wenlersse, *op. cit.*

[4] Because they believed that the country had no need for more money than, at most, one hundred per cent. of its net produce value, and this could anyway be supplied by credit.

employments and had but little net surplus to contribute to the country's economic development. They were convinced that agriculture, and agriculture alone, was truly productive. In fact they could hardly have reached any other conclusion in view of the position of France's economy during the first half of the eighteenth century. Manufacture was stagnating and commerce was ruined by the Seven Year War. However, agriculture had steadily progressed and made France '*un pays de fortune*'. In addition many attributed Britain's prosperity to her agricultural success, while France's backwardness was blamed on Colbert's financial policies, which did of course favour industry and deprived agriculture of capital for its development. Quesnay and his followers wanted to change all this. They wanted the better part of all liquid capital to be invested in agriculture. They wanted working capital ('*Avances annuelles*') to raise current production, fixed capital ('*Avances foncières*') for land clearing and preparation for development, and more capital – as much as the land itself was worth – ('*Avances primitives*') to purchase livestock and agricultural implements. As land was axiomatically the only truly productive factor which was capable of yielding a net surplus its exploitation was to be increased in all dimensions. The '*avances foncières*' were to widen the area of cultivation, the '*avances primitives*' to deepen the process, i.e. to improve the per capita and per acre output, and the '*avances annuelles*' – adding a third dimension – to raise both average production and domestic consumption by all classes; with resulting '*bon prix*' would stimulate the whole process. The natural correlative of '*le bon prix*' was of course the abolition of all taxes with the exception of those payable on land by the proprietary, i.e. landowning, class. Living through a period of growing fiscal distress the physiocrats could not ignore the need for taxation They believed that a land tax would be the least disputable and the most secure source of government income, but that all feudal dues and privileges should be abolished as all other levies which might directly or indirectly contribute to rising prices. Industrial products too should be exempt because their taxation might indirectly affect agricultural costs of production and consequently agricultural prices. As the physiocrats never closely examined the catalytic nature of labour they were

led to overrate quantitative and underrate qualitative value.[5] Land plus work and capital produces a *quantity* of tangible goods. The inputs labour and capital were self-reproducing, and therefore not wasted in the process of production, and brought forth a net surplus. Manufacture added nothing to the total quantity of tangible goods but merely transformed one kind into another. Thus, in the eyes of the physiocrats, it consumed raw materials in the course of a metamorphosis raising their price but not their quantity and value. For this reason it was believed that manufacture was only desirable in so far as it produced the essential day-to-day necessities and implements which were designed to help increase the agricultural net surplus. Hence, commerce and manufacture would and should grow in response to the progress in the agricultural sector of the economy until eventually, owing to the limited supply of land, France's agricultural potential was fully employed. Surprisingly, the physiocrats never recognized the possibility that in response to the stimulus given to domestic consumption 'by rich and by poor', of which they approved, a shift might come about in the pattern of demand, namely that a relatively smaller share of earnings will be spent on foodstuffs and a relatively larger one on manufactured goods. In fact their models, '*Tableaux*' as they were called, were remarkably static and rigid, assuming for example that the value-relationship between manufacturers and raw materials was one to three, i.e. that one milliard's worth of agricultural raw materials would produce three milliards worth of manufactured goods. Similarly they never recognized the function and flow of either enterprise or capital and the forces effecting rates of interest.[6] They were content to relate economic growth to increments in the rate of investment in the various 'avances', to the maintenance of adequate credit, and to technological progress and its application in agriculture. For example Quesnay's '*tableau*' of the desired functioning of the economic system divided the people into three groups: the

[5] This, however, is not entirely true in agriculture, where they recognised that a rise in price may be desirable if due to improvements in the quality of the produce.

[6] R. L. Meek, 'The Physiocratic Concept of Profit', *Economica*, XXVI, 1959, pp. 39-53.

'productive' group which consisted of half the population, farmers, fishermen, miners etc.; the 'sterile' group (one quarter of the population) merchants, manufacturers and people employed in manufacture and the liberal professions; and the 'proprietary' group (the remaining quarter of the population), who were the property owners, landowners, and church and state personnel and their dependents. The productive class (farmers) was expected to produce five milliard livres worth of produce, out of which they were to consume, i.e. use as working capital, two milliards; to pay as rents etc. to the proprietary class (the landowners) another two milliards; and to spend with the sterile class (manufacturers and merchants(the remaining milliard for manufactured goods – particularly for agricultural implements. The proprietary class were expected to spend out of their two milliards income (rents from the productive class) one milliard on agricultural produce and another on the products of the sterile class, with special consideration for investment goods. Finally the sterile class was expected to spend its two milliards of income (one from the productive and one from the proprietary class), half on consumer goods and half on raw materials purchased from the productive class, which they were then to transform into three milliards' worth of manufactured goods, which was again to be divided one milliard's worth to each class.[7] In summary Quesnay's model valued total consumption and expenditure at nine milliard livres, out of which farmers and their dependents consumed (2 + 1) and paid out rents (2) five milliards; land and property owners and their dependents consumed two (1 + 1) milliards; and artisans and merchants with their dependents also consumed two (1 + 1) milliards. The value of production in the same model, though admittedly Quesnay never added it up in this form, amounts to five milliards from the productive class: two milliards' worth of 'good advice' from the proprietary class; and two milliards' worth of manufactured goods from the sterile class (with an additional milliard which this class supposedly used on the raw materials worked up in their

[7] See A. Phillips, 'The Tableau Economique as a Simple Leontief Model', *Quarterly Journal of Economics*, LXIX, 1955, pp. 137-144.

products).[8] The circular flow of inputs and output in their models was supposed to be self-sustaining as long as no extraneous forces upset it. Thus their theory of growth was dominated by the progress of the three annual rates of reproduction, which themselves were the product of the various 'avances', i.e. of the agricultural surplus. As the 'avances' were reckoned to yield about 250 per cent, to sustain constant growth, it was merely necessary to prevent downward fluctuations in demand expenditure. If, however, fluctuations of this sort should occur they were to be eliminated through reductions in expenditure with the 'sterile' class. It was then tacitly assumed that the relatively greater demand of that class's produce would have a self-adjusting effect through rising prices. 'Physiocratic theory suggests that it is upon capital formation, more than upon anything else, that economic development depends, although the importance of applied science and technological improvements is recognized, as is the importance of good institutions. Such improvements presumably follow in the wake of increasing investment. However, it was only in agriculture that capital and applied science had important roles to play.'[9] Hence, the main force behind economic growth must be capital formation and its investment in agriculture

[8] As there appears to be some disagreement about the interpretation of Quesnay's Table, I add for comparison the following analysis which refers to a society comprising three million families of four persons each as summarised by Edmund Whittaker in his book *Schools and Streams of Economic Thought*, 1960, p. 87.

Input and Output of Agriculture

Input		*Output*	
Annual advances	600 Mill	Food for landowners	300 Mill
Finished industrial goods	300 Mill	Food for Industrials	300 Mill
		Raw materials for Indust.	300 Mill
(Rents to Landowners 600 Mill).		Own annual advances	600 Mill

Input and Output of Industry

Annual advances	300 Mill	Manufactures for Agra.	300 Mill
Raw materials from Agra.	300 Mill	Manufactures for L. Own.	300 Mill
Food from agriculture	300 Mill	Annual advances	300 Mill

Input and Output of Landowners

Food from agriculture	300 Mill	Nil.	
Manufactures from Ind.	300 Mill	"	
		(Perhaps deforesting?)	
Total:	2,400+600 Mill. Livres.		2,400 Mill

[9] J. J. Spengler, *Theories of Economic Growth*, 1960, pp. 60-61.

followed by the application of science.[10] Any increase in the rate of investment in one or more of the '*avances*', any improvement in the quality and hence in the price of an agricultural product, any reduction in unnecessary impositions and taxes, anything that will prevent the wasting of money on hoarding, manufactured goods, and foreign exploits, will therefore promote economic development. In addition to this Physiocrats did not believe in the unqualified blessings of population growth[11] because they were aware of the difference between aggregate and *per capita* output. They were not particularly concerned with foreign markets because their prime interest was the domestic market and therefore the rise in real per head income; they were against the scramble for specie because they believed that credit was as good as money, and they were against monopolies because they were convinced that competition was the best guide to rentability. Finally they were sure that free private enterprise, rather than the state enterprise, will lead towards the desired harmony of public and individual welfare.

[10] Francois Quesnay (1694-1774), *Tableau economique*. See also Anne-Robert Jacques Turgot, Baron de Laune (1727-1781), *Reflexions sur la formation et la distribution des richesses*. Pierre Samuel du Pont de Nemours (1739-1817), Pierre Francois Mercier de la Riviére (1720-1793), Jean Claude Vincent de Gournay (1712-1759), Victor Riqueti, Marquis de Mirabeau (1715-1789) - in short the contributors to the *Encyclopédie* in 1756/7.

[11] See P. E. Vincent, 'French Demography in the Eighteenth Century', *Population Studies*, I, 1947, pp. 44-71.

CHAPTER II

The Classical Economists

ADAM SMITH (1723-1790)

Although the classical school of economists[1] cannot be called a school in the sense of 'an alliance of persons, a community of ideas, an acknowledged authority and a combination in purpose'[2] they were, however, united by a general similarity of principles and methods. Adam Smith is considered the founder of the school. He was the first to study inductively the economic structure as a whole and to outline some basic principles which underly the system and the way they determine each other. These basic principles, which were common to all classical economists are the postulates that 'liberty and property are the keystones of every rational economic order and the claim that political economy resembles a natural science in the universal applicability of its laws'.[3]

Like the Physiocrats Adam Smith believed that the study of man's 'own advantage naturally, or rather necessarily leads him to prefer that employment which is most advantageous to the society'.[4] And like his teacher Hutcheson[5] he believed in 'a divinely ordained harmony of egoistic and altruistic impulses in man . . .'[6] in that self-love always finds itself circumscribed

[1] The classical school of economists (1776-1857): Adam Smith, David Ricardo, Thomas Robert Malthus, James Mill, John Stuart Mill, John Elliott Cairnes, and (in France) Jean Baptiste Say.

[2] Henry Higgs, *The Physiocrats*, London, 1897, p. 3. Quoted from Karl Diehl in the *Encyclopedia of Social Sciences*, Vol. V. (Economics), pp. 351-357.

[3] Karl Diehl, *op. cit.*, pp. 351-2.

[4] *An Inquiry into the True Nature and Causes of the Wealth of Nations*, 1776, (ed. E. Cannan, 1961), Bk. IV, Ch. II, p. 475.

[5] F. Hutcheson, *An Essay on the Nature and Conduct of the Passions and Affections*, 1728, Ed London, 1730, pp. 193-4.

[6] *The Theory of Moral Sentiments*, 1759, and *Lectures on Justice, Police, Revenue and Arms*, 1763.

by love for one's fellows. Smith explains this apparently naïve theory by unravelling what he believed to be the basic motives in man's psychology.[7] Namely, that man's actions are determined by the social values of his society. That man does things or refrains from doing them because of his desire for the approval of his fellow men. Therefore, he believed, that there is a natural limit to man's material egoism, because the acquisition of unbounded wealth is not the real object of the universal egoism but merely one of the means to the end. 'The rich man, (merely) glories in his riches, because he feels that they naturally draw upon him the attention of the world . . .'[8] which is what he actually wanted, and which he may lose by being too avaricious whereas 'the poor man . . . is ashamed of his poverty . . .' What man really wishes is happiness and happiness is not always synonymous with wealth. 'In what constitutes the real happiness of human life' beggars may in no respect be 'inferior to those who would seem so much above them . . .'[9] and this real happiness consists in the esteem in which one is held by others and in health, freedom from debt and in a clear conscience.[10] So, Smith arrives at the same idea as the Physiocrats, that nature itself converts private quest for gain to the public good because human vanity is flattered by the acquisition of wealth and 'it is this deception which rouses and keeps in continual motion the industry of mankind . . . It is this which first prompted them to cultivate the ground, to build houses . . . invent and improve all the sciences and arts, which ennoble and embellish human life . . .'[11] It is still the 'consideration of his own private profit (which) is the sole motive which determines the owner of any capital to employ it either in agriculture, in manufactures, or in some particular

[7] *The Theory of Moral Sentiments*, 1759, with a second edition in 1790 called '*The Theory of Moral Sentiments; or An Essay, Towards an Analysis of the Principles by which Men Naturally Judge Concerning the Conduct and Character, first of their Neighbours, and afterwards of Themselves*'.

[8] *Ibid.*, (2nd Ed.), pp. 120-125.

[9] *Ibid.*, p. 467.

[10] *Ibid.*, p. 107. This idea does in fact underly capitalist justification of inequality. Whether the poor accept it or not is of course a different matter. To suffer hunger with a clear conscience may be as trying as to suffer hunger with no conscience at all. Truly, it may be easier to have a clear conscience and good health on a full stomach than on an empty one.

[11] *Ibid.*, p. 464.

branch of the . . . trade'[12] but, the study of this, his own advantage, leads him to the employment which is most beneficial to all,[13] because through profits he will learn of the demand, i.e. the requirements, of his society. The Physiocrats 'natural order of things' returns in Smith in the form of the 'Invisible Hand'. The rich cannot consume more than anyone else so their only advantage is that they can select the best but then, 'in spite of their natural selfishness and rapacity . . . they are led by an invisible hand to make nearly the same distribution of the necessaries of life, which would have been made had the earth been divided into equal portions among all its inhabitants',[14] because the rich man is obliged to exchange the surplus of his food with those who can provide him with his other needs.[15] In fact Smith was convinced that because of this machination of the invisible hand the rich man 'by pursuing his own interest . . . frequently promotes that of the society more effectively than when he really intends to promote it'.[16] Truly, mere benevolence could only falsify the flow of resources from where they were most usefully employed according to the rule of natural order. The same does of course apply to Mercantilist interference with the natural order of things. Here Smith was in complete agreement with the Physiocrats but he rejected their theory that agriculture was the only productive employment, although he too may have held the view that agriculture was relatively more important than other occupations.[17] About trade, Smith observed that 'it is the maxim of every prudent master of a family never to attempt to make at home what it will cost him more to make than to buy' and therefore 'what is prudent in the conduct of every private family can scarce be folly in that of a great kingdom . . .'[18] 'every system,' he wrote,[19] 'which endeavours,

[12] *Wealth of Nations*, Bk. II, Ch. V. [13] *Ibid.*, Bk. IV, Ch. II, p. 475.

[14] *The Theory of Moral Sentiments*, pp. 465-466. Here, it seems, the influence of Hutcheson who believed in benevolence is replaced by the physiocratic idea of self-interest.

[15] Recently a Ghanaian told me that the class structure in Ghana should not upset me because the rich give employment to the poor and so everyone is happy.

[16] *Wealth of Nations*, Bk. IV, Ch. II, Vol. I, p. 477-8.

[17] *Ibid.*, Bk. IV, Ch. IX, Vol. II, p. 195.

[18] *Ibid.*, Bk. IV, Ch. II, Vol. I, p. 478.

[19] *Ibid.*, Bk. IV, Ch. IX, Vol. II, p. 208.

either, by extraordinary encouragements, to draw towards a particular species of industry a greater share of the capital of the society than what would naturally go to it; (as the physiocrats proposed to do) or, by extraordinary restraints, to force from a particular species of industry some share of the capital which would otherwise be employed in it; (as the mercantilists did) is in reality subversive of the great purpose which it means to promote. It retards, instead of accelerating, the progress of the society towards real wealth and greatness.'

Smith was of course concerned with economic growth and although he never developed a growth theory as such it is intrinsic in his general principles. Reviewing the 'theories' of his predecessors on this subject he wrote 'The different progress of opulence in different ages and nations has given occasion to two different systems of political economy, with regard to enriching the people. The one may be called the system of commerce (mercantilism), the other that of agriculture.' (physiocrats)[20] Each of the systems was related to the historical and economical environment of its time and place and hence, Smith concludes, there are indeed, objective limitations to economic growth arising out of the degree of accessibility of resources and the spread of technology. These determinants, resources and technology, are, however, liable to undergo changes with the passage of time and the same is true of the nature of demand.[21] His approach here is very different from the physiocrats circular flow, it is a belief in continuous progress. He is convinced that *specialization* leads to economic growth because it will improve the 'dexterity of the workman' which will of necessity 'increase the quantity of work he can perform . . .';[22] will save 'time commonly lost in passing from one sort of work to another';[23] and 'Thirdly, and lastly, (it will permit) the application of proper machinery . . .'[24] There is, however, one aspect of specialization which is not conducive to public advantage. It 'destroys intellectual, social and martial virtues unless government takes pains to prevent it . . . The man whose whole life is spent in performing a

[20] *Ibid.*, Bk. IV. Introduction, p. 444.
[21] *Ibid.*, Bk. III, Ch. I, Vol. I, pp. 401-406.
[22] *Ibid.*, Bk. I, Ch. I, p. 11. [23] *Ibid.*, Bk. I, Ch. I, Vol. I, p. 12.
[24] *Ibid.*, Bk. I, Ch. I, Vol. I, p. 13.

few simple operations . . . has no occasion to exert his understanding . . . He naturally loses, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become. The torpor of his mind renders him, not only incapable of relishing or learning a part in any rational conversation, but of conceiving any generous, noble or tender sentiment . . .'[25] and it is therefore both in the interest of the individual and of the general public to provide for his education.[26]

Smith's intrinsic conception of the stimulus to economic development through the division of labour goes far beyond the mere quantitative growth of production. It forecasts the expansion of investment and markets which must occur at each stage of new progress which the division of labour brings about.[27] Growth, he believed, also precipitates conditions for increasing demand owing to man's unlimited desire for more and better things. He was sure that '. . . When by the improvement and cultivation of land the labour of one family can provide food for two, the labour of half the society becomes sufficient to provide food for the whole. The other half, therefore, . . . can be employed in providing other things, or in satisfying the other wants and fancies of mankind . . . what is over and above satisfying the limited desire, is given for the amusement of those desires which cannot be satisfied (i.e. manufacturers), but seem to be altogether endless. The poor, in order to obtain food, exert themselves to gratify those fancies of the rich, and to obtain it more certainly, they vie with one another in the cheapness and perfection of their work. The number of workmen increases with the increasing quantity of food, or with the growing improvement and cultivation of the

[25] *Ibid.*, Bk. V, Ch. I, Pt. III, Art. II, Vol. II, p. 303.

[26] Although as a rule Smith disapproves of government intervention he concedes its necessity where self-interest cannot effectively remedy a situation. The other cases, except education, where Smith approves of government intervention are: The fixing of a ceiling for the rate of interest (5%) (*Wealth*. Bk. II, Ch. IV, Vol. I, p. 379). Taxation where the subject ought to pay 'as nearly as possible, in proportion to their respective abilities; that is, in proportion to the revenue which they respectively enjoy under the protection of the state . . ' (*Wealth*. Bk. V, Ch. II, Art. II, Vol. II); The defence of the Realm; The maintenance of law and justice and public works which cannot be regarded as directly profit yielding for any private individual. (*Ibid.*, Bk. IV, Ch. IX, Vol. II, p. 208).

[27] *Ibid.*, Bk. I, Ch. III, pp. 21-25 and Bk. I, Ch. V, pp. 34-42.

lands; and as the nature of their business admits of the utmost subdivision of labour, the quantity of materials which they can work up, increases in a much greater proportion than their numbers. Hence arises a demand for every sort of material which human invention can employ, either usefully or ornamentally, in building, dress, equipage, or household furniture . . .'[28] Smith was of the opinion that progress in agriculture was slower than in manufacture because the former did not lend itself to the same degree of specialization as the latter, this, however, would not put agriculture at a disadvantage vis-à-vis manufacture because the relative diminution of labour employed there would raise the prices of agra-products whereas the higher specialization in industry would reduce the exchange value of manufactured goods. 'It is the natural effect of improvement . . . to diminish gradually the real price of almost all manufactures . . . in consequence of better machinery, of greater dexterity, and of more proper division and distribution of work, . . . a much smaller quantity of labour becomes requisite for executing any particular piece of work; and though, in consequence of the flourishing circumstances of the society, the real price of labour should rise very considerably, yet the great diminution of the quantity will generally much more than compensate the greatest rise which can happen in the price.'[29] Therefore, '. . . every improvement in the circumstances of the society tends either directly or indirectly to raise the real rent of land, to increase the real wealth of the landlord, his power of purchasing labour, or the produce of the labour of other people. The extension of improvement and cultivation tends to raise it (and so does) . . . the rise in the real prices of those parts of the rude (raw) produce of land, which is first the effect of the extended improvement and cultivation, and afterwards the cause of their being still further extended. . .' Smith concludes; that 'All those improvements in the productive powers of labour, which tend directly to reduce the real price of manufactures, tend indirectly to raise the real rent of land. The landlord exchanges that part of his rude produce, which is over and above his own consumption, or what comes to the same

[28] *Ibid.*, Bk. I., Ch. XI. Pt. II. Vol. I, pp. 182-3.
[29] *Ibid.*, Bk. I., Ch. XI. Pt. III. Vol. I. p. 269.

thing, the price of that part of it, for manufactured produce. Whatever reduces the real price of the latter, raises that of the former. An equal quantity of the former becomes thereby equivalent to a greater quantity of the latter; and the landlord is enabled to purchase a greater quantity of the conveniences, ornaments, or luxuries, which he has occasion for.'[30]

The main point, then, in Smith's ideas about growth is specialization of labour. This specialization would be continually stimulated by the intervention of the 'invisible hand which is revealed in the interaction of demand and supply. For this, however, all artificial obstructions to trade must be removed. The process of capital formation which becomes necessary to sustain the economic growth through specialization is less clear in Smith's writings. It appears that he left it up to the merchant-entrepreneur to sacrifice so much of his present enjoyment as will enable him to save the funds for the required investments.[31] Smith seems to have believed that the whole annual produce of the land and labour of every country was immediately divided into two parts: One was used to replace the capital which the business enterprise had supplied in the form of equipment, raw materials, and subsistence for the workers and the other became profit and rent. He assumed that 'Every increase or diminution of capital, . . . naturally tends to increase or diminish the real quantity of industry . . . (and that) Capitals are increased by parsimony and diminished by prodigality and misconduct. Whatever a person saves from his revenue he adds to his capital, and either employs it himself in maintaining an additional number of productive hands, or enables some other person to do so, by lending it to him for an interest, that is, for a share of the profits . . . parsimony, and not industry, is the immediate cause of the increase of capital. Industry, indeed, provides the subject which parsimony accumulates. But whatever industry might acquire, if parsimony did not save and store up the capital would never be greater . . .'[32] So, far from subscribing to the Mercantilist view that high wages reduce productivity Smith states that 'The liberal reward of labour, as it encourages the propagation,

[30] *Ibid.*, Bk. I., Ch. XI. (Conclusions), Vol. I. p. 275.
[31] *The Theory of Moral Sentiments*, 1759, pp. 259-260.
[32] *Wealth*, Bk. I., Ch. IX. Vol. I. p. 109.

so it increases the industry of the common people. The wages of labour are encouragement of industry, which, like every other human quality, improves in proportion to the encouragement it receives. A plentiful subsistence increases the bodily strength of the labourer, and the comfortable hope of bettering his condition, and ending his days perhaps in ease and plenty, animates him to exert that strength to the utmost.'[33] For the real source of capital, however, Smith looks at the entrepreneur class and looking around him he could not have failed to notice the favourable climate for their growth. 'The poor man's son,' he wrote in *The Theory of Moral Sentiments*, 'whom heaven in its anger has visited with ambition, when he begins to look around him admires the condition of the rich. . . . To obtain the conveniences which these afford, he submits in the first year, nay, in the first month of his application, to more fatigue of body and more uneasiness of mind than he could have suffered through the whole of his life from the want of them.' However, although, as it seems, Smith disapproves, from the moral point of view, of the 'poor man's son's' efforts, he admits that economically they are highly desirable because they keep 'in continual motion the industry of mankind . . . which . . . prompted them to cultivate the ground, to build houses, to found cities and commonwealths, and to invent and improve all the sciences and arts, which ennoble and embellish human life; . . .'[34] Again, the invisible hand of nature turns private vices or dillusion to the general good.

Needless to say, Smith had no patience with colonial policies or any other monopolistic practices: 'Exclusive companies . . . are nuisances in every respect; always more or less inconvenient to the countries in which they are established, and destructive to those which have the misfortune to fall under their government.'[35] And by comparing the fortunes of the various colonies[36] Smith comes closest to stating something in the nature of a general theory regarding the economic development of under-developed countries. This is when he discusses the progress of the English colonies in North America. 'There

[33] *Ibid.*, Bk. I., Ch. III. Vol. I. p. 91.
[34] *The Theory of Moral Sentiments*, 1759, pp. 259-264.
[35] *Wealth*. Bk. IV., Ch. VII. Pt. III.
[36] *Ibid.*, Bk. IV., Ch. VII. Pt. II. & III. pp. 101, 103-4, 107, 131, 141, 150-2, 157.

are no colonies of which the progress has been more rapid than that of the English in North America.' He wrote, and giving the causes for this he continued: 'plenty of good land, and liberty to manage their own affairs their own way, seem to be the two great causes of the prosperity of all new colonies . . . the political institutions of the English colonies (in America) have been more favourable to their improvement and cultivation of this land, than those of any of the other three nations (Spain, Portugal and France). First, the engrossing of uncultivated land . . . has been more restrained (by the) colony law which imposes upon every proprietor the obligation of improving and cultivating, within a limited time, a certain proportion of his lands, and which, in case of failure, declares those neglected lands grantable to any other person . . . Secondly, . . . no right of primogeniture, and lands like moveables are divided equally among all children of the family . . . The plenty and cheapness of good land, . . . are the principal causes of the rapid prosperity of the new colonies. The engrossing of land, in effect, destroys this plenty and cheapness . . . Thirdly, the labour of the English colonists is not only likely to afford a greater and more valuable produce, but in consequence of the moderation of their taxes, a greater proportion of their produce belongs to themselves, which they may store up and employ in putting into motion a still greater quantity of labour. . . .'[37] Finally the trade monopoly of the mother country has been less oppressive in English America than in all other colonies.

DAVID RICARDO (1772-1823)

David Ricardo's *Principles of Political Economy and Taxation* was first published in 1817. 'The scheme took shape through 1815. By 1816 it was well under way, and in October of that year Ricardo sent Mill a draft covering what are now the first seven chapters . . , that is the chapters concerned with basic theory.'[1] There can be little doubt that these chapters were written under the impression of the two and a

[37] *Ibid.*, Bk. IV., Ch. VII. Pt. II. pp. 83-4.

[1] M. P. Fogarty, Introduction to *The Principles of Political Economy and Taxation*, by David Ricardo, Everymans, 1962, p. VI.

half decades[2] during which Britain experienced the economic ill effects of bad terms of trade, war and inflation. It was during this period that wages 'limped slowly behind the cost of living (and) the standard of living of the workers was lowered'.[3] Ricardo was, however, also old enough to remember the last decade of the period before the outbreak of the revolution in France when the working-class was gaining considerably from the increased productivity, through the cheapening of manufactured goods and the general economic prosperity.[4] Finally, there is good reason to believe that his most optimistic ideas on economic growth which find expression in the Chapter 'On Machinery' (XXXI) may well have been written in 1816 or 1817 when the tide of economic depression had turned and the new period of slow recovery begun.[5]

In the *Principles*[6] Ricardo formulated the first dynamic theory of economic growth and although his fundamental idea, 'The model of Ricardian economics' seems to imply the acceptance of the Malthusian principle that mankind is doomed to suffer the consequences of the collision of diminishing returns from land with population growth, this does not in fact represent his views accurately. His concern with the long-term problems of economic growth in the developed countries, his efforts to find a system which would correlate the different rates of growth of agriculture and manufacture within their relative stages of technology and population growth, must surely indicate that he believed that given the right institutional framework the Malthusian day of judgement need not be inevitable.[7] Ricardo believed that economic progress hinged upon capital formation and capital formation on the produc-

[2] From close to the outbreak of the French Revolution of 1789 to the end of the Napoleonic Wars in 1815.

[3] T. S. Ashton, *The Industrial Revolution* 1760-1830, 1948, p. 150. E. H. Phelps Brown & Sheila V. Hopkins. Two articles reprinted from *Economica*, 1955 & 1956, on Builders' Wage-Rates in *Essays in Economic History* (ed., E. M. Carus-Wilson), Vol. II 1962, pp. 186 and 196.

[4] E. J. Hobsbawm, 'The British Standard of Living, 1790-1850', *Economic History Review*, 1957, p. 46, & Phelps Brown & Hopkins, *op. cit.*, pp. 186, 196.

[5] A. J. Taylor, 'Progress and Poverty in Britain, 1780-1850: A Reappraisal', in *Essays in Economic History* (ed., Carus-Wilson), Vol. III, 1962, pp. 380-393.

[6] David Ricardo, *The Principles of Political Economy and Taxation*, (See Ft. (1)).

[7] J. M. Letiche, *Theories of Economic Growth*. (ed., B. F. Hoselitz, 1960), p. 76.

tivity of labour. Hence he concluded that the value of all goods depends upon the relative quantity of labour necessary for their production[8] and the rate of profit earned for that capital which is locked up without bringing in revenue until the goods can be sold.[9] He was quite explicit that it was not the greater or less compensation which is paid for labour which effects the value of goods but the quantity of labour, which is admittedly more difficult to assess.[10] This quantity, however, was understood to include not merely 'the labour applied immediately to the commodities . . . but (also) the labour . . . which is bestowed on the implements, tools, and buildings, with which such labour is assisted.'[11] To prevent any confusion, Ricardo made a clear distinction between value and price. He was aware that in the short run and as a rule the latter need not reflect the former, or even the relationship between the values of various commodities, but in the long run because of the existence of an inbuilt regulative mechanism – which modern economists would identify as the price mechanism of perfect competition – prices will always tend to conform with value. 'In making labour the foundation of the value of commodities and the comparative quantity of labour which is necessary to their production, the rule which determines the respective quantities of goods which shall be given in exchange for each other' Ricardo warns his readers 'not . . . to deny the accidental and temporary deviations of the actual or market price of commodities from this, their primary and natural price', because 'In the ordinary course of events there is no commodity which continues for any length of time to be supplied precisely in that degree of abundance which the wants and wishes of mankind require, and therefore there is none which is not subject to accidental and temporary variations of price. It is only in consequence of such variations that capital is apportioned precisely, in the requisite abundance and no more, to the production of the different commodities which happen to be in demand. With the rise or fall of price, profits are elevated

[8] This idea made him the father of the labour theory of value.

[9] See Letter of David Ricardo to John Ramsay McCulloch, 1816-1832. (Ed. J. H. Hollander, N.Y. 1895), p. 71.

[10] Ricardo, *Principles*, Ch. I, p. 5.

[11] *Op. cit.*, Ch. I. p. 13.

above, or depressed below, their general level; and capital is either encouraged to enter into or is warned to depart from, the particular employment in which the variation has taken place.'[12] Continuing this idea, Ricardo explains in terms strongly reminiscent of more recent Marginal-Analysis theories, how these adjustments which will bring price into line with value are coming about. 'Restless desire on the part of all employers of stock to quit a less profitable for a more advantageous business has a strong tendency to equalize the rate of profits of all, or to fix them in such proportions as may, in the estimation of the parties, compensate for any advantage which one may have, or may appear to have over the other.' Ricardo admits that it is 'very difficult to trace the steps by which this change is effected; it is probably effected by a manufacturer not absolutely changing his employment, but only lessening the quantity of capital he has in that employment'.[13]

Having stressed the importance Ricardo allotted to capital and labour in the process of the creation of value we must now turn to his rent theory in order to understand his views on economic growth. 'Rent' in Ricardo's scheme of things, 'is that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil' and which must not be confused with 'the interest and profit of capital' and what is in popular language called rent, namely 'whatever is annually paid by a farmer to his landlord'.[14] If land were available in abundance so that anyone could cultivate it there would be no rent, 'for no one would pay for the use of land when there was an abundant quantity not yet appropriated, and, therefore, at the disposal of whosoever might choose to cultivate it . . . If all land had the same properties, if it were unlimited in quantity, and uniform in quality, no charge could be made for its use . . . It is only, then, because land is not unlimited in quantity and uniform in quality and because, in the progress of population, land of an inferior quality, or less advantageously situated, is called into cultivation, that rent is ever paid for the use of it. When, in the progress of society, land of the second degree of fertility is taken into cultivation, rent immediately commences on that

[12] *Op. cit.*, Ch. IV. p. 48.
[13] *Ibid.*, Ch. IV. p. 48.
[14] *Ibid.*, Ch. II. p. 33.

of the first quality, and the amount of that rent will depend on the difference in the quality of these two portions of land. . . .'[15] Therefore rent in Ricardo's definition 'is always the difference between the produce obtained by the employment of two equal quantities of capital and labour' on two different pieces of land of similar size and location.[16] He included, however, among the 'original and indestructible powers of the soil' the 'inseparably amalgamated' capital – i.e. the *avances foncières*.[17] The stress here is on the term 'inseparable', meaning only such improvements to the land which do not require periodical renewal.

Having defined rent and separated land from capital, Ricardo examines the application of the latter to the former. Population pressure, he argues, will have a dual effect on agriculture: it will spread cultivation on to less and less fertile land and it will lead to the application of capital – i.e. to the intensification of husbandry. Thus, he regards the expansibility of agriculture progressing in two dimensions, on the one hand a widening of the cultivated area and on the other a deepening of its productive capacity. Most important, however, he recognizes the possibilities inherent in the second dimension. He speculates that even before land of third rate quality will be used it may prove more profitable to invest capital in the improvement of first quality land. In his own words: 'Before No. 2 . . . or the inferior lands are cultivated, capital can be employed more productively on those lands which are already in cultivation.'[18] He is of course aware of the fact that the application of capital to land is also subject to diminishing returns. 'It may perhaps be found that by doubling the original capital employed on No. 1 (land), though the produce will not be doubled, will not be increased by 100 quarters, it may be increased by eighty-five quarters . . .' but even so it puts the Malthusian day of judgement very far off. How much at any given time cultivation would extend on to poorer land, and how far expenditure of capital would be pushed on better land, depended on the demand for food, or as Ricardo put it, on the size of the population. The latter, however, he believed to be a direct function of the level of real wages. 'Labour, like all other things which are purchased and sold, and which may be

[15] *Ibid.*, Ch. II. pp. 34-35.
[16] *Ibid.*, Ch. II. p. 36.
[17] *Ibid.*, Ch. XVIII. p. 174.
[18] *Ibid.*, Ch. II. p. 36.

increased or diminished in quantity, has its natural and its market price. The natural price of labour is that price which is necessary to enable the labourers, one with another, to subsist and to perpetuate their race, without either increase or diminution . . .'[19] '. . . The market price of labour is the price which is really paid for it . . . Labour is dear when it is scarce and cheap when it is plentiful. However much the market price of labour may deviate from its natural price, it has, like commodities, a tendency to conform to it.'[20] 'It is,' Ricardo explained, 'when the market price of labour exceeds its natural price . . . that (the labourer) has it in his power to command a greater proportion of the necessaries and enjoyments of life, and therefore to rear a healthy and numerous family. When, however, by the encouragement which high wages give to the increase of population, the number of labourers is increased, wages fall to their natural price, and indeed from a reaction sometimes fall below it. When the market price of labour is below its natural price, the condition of the labourer is most wretched: The poverty deprives them of those comforts which custom renders absolute necessaries. It is only after their privations have reduced their number, or the demand for labour has increased, that the market price of labour will rise to its natural price . . .'[21] This brings Ricardo to the main theme of the problem, namely how to eliminate or at least to reconcile these fluctuations in the labourers' standard of living with economic growth. His answer is that 'Notwithstanding the tendency of wages to conform to their natural rate, their market rate may, in an improving society, for an indefinite period, be constantly above it; for no sooner may the impulse which an increased capital gives to a new demand for labour be obeyed, that another increase of capital may produce the same effect; and thus, if the increase of capital be gradual and constant, the demand for labour may give a continued stimulus to an increase of people . . . Capital is that part of the wealth of a country which is employed in production, and consists of food, clothing, tools, raw materials, machinery, etc. necessary to give effect to labour . . . Capital may increase in quantity at the same time that its value rises

[19] *Ibid.*, Ch. V. p. 52.
[20] *Ibid.*, Ch. V. p. 53.
[21] *Ibid.*, pp. 52-53. Ch. V.

. . . Or capital may increase without its value increasing. . . In the first case, the natural price of labour . . . will rise; in the second . . . it will remain stationary or fall; but in both cases the market rate of wages will rise . . . In both cases, too, the market price of labour will rise above its natural price; and in both cases it will have a tendency to conform to its natural price, but in the first case . . . a trifling increase in the population, will soon reduce the market price to the then increased natural price of labour . . . In the second case, the condition of the labourer will be very greatly improved . . . but the permanence of the improvement will depend on the specific circumstances.[22] The most important point, however, is that thanks to the improved productivity with each new stage of investment the natural price of labour will rise. As Ricardo says, 'It is not to be understood that the natural price of labour, estimated even in food and necessaries, is absolutely fixed and constant. It varies at different times in the same country, and very materially differs in different countries. It essentially depends on the habits and customs of the people.'[23] 'An English labourer,' Ricardo continues, 'would consider his wages under their natural rate, and too scanty to support a family, if they enabled him to purchase no other food than potatoes, and to live in no better habitation than a mud cabin; yet these moderate demands of nature are often deemed sufficient in countries where "man's life is cheap" . . . Many of the conveniences now enjoyed in an English cottage would have been thought luxuries at an earlier period of our history. From manufactured commodities always falling and raw produce always rising, with the progress of society, such a disproportion in their relative value is at length created, that in rich countries a labourer, by the sacrifice of a very small quantity only of his food, is able to provide liberally for all his other wants.'[24]

Basically, then, Ricardo foresaw but two solutions to his problem; either a decline in the rate of population growth, or, an acceleration of capital formation. 'In those countries where there is abundance of fertile land, but where, from the ignorance, indolence, and barbarism of the inhabitants, they are

[22] *Ibid.*, pp. 53-54. (For the better understanding of this argument it is very desirable to read the two pages in full).
[23] *Ibid.*, Ch. V. pp. 54-55. [24] *Ibid.*, Ch. V. pp. 53-55.

exposed to all the evils of want and famine, and where it has been said that population presses against the means of subsistence, a very different remedy should be applied from that which is necessary in long settled countries, where, from the diminishing rate of the supply of raw produce, all the evils of a crowded population are experienced . . . In the one case, the evil proceeds from bad government, from the insecurity of property, and from a want of education . . .' and therefore, 'to be made happier they require only to be better governed and instructed, as the augmentation of capital, beyond the augmentation of people, would be the inevitable result . . . In the other case (that of the developed countries), the population increases faster than the funds required for its support. Every exertion of industry, unless accompanied by a diminished rate of increase in the population, will add to the evil, for production cannot keep pace with it'.[25] Therefore, 'It is a truth which admits not a doubt that the comforts and well-being of the poor cannot be permanently secured without regard on their part, or some effort on the part of the legislature, to regulate the increase of their numbers, and to render less frequent among them early and improvident marriages . . .'[26] Short of this, the solution is rather more complicated. Only '. . . if the improved means of production, in consequence of the use of machinery, should increase the net produce of a country in a degree so great as not to diminish the gross produce – I mean always quantity of commodities and not value – then the situation of all classes will be improved'.[27] 'The landlord and capitalist will benefit, not by an increase of rent and profit, but by the advantages resulting from the expenditure of the same rent and profit on commodities very considerably reduced in value, while the situation of the labouring classes will also be considerably improved; First, from the increased demand for menial servants; secondly, from the stimulus to savings from revenue which such an abundant net produce will afford; and thirdly, from the low price of all articles of consumption on which their wages will be expended.'[28] This quotation comes, however, at the end of a description of the most likely, and gloomy prospects of the

[25] *Ibid.*, Ch. V. pp. 56-57.
[26] *Ibid.*, Ch. V. p. 61.
[27] *Ibid.*, Ch. XXXI. pp. 267-268.
[28] *Ibid.*, Ch. XXXI. p. 268.

working class in the event that the improvements of machinery should not be significant enough to increase both the net and the gross product of the country. Ricardo argues that for a long time he was convinced that the application of labour saving machinery to any branch of production was to the general good and would merely be accompanied by the inconvenience which generally attends the removal of capital and labour from one employment to another. Provided the landlords had the same money rents as before they would thanks to the labour saving machinery benefit from the reduction in prices of some of the commodities on which they spend those rents. The capitalist class too would eventually benefit in precisely the same manner and the labour class would gain from the use of machinery, as they would have the means of buying more commodities with the same money wages, which would not be reduced because the capitalist would wish to employ the same quantity of labour as before, although, it might be, in the production of new, or, at any rate, different commodities. Yet, and Ricardo stresses this point, it is also possible that the substitution of machinery for human labour may be 'very injurious' to the interest of the working class. He claims that 'the supposition that whenever the net income of a society increased, its gross income would also increase' was wrong.[29] '. . . the one fund from which landlords and capitalists derive their revenue, may increase, while the other, that upon which the labouring class mainly depend, may diminish, and therefore it follows . . . that the same cause which may increase the net revenue of the country may at the same time render the population redundant, and deteriorate the condition of the labourer'.[30] For example, a capitalist may employ £20,000 in a joint business of manufacture and agriculture. He may invest £7,000 in fixed capital, i.e. buildings, equipment, etc., and the remaining £13,000 in working capital. During the year the capitalist will then sell to his workmen £13,000 worth of food and other necessaries in exchange for the £13,000 of their wages. At the end of the year, therefore, he will have in his possession £13,000 wages or food and necessaries for the following year and, say, £2,000

[29] So it appears that 'what is good for General Motors' may not be so good for the American people after all.

[30] Ricardo, *Principles*, Ch. XXXI. pp. 263-264.

profit for his own pleasures. The capitalist's gross product for that year will thus be £15,000 and his net produce £2,000. Supposing that in the following year the capitalist employs half his men in constructing a machine, and only the remaining half continue to produce food etc. Again his wages will be £13,000 and again he would sell food and other necessaries for the same amount to his workmen. So far all is well, but in the third year things would take a different shape. In the second year when the machine was being made, only half of his usual quantity of food and necessaries was produced, and therefore only half of the normal quantity of these products could be sold. Consequently, the capitalist would only have half the amount of circulating capital in the third year, and this would obviously force him to reduce the quantity of labour in his employ. He himself would still have £7,500 worth of machine and £7,500 worth of food, necessaries or wages but his circulating capital, after the deduction of £2,000 for profit, would be reduced to £5,500. In other words, although the capitalist would still have his net income of 22,000 (7,500-machine, 5,500-wages, 2,000-profit, and 7,000-original fixed capital) the gross income of the nation would be reduced from £13,000 to £5,500, and labour which was previously employed for £7,500 would become redundant. Obviously the capitalist is merely interested in his net income, but the power of supporting a population, and employing labour, must always depend on the gross produce of the nation. Therefore, unless the improvements in mechanical production are powerful enough to absorb continually the newly redundant labour, and this is a consequence of the rate of capital formation, 'the use of machinery may be attended with a diminution of the gross produce, and whenever that is the case, it will be injurious to the labouring class. . . .'[31] Finally, Ricardo also adds that 'Independently of the consideration of the discovery and use of machinery . . . the labouring class have (also) no small interest in the manner in which the net income of the country is expended, although it should, in all cases, be expended for the gratification and enjoyments of those who are fairly entitled to it.'[32] Above all, Ricardo concludes his discussion of machinery, 'The statements which I have made will not, I

[31] *Ibid.*, Ch. XXXI. pp. 264-266. [32] *Ibid.*, Ch. XXXI. p. 268.

hope, lead to the inference that machinery should not be encouraged. To elucidate the principle, I have been supposing that improved machinery is suddenly discovered and extensively used; but the truth is that these discoveries are gradual, and rather operate in determining the employment of the capital which is saved and accumulated than in diverting capital from its actual employment. With every increase of capital and population food will generally rise, on account of its being more difficult to produce. The consequence of a rise of food will be a rise of wages, and every rise of wages will have a tendency to determine the saved capital in a greater proportion than before to the employment of machinery. Machinery and labour are in constant competition, and the former can frequently not be employed until labour rises.'[33]

THOMAS ROBERT MALTHUS (1766-1834)

The fame of Thomas Malthus rests mainly on two contributions to classical economic thought, neither of which was entirely original but each of which received widespread popularity through his writings. These are his population theory[1] and his contribution to the rudiments of the theorems of classical economic dynamics.[2]

The population theory – his *Essay* – first appeared in 1798 and was written in a fighting spirit[3] against W. Godwin and all other 'Utopians' and 'Utopias' since Condorcet.[4] The proclaimed object of the book was 'I, to investigate the causes that

[33] *Ibid.*, Ch. XXXI. p. 270.

[1] *An Essay on the Principle of Population*, 1798, with revised editions in 1803, 1806, 1807, 1817, 1826. (Quotations in this discussions, unless stated otherwise, are from the 7th edition (1872) re-printed in 1960 in Everyman's Library, No. 692-3.

[2] *Principles of Political Economy considered with a view to their Practical Application*, 1820, and 2nd edition in 1836.

[3] *Essay*, first edition, pp. 10-11. 'A writer may tell me that he thinks man will ultimately become an ostrich. I cannot properly contradict him. But before he can expect to bring any reasonable person over to his opinion, he ought to show, that the necks of mankind have been gradually elongating; that the lips have grown harder and more prominent; that the legs and feet are daily altering their shape; and that the hair is beginning to change into stubs of feathers. And till the probability of so wonderful a conversion be shewn, it is surely lost time and lost eloquence to expatiate on the happiness of man in such a state . . . '

[4] *Esquisse d'un tableau historique des progres de l'esprit humain.*

have hitherto impeded the progress of mankind towards happiness; and, II, to examine the probability of the total or partial removal of these causes in future.'[5] However, as to enter fully into these questions, 'and to enumerate all the causes that have hitherto influenced human improvement, would be much beyond the power of an individual', Malthus confined his examination to 'the principal object', namely 'the constant tendency in all animated life to increase beyond the nourishment prepared for it'.[6]

The casual reader of the book is first struck by its gloomy atmosphere: this impression never leaves him. As Professor Michael Fogarty puts it; it is an impression 'that one ought to be careful and rather self-centred, much concerned with raising the standard of living, not very interested in the propagation of life or, indeed, in any other dynamic activity such as might disturb the comfort of a just pre-Victorian home'.[7] This atmosphere seems, indeed, to reflect the climate of cultural change during the reorganization of society in early industrial Europe. More depressing, however, is the artless effort to propagate middle-class 'self-respect' in the working class as a solution to its economic problems. Malthus, the Church of England clergyman, is using the language of the fire and brimstone preacher of his time, to teach that if the workingman's standard of living is to be raised he must be made to feel the burden of his extra children and must be made aware that his welfare depends upon what he himself could earn and save. Neither the language nor the content – the rejection of charity and of social security – helps to make the Essay less gloomy reading.[8] To penetrate this atmosphere and discover the general principles of Malthus' analysis requires careful study: these principles are less depressing and more sophisticated than a merely superficial impression suggests.

Malthus was concerned with two problems, one general and the second specific. The first was the tendency of world popula-

[5] *Essay*, Bk. I. Ch. I. p. 5. [6] *Ibid.*, Bk. I. Ch. I. p. 5.

[7] Malthus, *Essay on the Principle of Population*, Everyman Edition, 1960, p. XVII.

[8] When in another age Maxim Gorky put forward a not dissimilar idea - that charity was wrong because it degrades the receiver and prevents him from demanding what was his by right - the tone and spirit was so different from that of Malthus that far from gloomy it sounded inspiringly optimistic.

tion to increase more rapidly than its capacity to produce food. The second was the inability of certain nations and classes, in various periods of their history, to provide for themselves. He portrayed the first and general problem in the famous and too often misquoted statement '. . . that population, when unchecked, goes on doubling itself every twenty-five years, or increases in a geometrical ratio'.[9] Food production, however, by any imaginable possible 'exertions of mankind' was unlikely to increase at a similar rate.[10] Therefore, Malthus concludes, taking the world as a whole 'the human species would increase (if unchecked) as the numbers, 1,2,4,8,16,32,64,128,256, and subsistence as 1,2,3,4,5,6,7,8,9'. This means that 'In two centuries the population would be to the means of subsistence as 256 to 9; in three centuries as 4096 to 13, and in two thousand years the difference would be almost incalculable.'[11] Hence he believed that 'population invariably increases where the means of subsistence increase, unless prevented by some very powerful and obvious checks', of which the limited means of subsistence is the most outstanding.[11] In his own words; '. . . the checks which repress the superior power of population and keep its effects on a level with the means of subsistence, are all resolvable into moral restraint, vice, and misery'.[12] This means that Malthus's ratio of population growth was assumed to be true only in a 'society in which war has been abolished and all preventable diseases prevented; in which all economic deterents to early marriage have been removed, and in which artificial limitation of the family is not practised'.[13] As for the growth of the means of subsistence, the arithmetical ratio, he merely supposed that 'it would be contrary to all our knowledge of the properties of land' that its produce could be quadrupled within twenty-five years.[14] Even in England and

[9] *Essay*, Bk. I. Ch. I. p. 8. [10] *Ibid.*, Bk. I. Ch. I. p. 10.

[11] *Ibid.*, Bk. I. Ch. I. pp. 10-11. Malthus's geometrical ratio, the doubling every twenty-five years of world population was based on certain records of what had happened in North America, 'where the means of subsistence have been more ample, the manner of the people more pure, and the checks to early marriages fewer than in any of the modern states of Europe . . . ' *Essay*, Bk. I. Ch. I., p. 7 and also footnote I, p. 286.

[12] *Ibid.*, Bk. I. Ch. I. p. 19 (i.e., the natural checks on 'demographic explosions' are: Malthus, syphilis and starvation).

[13] G. F. McCleary, *The Malthusian Population Theory*, (London 1953), p. 105.

[14] *Essay*, Bk. I. Ch. I. p. 9.

Scotland, 'where there is still a great portion of uncultivated land', and 'where the science of agriculture has been much studied' and where circumstances were the most favourable to improvement, Malthus had doubts whether even 'by the best possible policy, and great encouragement to agriculture, the average produce of the island could be doubled in the first twenty-five years'.[15] Thus, 'moral restraint, vice, and misery' become the agents by which nature adjusts population growth to the supply of food. Malthus was familiar with eighteenth century humanist doctrines; as a priest of the Church of England he represents the strong religious reaction against them in the early nineteenth century. It is hardly surprising therefore, that he felt it necessary to explain the paradox that the hand of God upon earth is revealed through 'vice, and misery'. His explanation discloses a mixture of teleological philosophy and ideas, current in his time, about the revelation of the will of God in the 'Law of Nature'. 'We cannot but conceive that it is an object of the Creator, that the earth should be replenished; and it appears to me clear that this could not be effected without a tendency in population to increase faster than food . . . The desire of the means of subsistence would be comparatively confined in its effects, and would fail of producing that general activity so necessary to the improvement of the human faculties, were it not for the strong and universal effort of population to increase with greater rapidity than its supplies. If these two tendencies were exactly balanced, I do not see what motive there would be sufficiently strong to overcome the acknowledged indolence of man, and make him proceed in the cultivation of the soil.'[16] In other words Malthus said that 'Natural and moral evil seem to be the instruments employed by the Deity in admonishing us to avoid any mode of conduct which is not suited to our being, and will consequently injure our happiness.'[17] As man in his opinion was really 'inert,

[15] *Ibid.*, Bk. I. p. 9. See also N. W. Senior *Political Economy* (1836) who maintained that Malthus was wrong 'if it be conceded that there exists in the human race a natural tendency to advance from barbarism to civilisation, and that the means of subsistence are proportionately more abundant in a civilised than in a savage state, and neither of these propositions can be denied, it must follow that there is a natural tendency in subsistence to increase in a greater ratio than population.'

[16] *Ibid.*, (1st Edition). Bk. IV. Ch. I. pp. 446-7. [17] *Ibid.*, pp. 151-2.

sluggish and averse from labour unless compelled by necessity',[18] 'evil exists in the world, not to create despair, but activity. We are not patiently to submit to it, but to exert ourselves to avoid it'.[19]

What then does Malthus mean by 'moral restraint, vice, and misery'? Taking them in reversed order 'misery' implies a deterioration of the standard of living followed by disease, infant mortality, famine, discontent, and irresponsibility which will lead to bad government, civil strife and foreign war. 'The positive checks to population,' as Malthus called them, 'are extremely various, and include every cause, whether arising from vice or misery, which in any degree contributes to shorten the natural duration of human life. Under this head, therefore, may be enumerated all unwholesome occupations, severe labour and exposure to the seasons, extreme poverty, bad nursing of children, great towns, excesses of all kinds, the whole train of common diseases and epidemics, wars, plague, and famine.'[20] 'Vice' according to Malthus's definition implies 'promiscuous intercourse, unnatural passions, violations of the marriage bed, and improper arts to conceal the consequences of irregular connections'.[21] The evils which follow vice, he thought, are but too conspicuous. 'A promiscuous intercourse to such a degree as to prevent the birth of children seems to lower, in the most marked manner, the dignity of human nature. It cannot be without its effect on men, and nothing can be more obvious than its tendency to degrade the female character, and to destroy all its most amiable and distinguishing characteristics. Add to which, that among those unfortunate females, with which all great towns abound, more real distress and aggravated misery are, perhaps, to be found than in any other department of human life. When a general corruption of morals, with regard to the sex, pervades all the classes of society, its effects must necessarily be to poison the springs of domestic happiness, to weaken conjugal and parental affection, and to lessen the united exertions and ardour of parents in the care and education of their children – effects which cannot take place without a decided diminution of the general happiness and virtue of the society; particularly as the

[18] *Ibid.*, pp. 356-367. [19] *Ibid.*, pp. 394-396.
[20] *Ibid.*, Bk. I. Ch. II. pp. 13-14. [21] *Ibid.*, Bk. I. Ch. II. p. 13.

necessity of art in the accomplishment and conduct of intrigues, and in the concealment of their consequences, necessarily leads to many other vices.'[32] In summary all the 'positive checks' to population growth and happiness which Malthus mentioned were man made rather than the wish of God. They could be averted if people acted rationally. 'One of the principal reasons which have prevented an assent to the doctrine of the constant tendency of population to increase beyond the means of subsistence, is a great unwillingness to believe that the Deity would by the laws of nature bring beings into existence, which by the laws of nature could not be supported in that existence. But if, in addition to that general activity and direction of our industry put in motion by these laws, we further consider that the incidental evils arising from them are constantly directing our attention to the proper check to population, moral restraint; and it appears that, by a strict obedience to the duties pointed out to us by the light of nature and reason, and confirmed and sanctioned by revelation, these evils may be avoided, the objection will, I trust, be removed, and all apparent imputation on the goodness of the Deity be done away.'[33] Therefore, Malthus continued, 'the virtue of chastity is not . . . a forced produce of artificial society; but that it has the most real and solid foundation in nature and reason; being apparently the only virtuous means of avoiding the vice and misery which result so often from the principle of population. . . . If the custom of not marrying early prevailed generally, and if violation of chastity were equally dishonourable in both sexes, a more familiar and friendly intercourse between them might take place without danger. . . . As it appears, therefore, that it is in the power of each individual to avoid all the evil consequences to himself and society resulting from the principle of population by the practice of a virtue clearly directed to him by the light of nature, and expressly enjoined in revealed religion; . . . It is the apparent object of the Creator to deter us from vice by the pains which accompany it, and to lead us to virtue by the happiness that it produces'.[34] So, in fact, Malthus's only solution to the general problem, namely the assumed excess of

[32] *Ibid.*, Bk. I. Ch. II. p. 13. [33] *Ibid.*, Bk. IV. Ch. II. p. 160.
[34] *Ibid.*, Vol. II. Bk. IV. Ch. II. pp. 160-167.

population growth over food production, was the postponement of marriages in a viceless society. He did not approve of contraception, as was sometimes suggested by modern writers,[25] and he did not foresee the revolutionary improvements in agricultural production. In other words he was certainly wrong about the rate of growth of 'man's subsistence'. In Ghana for example, the Seven-Year Development Plan 1963/64 to 1969/70[26] foresees an increase in agricultural production of 'over a third' and productivity 'by upwards of 4 per cent a year'. This means that in twenty-five years the produce of the land would have more than doubled. In North America the average per annum increase in food supplies was for a long period about two and a half per cent, and most other American and African countries experienced increases of one and a half to two per cent over the last decades. On good authority it appears quite possible that in the world as a whole an increase of two to three per cent per annum may well be achieved over a long period. Hence the verdict about this part of Malthus's argument must be that he underestimated the rate of improvement in both intensive and extensive agriculture, did not correctly assess the progress of technology and the scope for capital investment and planning in agriculture.

As for Malthus's 'unchecked' population growth theory it appears that he was not very far off the mark. For example, in Ghana over the last two decades population has increased at a rate of about 2.7 per cent per annum and is expected to increase further by approximately 19.7 per cent during the coming seven years.[27] Similarly, in Europe between 1835 and

[25] It is not true that Malthus lived long before birth control as is sometimes said. In fact various means of contraception were well known in his time. See, Chapter VIII., 'Malthus and Contraception,' in G. F. McCleary. *op. cit.* pp. 83-99. Michael Fogarty in his introduction to the *Essay* writes: 'Humanists as well as Catholics . . . can accept his doctrine of the natural law but many Reformed theologians, to-day and in the past, deny that the law to be read out of nature, as apart from the rulings of Scripture, can be a reliable guide to right conduct on sex or anything else. Some of them, and many humanists, would also put the "exquisite gratifications of virtuous love", as a purpose of sex, at least on a level with the having of children. They would deny that a husband and wife who shut off the possibility of children by contraception, in order to make easier to express their love for one another by intercourse, are preventing sex from fulfilling its primary purpose, or doing anything in any way unnatural or wrong'.

[26] Planning Commission Ghana. p. 54.

[27] Ghana, *Seven Year Development Plan*, *op. cit.*, p. 54.

1845 the annual rate of increase was about 2 per cent; whereas in Britain during the nineteenth century as a whole the population growth was far greater, approaching 3.5 per cent annually.[28] This accretion of the population in nineteenth century Europe and in our own days in some of the underdeveloped countries is mainly due to considerable reductions in the death rates. It appears in fact that in the historical development of countries or regions towards industrialization four stages of population growth are clearly discernible. In the initial stage both birth and death rates are relatively high but check each other. In the second stage when the society just begins to show signs of industrial progress, death rates fall very considerably while birth rates continue unchecked at the previously established high rate. This is of course the period when population growth is highest and comes closest to Malthus's unchecked geometrical ratio. In the following third stage death rates continue to fall but birth rates no longer increase and begin to show signs of decline. Finally in the fourth and highly industrialized stage – in our modern economy – death rates continue to fall slightly but birth rates are checked considerably by 'moral restraint' and even more so by what Malthus would certainly have called 'Vices'.[29] Thus, population growth takes the form of a logistic curve rather than, as Malthus assumed, an exponential curve.

If we now turn from the first and general to the second and specific of Malthus's problems we find that the relative shortages of victuals is not merely a world problem of significance in some distant future but has immediate ramifications which vary from country to country and from class to class. From the geographical point of view food supplies may be inadequate to sustain a growing population in countries with poor educational conditions, which lack capital, have a low technical standard of equipment and suffer from bad political government and social structures. From the point of view of social stratification the relationship between available food supplies

[28] See T. H. Marshall, 'The Population Problem during the Industrial Revolution', *Economic History* I, 1929, 4, and 'The Population of England and Wales from the Industrial Revolution to the World War', *Economic Age, Review*, V, 1935, 2.

[29] F. W. Notestein, 'The Revolution of Human Fertility . . .' *Modernisation Programs in Relation to Human Resources and Population Problems*, 1950.

and population growth must depend upon economic factors like income distribution, fluctuations in employment, the balance between industry and agriculture, social insurance, methods of payments to wage earners, patterns of demand and social customs and habits. All these complicated factors, so Malthus believed, had to be studied together and in relation to each other dynamically in order to be able to understand the 'specific' population problem. He was quite clear that in this more limited sense the disproportion between the supply and demand for food in developed countries was rather a cultural than a raw economic problem, in fact that it was a cultural problem which was subject to highly dynamic evolutionary influences. Malthus was convinced that the best society was the one dominated by a large middle class not only because 'the middle part of society are most favourable to virtuous and industrious habits, and to the growth of all kinds of talents –' but also because even a relatively small increase in their expenditure, one extra child, would endanger their social status. This was not the case with the upper class nor so obviously clear with the working class. He explained this point in some detail in his chapter on the checks to population in England. 'A man of liberal education, with an income only just sufficient to enable him to associate in the rank of gentlemen, must feel absolutely certain that, if he marry and have a family, he shall be obliged to give up all his former connections. The woman whom a man of education would naturally make the object of his choice, is one brought up in the same habits and sentiments with himself, and used to the familiar intercourse of a society totally different from that to which she must be reduced by marriage. Can a man easily consent to place the object of his affection in a situation so discordant, probably, to her habits and inclinations? Two or three steps of descent in society, particularly at this round of the ladder, where education ends and ignorance begins, will not be considered by the generality of people as a chimerical, but a real evil . . . These considerations certainly prevent many in this rank of life from following the bent of their inclinations in an early attachment . . . The sons of tradesmen and farmers are exhorted not to marry, and generally find it necessary to comply with this advice, till they are settled in some business or farm, which may enable

them to support a family. These events may not perhaps occur till they are advanced in life . . . Among the clerks in counting-houses, and competitors for all kinds of mercantile and professional employment, it is probable that the preventive check to population prevails more than in any other department of society. The labourer who earns eighteen pence or two shillings a day, and lives at ease as a single man, will hesitate a little before he divides that pittance among four or five which seems to be not more than sufficient for one. . . .'[80]

Education, then, Malthus believed, was the key to the solution of the working class's economic problems. Once the workers were educated to think rationally about public problems such as that of population – and were trained in responsibility and self control and acquired 'that respectability', they would become aware that their poverty sprang from the excess of the supply over the demand for labour, and they would refrain from early marriages. The obvious way of securing the operation of the prudential check to marriage with the lower classes of society, Malthus thought, 'is to endeavour to infuse into them a portion of that knowledge and foresight which so much facilitates the attainment of this object in the educated part of the community'.[81] The best chance for accomplishing this would be 'by the establishment of a system of parochial education' where 'in addition to the usual subjects of instruction' considerable stress should be laid on the explanation of the real state of the lower classes of society as affected by the principle of population, and where in the 'course of time a few of the simplest principles of political economy could be added to the instruction'. Obviously, Malthus was convinced that only a rational society can bring about reforms without anarchy. 'The poor,' he wrote, 'are by no means inclined to be visionary. Their distresses are always real, though they are not attributed to the real causes. If these causes were properly explained to them, and they were taught to know what part of their present distress was attributable to government, and what part to cause totally unconnected with it, discontent and irritation among the lower classes of people would show themselves much less fre-

[80] *Essay*, Bk. II. Ch. VIII. pp. 236-237.
[81] *Ibid.*, Bk. IV. Ch. IX. pp. 210-211.

quently.'[83] Once therefore the lower classes realize that by making scarce the commodity which they produce (through their own lack of prudence, as Malthus believed), namely children, and so more hands on the market, their economic conditions will be greatly improved. The advance of modern technology' will then not only help to reduce their misery but also permit them to share in society's prosperity. 'In an attempt to better the condition of the labouring classes of society,' Malthus suggested that our object should be to raise the standard of wretchedness below which people would not continue to propagate their species 'as high as possible, by cultivating a spirit of independence, a decent pride, and a taste for cleanliness and comfort. The effect of a good government in increasing the prudential habits and personal respectability of the lower classes of society has already been insisted on; but certainly this effect will always be incomplete without a good system of education; and, indeed, it may be said that no government can approach to perfection that does not provide for the instruction of the people . . .'[84]

Hence, Malthus never relinquished his era's attitude to workers that they were dependents of a kind, with a good right to protection and with a duty of subservience to 'their betters'.[85] Malthus most certainly denied that they had any right to food and employment. He consistently maintained that the 'most permanent cause of poverty has little or no direct relation to forms of government or the unequal division of property', because it was the result of population pressure, and therefore, 'as the rich do not in reality possess the power of finding employment and maintenance for the poor, the poor cannot, in the nature of things, possess the right to demand them.[86] In conclusion, Malthus believed that 'though our future prospects respecting the mitigation of the evils arising from the principle of population may not be so bright as we could wish, yet they are far from being entirely disheartening, and by no means preclude that gradual and progressive improvement in human society . . . which was the object of rational expectation. To the laws of property and marriage, and to the apparently

[83] *Ibid.*, Bk. IV. Ch. IV. p. 191. [84] *Ibid.*, Bk. IV. Ch. IX. p. 215.
[85] A view still very common among the educated class in West Africa to-day.
[86] *Ibid.*, Bk. IV. Ch. XIV. p. 260.

narrow principle of self-interest which prompts each individual to exert himself in bettering his condition, we are indebted for all the noblest exertions of human genius, for everything that distinguishes the civilized from the savage state. A strict inquiry into the principle of population obliges us to conclude that we shall never be able to throw down the ladder by which we have risen to this eminence; but it by no means proves that we may not rise higher by the same means. The structure of society, in its great features, will probably always remain unchanged. We have every reason to believe that it will always consist of a class of proprietors and a class of labourers; but the condition of each, and the proportion which they bear to each other, may be so altered as greatly to improve the harmony and beauty of the whole. It would indeed be a melancholy reflection', Malthus concludes his Essay on the Principle of Population, 'that, while the views of physical science are daily enlarging, so as scarcely to be bounded by the most distant horizon, the science of moral and political philosophy should be confined within such narrow limits, or at best be so feeble in its influence, as to be unable to counteract the obstacles to human happiness arising from a single cause'.[88]

So, self-respect, self-development, and self-restraint, are in fact the only suggestions Malthus proposed in his 'Essay' for the improvement of the economic conditions of the uprooted industrial and depressed farm workers. His economic ideas developed much later than his population theory. His 'Principles of Political Economy' were not published before the 'Essay on the Principle of Population' had already appeared in five editions. He never understood the elasticity of demand for wage goods, and therefore, and because of his preoccupation with the population problem, he was led to believe that any increase in output of such goods must almost invariably result in reduced profits because of the inelasticity of the supply of labour. Therefore Malthus believed that an increase in production must, in the short run, press on the supply of labour and raise wages and consequently diminish profits. The higher wages, however, he thought, would reduce the labour supply – for reasons which modern economists would associate with a backward-sloping labour supply curve. This combina-

[88] *Ibid.*, Bk. IV. Ch. XIV. pp. 261-262.

tion of higher costs and a reduced labour supply would in turn reduce profits, which must finally lead to a diminution of investment. If, however, the higher wages should lead to population growth rather than to a diminished supply of labour, then, after a time-lag, when the new-born labour-force eventually reaches the market, wages will fall again and profits rise. Thus the process of economic growth, as Malthus conceived of it, was one of continual oscillation between disaster and improvement around the working class's subsistence level. It is in fact a theory of short-run adjustments or equilibria which may well govern long-run processes of growth. Malthus's main concern was therefore with preventing short-term upswings, or what he would have considered to be premature rises in wage rates, and the ensuing falls in profit which would lead to static rather than dynamic equilibria. In his *Essay* Malthus showed the high elasticity of the supply of labour; in his *Principles* he introduced the forces which modify this elasticity, namely the time lags. Hence what Ricardo did for the one aspect of economic growth – capital formation – Malthus did for the other – labour.

JOHN STUART MILL (1806-1873)

The Principles of Political Economy[1] by John Stuart Mill was first published in 1848, within a few months of the publication of the first *Communist Manifesto* by Karl Marx and Friedrich Engels. Mill's work is divided into five parts – production, distribution, exchange, the influence of the progress of society on production and distribution, and the role of government. His historical analysis was greatly influenced by Adam Smith; both agree on the significance of the division of labour and the role of government in promoting economic growth. His theoretical approach was similar to that of David Ricardo; he shared many of the latter's ideas concerning capital accumulation. From Malthus he took some notions on population and wages, and on the role of education in furthering welfare. Yet his major contribution to the theory of economic development, which links his work to that of modern theories of economic

[1] ***Principles of Political Economy with some of their Application to Social Philosophy, 9th Edition.***

growth is his integrated dynamic conception of a socio-economic system, that is to say, the integration of non-economic determinants with purely economic factors.

In the *System of Logic*[2] Mill defined economics in the spirit of Comte's sociological historicism as the science concerned with man's pursuit of wealth. On the one hand this definition limited the subject to only one aspect of the variety of social phenomena, but on the other it introduced into it the complication of psychological motivation. Because this human psychological element was assumed to be subject to changing cultural influences, Mill deprived political economy of its relevance as a means for the prediction of future development. The best that could be expected from the study of political economy in a world of cultural change was the encouragement or discouragement of prevailing tendencies. There were of course certain socio-economic relationships, similarities, sequences and causations, which could be studied and formulated as empirical laws of social behaviour,[3] and even proved statistically, but they could only become meaningful for the understanding of economic progress if related to laws of human nature. Thus, to Mill, economics was a moral science which must begin from *a priori* deductive assumptions based on induction and observation, without experimentation but with the possibility of eventual verification. Mill's political economy was concerned with both ends and means, or 'art' and 'science' as he termed it. 'Art' in his system determined the aims, whereas 'science' indicated the way to their realization.[4]

Mill's *Principles of Political Economy*[5] was written with similar objects in mind, and with the same general conception, as the *Principles of Political Economy* of Adam Smith, but it was 'adapted to the more extended knowledge and improved ideas of the present age'. Reviewing the 'remarkable differences in the state of different portions of the human race, with regard to the production and distribution of wealth', Mill sought the causes of these diversities. He declared that it was not a 'sufficient explanation to ascribe them exclusively to the

[2] *System of Logic*, London, 1865, 6th Ed. (1st Ed. 1843).
[3] *Ibid.*, III, Ch. 15/16 & II, pp. 508-511, 528-530.
[4] *Ibid.*, (6th Ed.) VI, Ch. XII.
[5] *Principles of Political Economy* to be referred to as *Principles*.

degrees of knowledge possessed at different times and places, of the laws of nature and the physical arts of life', because in reality 'many causes co-operate' and the 'very progress and unequal distribution of physical knowledge are partly the effects, as well as partly the causes, of the state of production and distribution of wealth'. Therefore, in so far as the economical conditions of nations turn upon the state of physical knowledge, it is the subject for the physical sciences' and not of economics. But in so far as the causes are moral or psychological, 'dependent on institutions and social relations, or on the principles of human nature, their investigation belongs not to physical, but to moral and social science, and is the object of what is called Political Economy'.

The production of wealth, Mill argued, was not an arbitrary thing. 'It has its necessary conditions. Of these, some are physical, depending on the properties of matter, and on the amount of knowledge of those properties possessed at the particular place and time . . ,' but other necessary conditions are related to human nature, and these are the subject matter of political economy. Hence, it is the object of economics to 'trace the secondary or derivative laws,[6] by which the production of wealth[7] is determined; in which must lie the explanation of the diversities of riches and poverty in the present and past, and the ground of whatever increase in wealth is reserved for the future'.[8]

However 'unlike the laws of Production, those of Distribution are partly of human institution: since the manner in which wealth is distributed in any given society, depends on the statutes or usages therein . . . But though governments or nations have the power of deciding what institutions shall exist, they cannot arbitrarily determine how those institutions shall work. The conditions on which the power they possess over the distribution of wealth is dependent, and the manner in which the distribution is effected by the various modes of

[6] 'Derivation Laws' means the 'middle principles' derived from the 'highest generalisations' which are the intermediate between ultimate laws and 'empirical laws resulting from simple observations' (*System of Logic*, II, pp. 453-455).

[7] Wealth means 'all useful or agreeable things except those which can be obtained, in quantity desired, without labour or sacrifice'. *Principles*, p. 9.

[8] *Ibid.*, Introduction, pp. 20-21.

conduct which society may think fit to adopt, are as much a subject for scientific enquiry as any of the physical laws of nature'.[9] For the examination of these laws of Production and Distribution and 'some of the practical consequences deducible from them', Mill's treatise was written.

Reality, as Mill saw it, showed a great variety of social conditions and diversity in degree of economic development in different countries. He assumed that a causal relationship existed between economic and social forces, as well as an interdependence between the various social conditions themselves within each society. He further assumed that social structures could not co-exist arbitrarily, at random, but were mutually conditioning so that some could and others could not prevail at one and the same time in a given community. This sort of order-within-anarchy was described by the term 'consensus'.[10] As economic forces which result from man's quest for wealth alone are relatively independent of 'consensus' they may be, at least theoretically, isolated and examined – provided one was fully aware of, and took into account, the peculiarities of time and place. This consideration for time and place was absolutely necessary because the 'empirical laws of human nature' were different in various parts of the world,[11] and bred a variety of 'modes of government'. In *Representative Government* and in *On Liberty*[12] Mill declared that there are conditions of society in which a 'vigorous despotism is in itself the best mode of government for training the people in what is specifically wanting to render them capable of a higher civilization' – While there are also other social conditions where despotism had no beneficial but rather retarding effects. The factors which moulded the 'human nature' in each society were economic, cultural (beliefs, customs, habits of thought), and institutional. In his *System of Logic*[13] Mill reaches the conclusion that the political system best conducive to economic progress was one

[9] *Ibid.*, p. 21.

[10] *System of Logic*, II, pp. 487-490, 504-505.

[11] For example one could talk of maximization of profits in the U.S., and the maximization of leisure or of prestige in some under-developed areas. His outlook in general is very much like that of Montesquieu a century before.

[12] *Representative Government*, pp. 198-199, 204-210, 382-383. *On Liberty*, pp. 118-119.

[13] *System of Logic*, II, pp. 516-519.

based on stability through the people's readiness to subordinate their notions to the aims of their society as a whole because they felt that they had full membership in the community of which they were part and which was loyal to its accepted principles – This conclusion led him to stress the study of ethology (group psychology). Only if one came to understand how the prevalent beliefs, customs and institutions – in fact the whole cultural framework – came into existence in each society it would be possible to understand the regional and national differences. And only such comprehension could be conducive to the introduction of those modifications which may promote the wealth and welfare of the nations.[14] What Mill had in mind was a dialectical study of the fundamental laws of society. In his own words[15] 'a state of society is the simultaneous state of all the greater social facts or phenomena. Such are, the degree of knowledge, and of intellectual and moral culture, existing in the community, and in every class of it; the state of industry, of wealth, and its distribution; the habitual occupations of the community; their division into classes, and the relations of those classes to one another; the common beliefs which they entertain on all the subjects most important to mankind, and the degree of assurance with which these beliefs are held; their tastes, and the character and degree of their aesthetic development; their form of government, and the more important of their laws and customs'. All these, Mill felt sure, could not only be studied intelligently but also directed by wise government though such guidance would have to follow different lines in developed and backward countries. True to his view that only the free exchange of ideas can bring out the correct answers and eliminate the erroneous, he saw the roots of stagnation in the underdeveloped parts of the world in what he called the 'uniformity of opinion' bred by despotic government, religious beliefs and backward customs.[16] In the developed countries, however, the distribution of wealth was affected by customs and institutional shortcomings, whereas its production depended on physical laws. 'The laws

[14] *Ibid.*, II, pp. 443-458, 496-503, 527-528.

[15] *Ibid.*, II, pp. 504-505.

[16] *On Liberty*, pp. 69, 116-117, 123-124, 127-131. *Representative Government*, pp. 179, 190, 197, 201, 210, 214. *Utilitarianism*, p. 59. *The Spirit of the Hist.* pp. 76-77.

and conditions of the Production of wealth . . . ' Mill wrote,[17] have 'nothing optional or arbitrary in them. Whatever mankind produce, must be produced in the modes, and under the conditions, imposed by the constitution of external things, and by the inherent properties of their own bodily and mental structure. Whether they like it or not, their productions will be limited by the amount of their previous accumulation, and, that being given, it will be proportional to their energy, their skill, the perfection of their machinery, and their judicious use of the advantages of combined labour. Whether they like it or not, a double quantity of labour will not raise, on the same land, a double quantity of food, unless some improvement takes place in the process of cultivation. Whether they like it or not . . . The opinions, or the wishes, which may exist on these different matters, do not control the things themselves. . . .' However, 'It is not so with the Distribution of wealth. That is a matter of human institution solely. The things once there, mankind, individually or collectively, can do with them as they like. They can place them at the disposal of whomsoever they please, and on whatever terms. Further, in the social state, in every state except total solitude, any disposal whatever of them can only take place by the consent of society, or rather of those who dispose of its active force. Even what a person has produced by his individual toil, unaided by any one, he cannot keep, unless by the permission of society. Not only can society take it from him, but individuals could and would take it from him, if society only remained passive . . . The distribution of wealth, therefore, depends on the laws and customs of society. The rules by which it is determined are what the opinions and feelings of the ruling portion of the community make them, and are very different in different ages and countries; and might be still more different, if mankind so chose. The opinions and feelings of mankind, doubtless, are not a matter of chance. They are consequences of the fundamental laws of human nature, combined with the existing state of knowledge and experience, and the existing condition of social institutions and intellectual and moral culture.'

Basically the distribution of wealth in a society in which

[17] *Principles*, Bk. II. Ch. I. pp. 199-200.

private property existed could be ruled by either 'competition' or 'custom'. 'When the partition of the produce is a matter of fixed usage, not of varying convention,' then, Mill believed, 'political economy has no laws of distribution to investigate.'[18] But when 'the division of the produce is the result of two determining agencies: Competition and Custom . . . It is important to ascertain the amount of influence which belongs to each of the causes, and in what manner the operation of one is modified by the other'.[19] Both competition and custom play a role in stimulating or retarding economic progress. Progress, and consequently welfare, Mill thought,[20] hinged upon man's ability to overcome natural and man-made obstacles. The former must be removed with the aid of learning, i.e. through the better understanding of the laws of nature, the latter, namely the beliefs, customs, ideas, laws and modes of government etc., by education and cultural change. In both cases progress was a dynamic process. Thus, because 'the economical condition of mankind is liable to change, and indeed (in the more advanced portions of the race, and in all regions to which their influence reaches) is at all times undergoing progressive changes we have to consider what these changes are, what are their laws, and what their ultimate tendencies; thereby adding a theory of motion to our theory of equilibrium – the Dynamics of political economy to the Statics'.[21]

Which, then, are the dynamic forces which make for economic progress? Mill's answer is those features which characterize the progressive economic movement of the civilized nations of his time. *Firstly*, this meant 'the perpetual, and as far as human foresight can extend, the unlimited, growth of man's power over nature'. In as far as this aspect of development was concerned Mill was extremely optimistic – 'Our knowledge of the properties and laws of physical objects,' he wrote,[22] shows no sign of approaching its ultimate boundaries: it is advancing more rapidly, and in a greater number of directions at once, than in any previous age or generation, and affording such frequent glimpses of unexplored fields

[18] *Ibid.*, Bk. II. Ch. VIII. p. 304.
[19] *Ibid.*, Bk. II. Ch.IV. p. 242.
[20] *Representative Government*, pp. 198-199.
[21] *Principles*, Bk. IV. Ch. I. p. 695.
[22] *Ibid.*, B. IV. Ch. I. pp. 695-699.

beyond, as to justify the belief that our acquaintance with nature is still almost in its infancy. This increasing physical knowledge is now, too, more rapidly than at any former period, converted, by practical ingenuity, into physical power.' *Secondly*, progress was characterized by the increased 'skill requisite for executing the most delicate processes of the application of science to practical uses'. Here too Mill was hopeful: 'the manual part of these great scientific operations is now never wanting to the intellectual: there is no difficulty in finding or forming, in a sufficient number of the working hands of the community . . . for executing the . . . processes'. *Thirdly*, Mill thought that 'From this union of conditions, it is impossible not to look forward to a vast multiplication and long succession of contrivances for economizing labour and increasing its produce; and to an ever wider diffusion of the use and benefit of those contrivances.' *Fourthly*, 'Another change, which has always hitherto characterized, and will assuredly continue to characterize, the progress of civilized society, is a continual increase of the security of person and property.' This was due to 'both . . . a more efficient judicature and police for the suppression of private crime, and . . . the decay and destruction of those mischievous privileges which enabled certain classes of the community to prey with impunity upon the rest'. In addition to this, so Mill thought, people are also, 'in every generation, better protected, either by institutions or by manners and opinion, against arbitrary exercise of the power of government',[23] and 'Wars, and the destruction they cause, are now usually confined, in almost every country, to those distant and outlying possessions at which it comes into contact with savages.'[24] *Fifthly*, even the vicissitudes of fortune which arise from inevitable natural calamities are more and more softened to those on whom they fall, by the continual extension of the salutary practice of insurance. Finally, Mill concluded, this combination of improved scientific knowledge and skill in application with increased security must of necessity be fol-

[23] 'Even in semi-barbarous Russia,' wrote Mill (*Principles*, p. 697), 'acts of spoliation directed against individuals, who have not made themselves politically obnoxious, are not supposed to be now so frequent'.

[24] In this point, as subsequent history was to prove, Mill was very wrong indeed.

lowed or accompanied by 'a great increase both of production and of accumulation' of wealth. 'Industry and frugality,' Mill claimed, 'cannot exist where there is not a preponderant probability that those who labour and spare will be permitted to enjoy' the fruits of their labour. 'The nearer this probability approaches to certainty, the more do industry and frugality become pervading qualities in a people.' In other words, Mill was convinced that private property, i.e. a capitalist economy, was the organization best conducive to economic growth.

The progress of science, skill, and security, do also have a social effect which is both the cause and the result of this progress, and is in itself further conducive of economic development, what Mill called the 'improvement in the business capacities of the general mass of mankind'. By this he did not mean that the practical sagacity of an individual human being would increase – on the contrary it may even diminish – but he was sure that 'What is lost in the separate efficiency of each, is far more than made up by the greater capacity of united action.' This change enabled mankind to adhere to plans concerted beforehand and subordinate its individual caprice to a preconceived determination, in performing severally the parts allotted in a combined undertaking. In other words, it made for increased production through the division of labour. However, the spirit of co-operation is not only confined to the actual process of production; it has indeed far wider ramification. On the one hand the 'Association of individuals voluntarily combining their small contributions (can) perform works, both of an industrial and of many other characters, which no one person or small number of persons are rich enough to accomplish, or for the performance of which the few persons capable of accomplishing them were formerly enabled to exact the most inordinate remuneration.' (i.e. joint-stock companies). On the other hand, the spirit of co-operation, does also facilitate the 'associations of workpeople either for the production, or to buy goods for their common consumption, which', in Mill's time came to be known by the name of 'co-operative societies'.

Mill summarized his views about the future prospects of the advanced societies in the following paragraph:[25] 'The progress

[25] *Principles*, Bk. IV, Ch. I, p. 699.

which is to be expected in the physical sciences and arts, combined with the greater security of property, and greater freedom in disposing of it, which are obvious features in the civilization of modern nations, and with the more extensive and more skilful employment of the joint-stock principle, afford space and scope for an indefinite increase of capital and production, and for the increase of population which is its ordinary accompaniment. That the growth of population will overpass the increase of production, there is not much reason to apprehend; and that it should even keep pace with it, is inconsistent with the supposition of any real improvement in the poorest classes of the people. It is, however, quite possible that there might be a great progress in industrial improvement, and in the signs of what is commonly called national prosperity; a great increase of aggregate wealth, and even, in some respects, a better distribution of it; that not only the rich might grow richer, but many of the poor might grow rich, that the intermediate classes might become more numerous and powerful, and the means of enjoyable existence be more and more largely diffused, while yet the great class at the base of the whole might increase in numbers only, and not in comfort nor in cultivation. We must, therefore, in considering the effects of the progress of industry, admit as a supposition, however greatly we deprecate as a fact, an increase of population as long-continued, as indefinite, and possibly even as rapid, as the increase of production and accumulation.'

However, Mill did not predict this prosperous future to all nations. In backward countries where governments and powerful individuals armed with religious or traditional rights deprive the farmers of their surplus produce and where the security of private capital was not well assured he did not believe that economic progress was possible. 'Among the secondary causes' after the diffusion of knowledge, Mill wrote,[26] which 'determine the productiveness of productive agents, the most important is Security . . . This consists of protection *by* the government, and protection *against* the government. The latter is the more important. Where a person known to possess anything worth taking away, can expect nothing but to have it torn from him, with every circumstance of tyrannical

[26] *Ibid.*, Bk. I, Ch. VII, §6, p. 113.

violence, by the agents of a rapacious government, it is not likely that many will exert themselves to produce much more than necessaries. This is the acknowledged explanation of the poverty of many fertile tracts of Asia, which were once prosperous and populous.' So, Mill was of the opinion that in an early, or backward, stage of society economic growth is held back because 'The surplus . . . whether small or great, is usually torn from the producers, either by the government . . . or by individuals, who by superior force, or by availing themselves of religious or traditional feelings of subordination, have established themselves as lords of the soil. The first of these modes of appropriation, by the government, is characteristic of the extensive monarchies which from time beyond historical record have occupied the plains of Asia . . . Under the régime in question, though the bulk of the population are ill provided for, the government, by collecting small contributions from great numbers, is enabled, with any tolerable management, to make a show of riches quite out of proportion to the general condition of the society . . . In this wealth, without reckoning the large portion which adheres to the hands employed in collecting it, many persons of course participate, besides the immediate household of the sovereign. A large part is distributed among the various functionaries of government, and among the objects of the sovereign's favour or caprice. A part is occasionally employed in works of public utility . . . The ruler of a society of this description, after providing largely for his own support, and that of all persons in whom he feels an interest, and after maintaining as many soldiers as he thinks needful for his security or his state, has a disposable residue, which he is glad to exchange for articles of luxury suitable to his disposition: as have also the class of persons who have been enriched by his favour, or by handling the public revenues. A demand thus arises for elaborate and costly manufactured articles, adapted to a narrow but wealthy market. This demand is often supplied almost exclusively by the merchants of more advanced communities, but often also raises up in the country itself a class of artificers, by whom certain fabrics are carried to as high excellence as can be given by patience, quickness of perception and observation . . . such as some of the cotton fabrics of India . . . The in-

security, however, of all possessions in this state of society, induces even the richest purchasers to give a preference to such articles as, being of an imperishable nature, and containing great value in small bulk, are adapted for being concealed or carried off. Gold and jewels, therefore, constitute a large proportion of the wealth in these nations . . . No one, except the monarch thinks of investing his wealth in a manner not susceptible of removal.'[27] Obviously credit will also be scarce and expensive because 'Those who lend under these wretched governments, do it at the utmost peril of never being paid.'[28]

Having said all this, it appears that all the same Mill was not entirely hopeless regarding the eventual progress of the backward countries. Eventually the customs and institutions, being man-made, may be improved and accumulation begun. But he also felt sure that this process was far more likely to take place in the foreseeable future in Asiatic countries than in the tropics where, as he thought, the natural environment made people timid and spiritless.[29]

This then, is Mill's theory of economic development for under-developed countries: '. . . first, a better government: more complete security of property; moderate taxes, and freedom from arbitrary exaction under the name of taxes; a more permanent and more advantageous tenure of land, securing to the cultivator as far as possible the undivided benefits of the industry, skill, and economy he may exert. Secondly, improvement of the public intelligence: the decay of usages or superstitions which interfere with the effective employment of industry; and the growth of mental activity, making people alive to new objects of desire. Thirdly, the introduction of foreign arts, which raise the returns derivable from additional capital, to a rate corresponding to the low strength of the desire of accumulation: and the importation of foreign capital, which renders the increase of production no longer exclusively dependent on the thrift or providence of the inhabitants themselves, while it places before them a stimulating example, and by instilling new ideas and breaking the chains of habit, if not by improving the actual condition of the population, tends to

[27] *Ibid.*, Preliminary remarks, pp. 12-13.
[28] *Ibid.*, Bk. II, Ch. XV, p. 409.
[29] *System of Logic*, II, p. 515. *Disertations*, I, p. 415.

create in them new wants, increased ambition, and greater thought for the future.'[30]

As for the progress in developed countries Mill observed that several forces were already combining to improve the conditions of living of ever-growing numbers of people. Firstly, as the standard of living of the working classes depended on the relationship between population growth and demand for labour, Mill saw encouraging signs in the fact that with every advance in education, civilization, and social improvement, their subsistence level tends to rise, 'and that employment . . . (has) never increased more rapidly than in the last forty years, but every census since 1821 showed a smaller proportional increase of population than that of the period preceding. . . .'[31] Secondly, the increase in the number of profit-sharing co-operative societies indicates that before long 'it is not probable that any but the least valuable workpeople will any longer consent to work all their lives for wages merely; both private capitalists and associations will gradually find it necessary to make the entire body of labourers participants in profits. Eventually, and in perhaps a less remote future than may be supposed, we may, through the co-operative principle, see our way to a change in society, which would combine the freedom and independence of the individual, with the moral, intellectual, and economical advantages of aggregate production; and which, without violence or spoliation, or even any sudden disturbance of existing habits and expectations, would realize, at least in the industrial department, the best aspirations of the democratic spirit, by putting an end to the division of society into the industrious and the idle, and effacing all social distinctions but those fairly earned by personal services and exertions. . . .'[32] Thirdly, Mill foresaw a diminution of profits and interest rates which would, after reaching a point of saturation, retard further growth but, he pointed out, 'It is scarcely necessary to remark that a stationary condition of capital and population implies no stationary state of human improvement. There would be as much scope as ever for all kinds of mental culture, and moral and social progress; as much room for improving the Art of Living, and much more likelihood of its

[30] *Principles*, Bk. I, Ch. XIII, pp. 189-190.
[31] *Ibid.*, Bk. I, Ch. X, p. 161. [32] *Ibid.*, Bk. IV, Ch. VII, p. 791.

being improved, when minds ceased to be engrossed by the art of getting on. Even the industrial arts might be earnestly and successfully cultivated, with this sole difference, that instead of serving no purpose but the increase of wealth, industrial improvements would produce their legitimate effect, that of abridging labour. Hitherto (1848) it is questionable if all the mechanical inventions yet made have lightened the day's toil of any human being. They have enabled a greater population to live the same life of drudgery and imprisonment, and an increased number of manufacturers and others to make fortunes. They have increased the comforts of the middle classes. But they have not yet begun to effect those great changes in human destiny, which it is in their nature and in their futurity to accomplish. Only when, in addition to just institutions, the increase of mankind shall be under the deliberate guidance of judicious foresight, can the conquests made from the powers of nature by the intellect and energy of scientific discoverers become the common property of the species, and the means of improving and elevating the universal lot.'[88]

In summary, Mill conceived of two stages of economic development. Progress in the first, backward, stage hinged on the production of wealth, whereas in the second, and advanced stage, it was equally dependent on its distribution. In the first stage population pressure was checked by starvation, in the second, by prudence and foresight, which were, of course, themselves the fruits of the higher standard of living. The transition from the first to the second stage was mainly due to the cheapening of goods through improvements in the methods of production – division of labour, introduction of mechanical equipment, etc. These improvements, however, were dependent on the accumulation of capital and the spirit of enterprise, which in turn were the result of greater security of person and property. As for the progress of specific classes of society, and of the working class in particular, birth control was the best way towards material advancement. This Mill thought to be true even though he admitted that the higher standard of living of the workers in the developed countries was due rather to the high accumulation of capital than to restraint of population growth. 'In the case . . . of the common agricultural

[88] *Ibid.*, Bk. IV, Ch. VI, p. 751.

labourer, the checks to population may almost be considered as non-existent. If the growth of the towns, and of the capital there employed, by which the factory operatives are maintained at their present average rate of wages notwithstanding their rapid increase, did not also absorb a great part of the annual addition to the rural population, there seems no reason in the present habits of the people why they should not fall into as miserable a condition as the Irish previous to 1846; and if the market for our manufactures should, I do not say fall off, but even cease to expand at the rapid rate of the last fifty years, there is no certainty that this fate may not be reserved for us.'[34] A temporary relief, as Mill saw it, was of course emigration or the importation of foodstuffs from countries with a surplus, but, as said, these could only be short-term measures. In fact, unless the whole world was well populated, he still held it to be true that 'Equivalent in effect to improvements in production, is the acquisition of any new power of obtaining cheap commodities from foreign countries. If necessaries are cheapened, whether they are so by improvements at home or importation from abroad, is exactly the same thing to wages and profits. Unless the labourer obtains, and by an improvement of his habitual standard, keeps, the whole benefit, the cost of labour is lowered, and the rate of profit raised.' In both cases the result would be beneficial because in the first case the standard of living of the workers would improve while in the second the accumulation of capital 'may go on without making the rate of profit draw nearer to the minimum' and thus cause economic stagnation.[35]

So accumulation of capital and the spirit of enterprise were the two strategic sectors. In the more advanced countries they were able to make their full contribution because conditions, i.e. security of property and the progress of technology, were favourable. In the backward countries they could not make their beneficial contribution because these conditions were absent. In all cases capital formation depended upon the magnitude of net profits and the propensity to save. The

[34] *Ibid.*, Bk. II, Ch. XI, p. 357. See also Mill, *Letters*, (ed. Elliot), p. 171, for his views on the emancipation of women which would also contribute to the restraint on population growth.

[35] *Ibid.*, Bk. IV, Ch. IV, p. 736.

former hinged upon the state of technology, which in itself is to a large extent the result and the cause of lower production costs, sometimes on cheap imports, and on a good division of labour.[36] The second, depended on the degree of security, the rate of profit, life expectancy, the habits of provision for children, the level of education and intelligence,[37] and the general inclination of the people to sacrifice the 'present, for the sake of a future good'. An additional factor which Mill thought conducive to progress, when a nation approached the highest state of development, and when profits tended to diminish and thereby reduced the wish to increase savings, was the exportation of capital, which might in some cases lead to the importation of cheap foodstuffs and raw materials and at the same time reduce the quantity of funds available at home, and thus must lead to higher rates of interest and profits.[38] The 'spirit of enterprise' in Mill's scheme of things was, of course, a function of the nation's degree of security, private property, education, freedom from bad religion and customs, good government and cultural level.[39] Mill was particularly concerned about the 'intolerant and levelling spirit of the mediocre' and he feared that in the advanced societies mediocre public opinion had already in his own day[40] 'gotten the better of individuality' and was making its way towards cultural homogeneity which was detrimental to any kind of progress'.[41] In fact, he felt that except for the sphere of business enterprise human ingenuity was dead already. There was but one situation in which Mill approved of strong government, namely in primitive societies where people had to be initially compelled to acquire habits of industry.[42]

As for the role of the governments in the process of economic development, Mill was inclined to relegate it to the duties of

[36] *Principles*, Bk. I, Ch. V, pp. 74-78.
[37] *Ibid.*, Bk. I, Ch. IV, p. 98.
[38] *Ibid.*, Bk. III, Ch. XXV, p. 688. Mill's error, which led him to fear a gradual decline of profit rates during the process of economic growth, was due to his lack of understanding of the true role of fixed capital in the economic structure.
[39] *Letters*, *op. cit.*, I, p. 153. *Principles*, Bk. V, Ch. XI, pp. 954-956; Bk. IV, Ch. I, 696.
[40] He was luckily spared the agony of the political leaderships in our days.
[41] *On Liberty*, pp. 113-131. *Representative Government*, p. 188, & pp. 210-218.
[42] *Representative Government*, pp. 198-199.

providing safeguards for private property, and care for lower education, public works, transport wherever private enterprise was unwilling or unable to provide it, and colonization.[43]

THE CLASSICAL SCHOOL

Summary of views on economic development

The basic views of Smith, Malthus, Ricardo and particularly of J. S. Mill do not differ very considerably from those of some modern writers on the subject of economic growth though the latter have of course dropped some obviously wrong ideas, that of the wages-fund for example.[1] Growth they felt, depended on the supply of labour and capital and upon scientific progress and its application and on socio-psychological and socio-political conditions. They underrated the importance of capital and the prolificity of scientific achievements and over-rated the force of population pressure. Smith, Malthus and J. S. Mill were on the one hand haunted by the fear of the law of diminishing returns from land, raw materials and savings, while on the other hand they regarded the supply of labour as a variable endogenous factor.

Smith showed that per capita output was increased and often also improved through the division of labour and its concomitant capital investment. Malthus more than the others stressed the danger that the fruits of progress may be consumed by a too rapid accretion of population and emphasized the role of education in counteracting this tendency. Ricardo suggested that as long as capital formation continued, i.e. until the rate of profit or interest eventually declines to no more than one per cent, the demand for labour may be continually in excess of supply even though population may increase at an accelerated rate. Moreover, Ricardo believed in a sort of ratchet effect by which each general increase in the demand for labour and consequent rise in real wages would raise the workingman's subsistence level, so that the following downswing could never reduce them as low as they had been before. In time, Ricardo

[43] *Principles*, Bk. V, Ch. II, Bk. V, Ch. XI (pp. 947-953), Bk. II, Chs. VI, VII, VIII.

[1] J. S. Mill himself abandoned the Wages Fund doctrine in 1869.

believed, the oscillations around the upward trend would gradually raise per capita production and consumption and would be helped and help education to restrain undue acceleration of population growth. J. S. Mill incorporated most of his predecessors' ideas into one system and added to it a socio-psychological dimension – cultural change. In Joseph J. Spengler's words:[3] 'In its broad outlines Mill's theory of economic development does not differ so greatly from comparable present-day theories. The movement of annual output depends upon the growth of capital and population (i.e. labour), upon the rate of scientific and technical progress, and upon the extent to which shortages of arable land and raw materials can be circumvented by improved methods or through importation. Capital formation and population growth, together with the growth of applied knowledge and the impact of shortages (if any) of land and sources of raw material, were conditioned by those of a society's institutions and values which affected natural increase, the inclination to form capital, or the disposition to accumulate and apply productivity-affecting knowledge. Although the role of the entrepreneur was not emphasized, that of private enterprise was, it being assumed that the aggregate economic role of the state, though possibly large under certain conditions, normally was quite small.'

In its generality classical political economy was concerned with distribution from an 'aggregate'-class point of view and with production as the result of the combination of individual entrepreneurial drives. Of its basic notions – population theory, the wages fund, rent theory and the labour-value concept – only Ricardo's rent theory survived almost entirely intact. The obvious rise in population and the standard of living which took place simultaneously, in the third quarter of the nineteenth century, reduced the weight of the classical population theory and its appendage the 'natural' subsistence-wage theory. As for the wage-fund, Mill himself admitted in 1869 that it was merely a 'shadow' which will vanish if we go boldly up to it. Regarding the labour-value (cost of production) theory, about which Roscher said that it gave one the impression that goods were not produced for man, but man was here

[3] *Theories of Economic Growth*, (ed. B. F. Hoselitz, 1960), p. 148.

for the sake of goods, this theory too, was replaced by the end of the century when the stress became increasingly though not entirely on demand and the theory of distribution.

CHAPTER III

The Dialectical Materialists

KARL MARX (1818-1883) and FRIEDRICH ENGELS (1820-1895)

The basis of dialectical materialism is the assumption that nature exists objectively – i.e. regardless of human recognition. All philosophers who accept this premise are materialists, all who reject it, and maintain that nature is merely a creation of mind – or Mind – are idealists.*

Early materialism lacked a 'scientific basis'.[1] Seventeenth and eighteenth century materialism suffered from what Engels called 'The mechanistic approach'.[2] The materialism of Marx was dialectical and formed an organic unity free from the purely mechanistic view, for which was substituted *a theory*

* A classical problem of philosophy summarised in two limericks: "There was once a student who said "God / must think it extremely odd / If He finds that this tree / continues to be / when there's no one about in the quad'. "Dear Sir: Your astonishment's odd / I'm always about in the quad / And therefore this tree / Continues to be / Since observed by, Yours faithfully, GOD".'

[1] Materialism, according to Marx, arose about 2,500 years ago in China, India and Greece, linked with the everyday experience and the first rudiments of the knowledge of nature, but it lacked a solid scientific basis.

[2] The materialism of the 17th & 18th centuries was influenced by the great progress in the study of the natural sciences. Francis Bacon, for example, believed that experiment rather than Revelation was the basis of true knowledge. Descartes, Hobbes and above all Newton introduced motion to matter and thus developed the 'mechanistic theory of nature'. This theory was carried further by such philosophers as John Toland, Joseph Priestley, Julien la Mettrie, Paul Holbach, Claude-Adrien Helvetius and most of all Denis Diderot, who, however, rejected the rigidity of these three last in favour of a much more organic approach. According to Engels the 'Mechanistic' approach suffered from the effort to reduce all processes to mechanical motion, overlooking as it were, the peculiarities of organic nature and the specific features and laws of social life; and from their cyclical perception, rather than developing view, of nature; and finally that they did not apply materialism to the interpretation of social affairs.

of development. This theory embraces all spheres of life while it also endeavours to take due notice of the specific nature of each section.

'Matter' in Marx's view was everything that exists independently of man's mind and reflexes. It includes all different aspects of the material world without reducing them to a single form. It is uncreatable and indestructible, though it is eternally undergoing change. Change, i.e. motion is the mode of its existence – 'Never anywhere has there been matter without motion, nor can there be.'[3] The simplest form of motion is the mechanical movement of a body in space. A more complex form is that of human social activity. Different forms of motion correspond to different stages in the development and complexity of matter. In the process lower, simpler, forms become constituent parts of higher and more complex forms, causing as they progress qualitative changes which prevent a reversion to the lower, earlier, stages of development.[4] Space and time become inseparable from matter and motion and progress is their inevitable product.[5] The motive force, the source, of all development – motion – is in Marx's theory the contradictory nature of reality – i.e. dialectics.

The notion that the world is ruled by the collision of opposites was already recognized by the philosophers of the ancient world.[6] The same observation was made in the seven-

[3] F. Engels, *Anti-Duhring*, Foreign Languages Publishing House, Moscow 1962 Ed., p. 86. Rest, as distinct from motion, can only be relative to a certain point on earth, but not absolute, because the earth itself is continually in motion. The idea of the combination of materialistic recognition of reality and dialectics appeared already in the early 19th century in the writings of Alexander Herzen. Marx, however, learned his dialectics from his teacher Hegel, only that Hegel's dialectics was idealist and not materialist.

[4] All this can now be translated into the law of transformation and conservation of energy.

[5] Modern Marxist theoreticians like to compare this idea with Einstein's theory of relativity. They argue that nothing can exist outside of time and space. However, properties are changeable because space and time relationships depend upon the speed of motion of matter. The properties of space and time change in various parts of the universe in accordance with the distribution and motion of material masses. In that sense space and time are relative.

[6] The ancient Greeks thought of 'dialectics' as the way to establish the truth through disputation, i.e., presentation of opposing views. Heraclitus thought that the 'struggle' is the source of all things.

teenth and eighteenth centuries by writers like Diderot[7] and Rousseau.[8] In the nineteenth century the German philosopher Hegel looked upon dialectics as the development of ideas through contradictions.[9] Hegel's dialectics perceived the process of development as movement from a unity through the disclosure of opposites to a new unity – as the passing of a thing or phenomenon into its opposite – contradiction. Marx claimed that Hegel's dialectics was 'standing on its head' – i.e. that it was idealistic. Marx's dialectics proceeded from the *material unity* of the world. Man's notion of dialectics was merely the reflection, and not the source, of the development. Marx's dialectics applied, therefore, to all laws and forms of motion (change and development), including those which operate in society, so that *thought* itself was governed by them. Moreover, Marx's and Engels' dialectics not merely presented a scientific theory of perception but also a guide to man's socio-economic conscious progress. If dialectics was the general law of development then it was possible to analyse the events of the past, understand the present, and predict the future. The most familiar form of motion in this sense is cause and effect. The cause comes first, the effect follows. But the sequence of events does not necessarily represent a cause and effect relationship. Although day always follows night it is hardly the result of night. Both, day and night, are the effect of another cause – the rotation of the earth. Nor is the 'last straw' which breaks the donkey's back the real cause of its fatal effect, which is, of course, the total weight of the whole load. The effect must therefore always depend on the real cause – the total weight of the donkey's load; the coincidental cause – the last straw added to the load; and the general circumstances – the strength of the particular donkey for example. Nature, however, is far more complex than this simple cause and effect relationship suggests. It is a single whole, all parts of which are inter-related and any phenomenon of which is always effect as much as cause in a variety of universal connections.[10] However, causality gives

[7] *Rameau's Nephew.* [8] *The Origin and the Reason of Inequality.*

[9] Hegel used the German expression '*Aufheben*' which has a threefold meaning – to reject, to preserve, and to lift to a higher level – to explain the process of dialectical development: thesis, antithesis and synthesis.

[10] A rise in demand will stimulate production while the rise in production will be followed by an increase in demand on a larger and different scale.

rise to necessity, i.e. to determinism. Given the causes and the right conditions sooner or later certain results are bound to follow. Hence, true understanding is the recognition of the objective character of universal connections and causative determination of phenomena. In other words, understanding is the comprehension of the rule of necessity and regularity in nature and society.[11] Applying dialectics to this determinism, Marx concluded that both quantitative and qualitative finiteness is not entirely external to things and that the two finitenesses are dialectically connected, i.e. that quantitative changes must inevitably lead to qualitative changes.[12] This dialectical transition of quantity into quality, which may be gradual or explosive, is the essence of all progress. It explains the emergence of a new quality – i.e. development. When the natural economy was replaced by the commodity economy the new quality brought with it its new quantitative finiteness and thus its own historical limitation. Marx called the actual point at which the change takes place 'a leap'. The emergence of man was a leap in the development of the organic world. Evolution is the quantitative change, the development, which eventually leads to the qualitative changes. The leaps are revolutionary transitions of a qualitative nature. Progress is therefore both gradual (evolutionary) and in leaps (revolutionary). Anything in the process of development has within it the embryo of something else. It contains its own *antithesis*, that is, the 'negating' element which prevents it from remaining inert and immutable. Stability – equilibrium – can therefore only be relative and temporary. Thus motion alone, which continually rejects old forms and creates new ones, is eternal and absolute.[13]

[11] Accidents cannot be rejected off-hand as causeless but play an extremely important role in the timing, etc., of the processes. Today, after the discovery of electrons and positrons and the processes which take place in quantum mechanics, the importance of both necessity and accident in the extrinsic sense as Marx understood it are self-evident.

[12] The word quality here does not imply any judgement of value; it merely reflects a change like the one from solid to liquid brought about through heating of iron. Modern physics recognises this change, for example in the length (quantitative) of electromagnetic waves which can be transformed qualitatively into radio waves. Similarly the process is today well recognised in molecular chemistry where the quantitative change must always lead to a transformation of quality.

[13] Friedrich Engels, *Anti-Duhring*, Moscow, Foreign Languages Publishing House, (Edition of 1962), p. 474.

'There is a contradiction in a thing remaining the same and yet constantly changing, being possessed of the antithesis of "inertness" and "change".' Though the general law is progress it is still necessary to analyse the concrete forces at every stage. It is necessary to analyse the forms the 'struggling' opposites and contradictions take, in order to interfere with the process, in the same way as one interferes with, say, agriculture by irrigation to produce earlier or better crops. The analysis is also necessary to distinguish between antagonistic and non-antagonistic contradictions. Class contradictions, according to Marx, are always antagonistic and will only pass away with the waning of the old and rise of the new organization of society. This is the law, the nature, of development because 'no development that does not negate its previous form of existence can occur in any sphere'.[14] Yet, as Engels explained it,[15] dialectic negation is never just destruction of the old, but always destruction in the process of new creation – i.e. development. It presupposes a connection between the outgoing old and the incoming new which is about to replace it. Everything of value is preserved in the newly created quality and all the useless is rejected. Hence, since only the obsolete is 'negated', development must be progressive. It must represent a rise from lower and simpler stages to higher and more complex ones. Engels illustrated this idea in the following way:[16] 'Let us take a grain of barley. Billions of such grains of barley are milled, boiled and brewed and then consumed. But if such a grain of barley meets with conditions which are normal for it, if it falls on suitable soil, then under the influence of heat and moisture it undergoes a specific change, it germinates. The grain as such ceases to exist, it is negated, and in its place appears the plant which has arisen from it, the negation of the grain. But what is the normal life-process of this plant? It grows, flowers, is fertilized and finally once more produces grains of barley, and as soon as these have ripened the stalk dies, is in turn negated. As a result of this negation of the negation we have once again the original grain of barley, but not as a single unit, but ten, twenty – or thirty-

[14] Karl Marx, *Die Moralisierende Kritik und die Kritisierende Moral*. MEGA Moskau-Leningrad, (Edition of 1933), Vol. IV, §1, pp. 303-304.
[15] F. Engels, *Anti-Duhring*, p. 194.
[16] F. Engels, *Ibid.*, pp. 186-187.

fold.' The primitive-communal tribal society, which Marx assumed was free of exploitation of man by man, was replaced in the course of history by the exploitation societies – slave, feudal, capitalist – but the socialist society, which is bound to replace them, brings mankind back to the non-exploiting stage of development but at a higher level. This new stage will of necessity contain the progressive elements accumulated by society during the many centuries which passed since the decay of the primitive tribal 'non-exploiting' stage. Thus progress comes in the form of a spiral movement. It reproduces the past on a higher level of development. Marx never assumed the process to be smooth and even; he was aware that deviations may and do occur, that the history of mankind is wrought with long periods of relative and absolute stagnation – but he was equally firmly convinced that in the long run progress is inevitable. Marx's dialectics is therefore a philosophy of historical optimism. It requires a thorough analysis of each concrete situation, to discover what dialectical laws are in operation, so that a conscious active line of action can be followed to stimulate progress and prevent deviations and stagnation. Knowledge – i.e. the recognition of both the concrete reality of the moment and the universal laws of nature – is a step on the road to progress. Man's consciousness not only reflects the objective world but helps to create it. Cognition is the reflection of the objective reality, it is the abstract thought which goes beyond the notions obtained by the sense alone and which therefore can merely reflect the result, but not the cause, of a phenomenon.[17] Hence, abstract thought, if based on correct and true appreciation of the concrete reality, reflects nature more truly than mere sensual perception.[18] Personal relations between workers and capitalists may be excellent but in their true essence they will still be a relationship between exploited and exploiter. The personal relationship reflects a transient situation; the worker-capitalist relationship reflects the true affinity. Cognition is, therefore, the ability to go beyond the particular relationships and reach the generalizations which

[17] For example we cannot perceive through our senses the velocity of light but this does not contradict its existence—with the help of modern instruments we can even measure it.

[18] Clouds and strong winds will make us run for shelter but will not explain the connection between these phenomena and rain.

contain the essential factors. Nature, however, is infinite while 'cognition' must always remain limited to the level of knowledge and technical facilities at man's service at any given time. As time progresses and more and more knowledge is accumulated, humanity approaches closer to true understanding.[19] This means that there are always two kinds of truth which can and must be distinguished. There is the relative truth (not lies which are no truth at all) which is incomplete truth, and absolute truth which is the more accurate reflection of the objective world. Relative truth always contains some elements of absolute truth which are retained when the relative and obsolete is discarded. Thus with each further progress absolute human knowledge increases by the sum of relative truths retained. In the natural sciences truth can be tested by experiments, in the social sciences by practice. The only way to test the correctness of a logical thesis, Marx maintained, was by practice. This practice is reflected in Historical Materialism. In society the relationship between the relative and the absolute is reflected in the contradiction between the conscious activity of separate individuals and the spontaneity of social development as a whole. The materialist conception of history assumes that people make their history, but that they are limited in doing so by the material conditions of their society. Social relations are the reflection of productive relations. Social relations are the relative, productive relations the absolute, truth governing society. In Marx's own words: 'It is not men's *consciousness* that determines their being, but, on the contrary, their *social being* that determines their consciousness.'[20] *Consciousness* in this connection is the sum of all ideas governing a society – legal, religious, political, moral, artistic etc. *Social being* is the material background – the mode of production and distribution of material goods. Labour is a natural necessity for the existence of mankind; the legal, religious, political and moral ideas may influence the modes of production but they cannot be the basis of human progress. In this man differs from the animal world, which adapts itself to its environment, in that man influences his environment and

[19] F. Engels, *Anti-Duhring*, pp. 120-121.

[20] Society here is taken like nature as the primary – material – life and consciousness as its spiritual reflection.

obtains his means of subsistence through labour. Every generation inherits the means of production from its preceding generation and improves on them. The material life of society, however, is not merely confined to its productive forces but it has a social character. The material life of society is not the sum of the products of the individuals alone, but reflects the co-operation amongst many. The labour of each becomes in the process part of what Marx called 'social labour'.[21] At a certain stage of historical development some, or all, basic means of production became separated from those who use them (the workers) and passed into the hands of few. Consequently, society was divided into two classes: the owners of the means of production and the workers. The new relationship, which Marx and Engels called the new 'productive' or new 'economic relations', was formed, and exists, independently of human consciousness. It has a material character and thus can be compared to an absolute truth, as distinct from the conscious relative truths current in society. The techniques, skills, and the experience of material production increase almost continuously – they are the most changing element in development – but the *productive* or *economic relations* remain relatively constant. Eventually the discrepancy between the technical progress and the social (economic-relations) stagnation develops into an open conflict. The obsolete productive relations hinder the development of the newly improved methods of production,[22] conditions have changed and the conflict comes out into the open. The situation is eventually re-adjusted by the revolutionary replacement of the old productive relations by new ones which are better suited for the current modes of material production. The old ideas – the philosophy, the ethics, the institutions, in short the whole cultural structure of the old society – which arose out of its material basis – is replaced by a new set of ideas which is more in line with the new requirements. As Marx put it, one 'superstructure' is replaced by another. The social division of society

[21] Marx claimed that in all stages of history people were dependent on each other; the peasants had to buy the produce of the craftsmen and the latter bought their food from the peasants, but the division of labour within one trade or occupation brought about the new social structure.

[22] For example serfdom restricted the development of manufacture and later of industry, and this led to the conflict which destroyed feudalism.

is of course dependent upon the form of ownership of the means of production and this determines its superstructure. The slave-owning and the feudal societies relied for labour 'discipline' on direct coercion – capitalism on the threat of hunger.[23]

'In the social production of their life, men enter into definite relations that are indispensable and independent of their will, relations of production which correspond to a definite stage of development of their material productive forces. The sum total of these relations of production constitutes the economic structure of society, the real foundation, on which rises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life conditions the social, political and intellectual life process in general. It is not the consciousness of men that determines their being, but, on the contrary, their social being that determines their consciousness. At a certain stage of their development, the material productive forces of society come into conflict with the existing relations of production, or – what is but a legal expression for the same thing – with the property relations within which they have been at work hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an epoch of social revolution. With the change of the economic foundation the entire immense superstructure is more or less rapidly transformed.'[24]

Historically the development of human society is ruled by necessity and the latter is independent of the people's consciousness. Thus the object of the social sciences becomes the discovery of the laws of necessity and their operation. This is necessary because they do not operate automatically but are formed as a result of men's actions, though eventually they will determine the general direction of human activity. The laws merely determine the general trend, which is the outcome of an objective situation. The development itself, however, the actual course of events, must depend on the pull of contradictory forces. For example, socialism, as Marx saw it, was

[23] In primitive society prisoners of war were killed. Only with the rise of the productivity of labour when it was possible to appropriate the fruits of the labour of others, they were spared and made into slaves.

[24] Marx & Engels, *Selected Works*, F.L.P.H., 1958, Vol. I, pp. 362-363.

bound to replace capitalism – a historical necessity – but the actual date of the latter's downfall and the way in which this downfall of capitalism will occur must still depend on a variety of circumstances. However, the forces which provide these circumstances are the outcome of ideas, or ideas themselves. Scientific socialism, as Engels wrote in connection with the transition from Capitalism to Socialism, is itself the reflection of the conflict between the old capitalist productive relations and the new productive forces, and of the superstructures which arise from each. The recognition of the new reality is the factor which eventually causes the transition from one stage to the next. The idea, i.e. the recognition of the new economic and social reality, thus becomes itself an integral part of a cause and can unite people to conscious practical action. In this sense, Marx declared, when an idea is taken up by the masses it becomes a real material force.

The difference between economic growth in all other and the socialist society lies primarily in its pace. Under all systems other than socialism, Marx assumed that man is merely subject to socio-economic laws and unable to control them. It is only when all means of production are socially and consciously controlled that man is able to overcome – though never to abolish – those laws. Only when the balanced proportions between the various branches of the economy, between consumption and accumulation, between the production of consumer goods and the income of the population, can be planned and scientifically regulated and are no longer subject to mere capitalist competition – progress can be fastest and free from the evils of the oscillations of prosperity and depressions. This can only be when all means of production are in social ownership. Obviously man's conscious application of social laws cannot change or terminate their objective character – and therefore all economic theory, even capitalist, continues to be valid – but it makes it possible to apply scientific method for planning progress at the lowest cost and least hardship to members of society.[25] Man can become the master instead of the slave of his economic environment.

[25] "The laws of gravity are not abolished by their discovery but their discovery enables us to build an aircraft which can overcome the attraction of the earth". *Fundamentals of Marxism-Leninism*, Progress Publishers, Moscow, 1964.

The study of these general laws of social development is Historical Materialism. Historical materialism is therefore concerned with all propositions and conclusions which follow from the general laws of development. It analyses social consciousness, changes in the social systems which result from alterations in the productive forces, and the relations between the economic basis and the ideological superstructure of each society. It is in fact the basis of all social sciences. Yet it does not come in the place of the study of, say, history, economics, law, ethics etc. – it merely supplies all of them with a method of approach and understanding. Marx's Historical Materialism was therefore supposed to teach the laws of development, whereas his dialectical materialism was the method to be adopted for the examination of concrete situations.

In the light of historical and dialectical materialism the technical progress experienced in the era of capitalism is never the result of progressive capitalist ideas but the consequence of the working populatons' opposition to a low standard of living. Obviously given the free choice the capitalist would prefer to increase or maintain his profits through reducing his expenditure by cutting workers' wages. The workers' struggle, however, to preserve or improve their standard of living forces him to find an alternative way. This is the real reason for the introduction of new machines and other technical improvements by the capitalists. It is therefore mere deception to say that the class struggle is undermining progress. The precise opposite is the truth. It is the class struggle which forces capitalism to introduce technical improvements and therefore progress. Socialism can plan the progress deliberately: capitalism is forced forward by the workers' resistance to exploitation. This progress, however, which is forced upon the capitalist against his obvious will already prepares the eventual 'leap' to socialism. The new techniques of production convert the material structure of productive relations in a way which in the long run must effect the prevailing superstructure and thus bring about the social revolution. 'Whatever changes took place in the upper, non-producing ranks of society, society could not live without a class of producers (workers). This class, then, is necessary under all circumstances, though the time must come, when it will no longer be a class, when it will

comprise all society.'[26] Hence, the labour of the working class not only provides society with all its needs but also creates the material basis for consecutive replacement of socio-economic foundations – i.e. for progressive development. The workers' understanding of the reality of their conditions thus becomes a political force. The leadership of the working class – the outstanding personalities – are not the creators of events but only the leaders of the masses.[27]

The criteria for progress, as Marx understood it, was first, and above all, the development of productive forces because these are the most direct index of the development of human means of subsistence. They determine the degree to which man rules nature and the surplus of production over the necessary minimum for survival by which man's life can be enriched. Real unrestrained progress in this sense can only take place when 'the extraneous objective forces that have hitherto governed history pass under the control of man himself. Only from that time will man himself, with full consciousness, make his own history – only from that time will the social causes set in movement by him have, in the main and in a constantly growing measure, the results intended by him. It is the ascent of man from the kingdom of necessity to the kingdom of freedom'.[28]

Once one agrees with Marx and Engels that the development of productive forces is the decisive force in progress, it becomes obvious that society is continually developing. History proves that, though progress does not move along an even route, the development of productive forces is on the ascent. 'In our days,' wrote Marx, 'everything seems pregnant with its contrary. Machinery, gifted with the wonderful power of shortening and fructifying human labour, we behold starving and overworking it. The newfangled sources of wealth, by some strange weird spell, are turned into sources of want. The victories of art seems bought by the loss of character. At the same pace that mankind masters nature, man seems to become enslaved to other men or to his own infamy. Even the pure

[26] Marx and Engels, *The Labour Standard*, August 6, 1881, (London), p. 4.
[27] The problem is best discussed by Plekhanov in the *Place of the Personality in History*.
[28] Engels, *Anti-Duhring*, pp. 388-389.

light of science seems unable to shine but on the dark background of ignorance. All our invention and progress seem to result in endowing material forces with intellectual life, and in stultifying human life into a material force.'[29] Under socialism, however, Marx predicted, these contradiction will cease and human progress will no longer 'resemble that hideous pagan idol, who would not drink the nectar but from the skulls of the slain'.[30] Under socialism, progress was to become increasingly the result of conscious and planned human activity. This planning was to lead to the acceleration of the rate of growth and save society from the losses incurred by trade and other cycles which were considered part of the capitalist system. The planning of scientific research, and the planned development of culture and training of personnel would further improve life of man upon this earth. Finally the conscious participation of the masses in building the new society *would be another* outstanding stimulating force. It would be a society of human freedom and happiness. As Engels wrote, only the Philistine understands by materialism 'gluttony, drunkenness, lust of the eye, lust of the flesh, arrogance, cupidity, avarice, covetousness, profit-hunting and stock-exchange swindling – in short, all the filthy vices in which he himself indulges in private'.[31] Obviously, this is *not* Marxism.

Having thus summarized the philosophical background and the method of approach of Marx and Engels we may now proceed to analyse Marx's study of capitalist economics. As in his system, 'economic relation always determine the character of social organization', Marx's political economy begins from a study of 'production relations between people and the laws of development of social production and distribution of material wealth at the various stages of human society'.

Political economy as a science, according to Marx, began with the rise of capitalism. It was developed by the bourgeoisie to combat feudalism. Only with the help of scientific know-

[29] Marx and Engels, *Selected Works*, Foreign Languages Publishing House, 1958, Vol. I, p. 359.
[30] Marx and Engels, *Ibid.*, Vol. I, p. 358.
[31] Marx and Engels, *Ibid.*, Vol. II, p. 377.

ledge of the laws of production could the new class eliminate feudal ideologies. The 'heroes' and pioneers of this movement were the classical economists – William Petty, Adam Smith and David Ricardo. From them Marx learned much about the structure of capitalism, its economic ideas and its social relationships. Yet, so Marx believed, they had developed political economy as a 'partisan science', i.e. seen from the point of view of their class interest. Particularly, he criticized them for not seeing the transient nature of capitalism. All the same Marx acknowledged his debt to Smith and Ricardo, whereas he saw but little that was useful, or even scientific in a limited sense, in capitalist economic thought after 1830. Because 'it was thenceforth no longer a question (for the capitalist economist), whether this theorem or that was true, but whether it was useful to capital or harmful, expedient or inexpedient, politically dangerous or not. In place of genuine scientific research, the bad conscience and the evil intent of apologetic'.[32]

Two conditions are required for capitalist production according to Marx's own analysis: (a) Private ownership and concentration of the basic means of production. (b) The existence of a population which has no means of production and is therefore forced to make a choice between selling its labour to the owners of such means or starving.[33] In feudal society the means of production was land; in Capitalist society it is land and machines. Historically the transition from feudalism to capitalism took place in two stages. The first was marked by a simultaneous process of the accumulation of wealth and the creation of a class of landless wage-workers.[34] The second stage

[32] Karl Marx, *Capital*, Moscow, Foreign Languages Publishing House, 1961, Vol. I, p. 15.

[33] For example in Ghana the extended family is still a kind of assurance against starvation – as long as the family holds land – and therefore it is impossible to speak of Ghana as ever having been a Capitalist country in this sense of the definition.

[34] Marx believed that the 'Enclosure' movement in the sixteenth century was greatly responsible for the accumulation of wealth on the one hand and the creation of a landless working class on the other. I am not certain that enclosure was really the cause and not merely a side effect. See Y. S. Brenner, 'The Inflation of Prices in Early 16th Century England,' *Economic History Review*, Vol. XIV, 1961. In the Eighteenth century, however, Parliamentary enclosure did have this effect. From Goldsmiths' 'Deserted Village' to Thomas Hardy, English literature mourns the destruction of the peasantry – 'Ill fares the land, to hastening ills a prey, where wealth accumulates, and men decay'.

was marked by the acceleration of the accumulation process through the factory system. The first stage was called by Marx the stage of primitive accumulation. The rise of the capitalist production relations, he said, occurred at this time.

The contradictions in capitalism, he claimed, are evident even in the most basic social transactions. For example, commodities are produced for exchange, i.e. sale. The moment they are produced they have already a twofold character. They can satisfy some human want – that is, they have a use-value, or alternatively, they can be exchanged for other commodities – they have an exchange value. In the process of exchange one commodity is traded for another of equal use-value. The exchange value shows that the two commodities have something in common which makes comparison possible. What they have in common is that they were both produced by human labour. The quantity of this labour is the measure of their value. Therefore exchange value merely reflects the form in which the real, labour, value contained in a commodity appears. A commodity, then, represents a unity of use value and value. The magnitude of value is determined by the quantity of labour required in a given society for the production of a given type of commodity. In Marx's terminology it is determined by the '*socially-necessary*' labour, which is measured in '*labour-time*'. 'Socially-necessary labour-time' is the time required to produce an article under the normal conditions of production. 'Labour-time socially necessary,' in Marx's own words, 'is that required to produce an article under the normal conditions of production and with the average degree of skill and intensity prevalent at the time.'[35] With the progress of society the value of commodities is gradually reduced. Higher productivity of social labour reduces the necessary labour-time spent on the production of each individual item. So far Marx agreed all was well with the 'value theory of labour' as formulated by Adam Smith and David Ricardo – but he added, there is the twofold character of labour itself, which is embodied in each commodity. The use-value of a commodity is, of course, labour in a concrete form. The value, however, is a social production relationship. Hence,

[35] K. Marx, *Capital*, Vol. I, p. 39.

value is created through labour but it is recognizable as such only in the process of exchange, i.e. when one commodity is compared with another. With the development of society exchange became increasingly frequent. Money was found to be a most useful medium of exchange and consequently it became the universal equivalent. It became the measuring-rod by which all commodities were compared. In the world of transactions the following sequence came to be common – *Commodity* ➛ *Money* ➛ *Commodity*. People exchange the fruits of their labour (Commodity) for Money in order to buy other Commodities. Hence Marx concluded that the total amount of money needed by any society would be determined by the total of the prices of all commodities, divided by the number of turnovers of money units. In Capitalist terminology this would be:

$$M = \frac{P.Q}{V}$$

The value of commodities tends towards equality with the amount of socially-necessary labour. Again in capitalist terminology, the price mechanism regulates prices in a way which narrows the margin between the cost of production and prices. Yet the operation of this mechanism has another selective effect too. Only the most efficient producers survive competition, the rest must eventually become wage workers. Finally all means of production are concentrated in the hands of a few. Capitalism has an inherent tendency to Monopoly.

Marx's Law of Value, which works through the operation of what in capitalist economic theory is called 'the price mechanism', regulates the distribution of labour between the various branches of production; it stimulates technical and scientific progress (because only those producers which are equipped with the most up-to-date machines can survive the competition among producers), and it promotes capitalist socio-economic relations by crushing the small and favouring the large producers. The object of the system of capitalism, in Marx's view, was always the creation of surplus-value. Prior to capitalism commodities were exchanged for money and money for commodities. Capitalism changed this simple direct relationship.

The capitalist no longer sold in order to buy goods to satisfy a certain want – he bought or sold in order to enrich himself. The formula which represents this condition is no longer:

Commodity ➛ *Money* ➛ *Commodity*

but *Money* ➛ *Commodity* ➛ *Money*

The transaction is no longer mere exchange through the medium of money: a new phenomenon – Capital, is introduced which is a self-expanding value. The first value, *money*, is used by the capitalist to buy the commodity labour-and-tools, which transforms money into productive-capital. The fruit of this productive capital is a new commodity which in turn can again be sold for money-capital. The difference between his first and his last money in the new formula is, that thanks to the labour which was directly or indirectly applied (in the form of stored labour in the tools), it has increased. Had labour been paid its full share in the transformation of money (I) to money (II) the capitalists' money would not have increased. He would never have had an incentive to start the whole exchange procedure from money through commodity and back to money. It is only by paying the workers less than the full productive value that profit is made and that the capitalist is willing to produce. In Engel's words, 'Let us assume, that (the production of) the means of subsistence represent six hours of labour time daily. Our incipient capitalist, who buys labour-power for carrying on his business, i.e. hires a labourer, consequently pays this labourer the full value of his day's labour-power if he pays him a sum of money which also represents six hours of labour. And as soon as the labourer has worked six hours in the employment of the incipient capitalist, he has fully reimbursed the latter for his outlay, for the value of the day's labour-power which he had paid. But so far the money would not have been converted into capital, it would not have produced any surplus-value. And for this reason the buyer of labour-power has quite a different notion of the nature of the transaction he has carried out. The fact that only six hours' labour is necessary to keep the labourer alive for twenty-four hours, does not in any way prevent him from working twelve hours out of the twenty-four. The value of the labour-power,

and the value which that labour-power creates in the labour-process, are two different magnitudes . . . On our assumption, therefore, the labourer each day *costs* the owner of money the value of the product of six hours' labour, but he *hands over* to him each day the *value* of the product of twelve hours' labour. The difference in favour of the owner of the money is – six hours of unpaid surplus-labour, a surplus-product for which he does not pay and in which six hours' labour is embodied. The trick has been performed. Surplus-value has been produced; money has been converted into capital.'[36] So, the unpaid 'over-time' labour is the source of capitalistic profit. In Marx's terminology a product under capitalistic relations contains two factors: *Necessary labour-time*, i.e. the time required for the production of goods equal to the workers' maintenance needs; and *surplus value*, i.e. the product of the surplus labour over and above the necessary labour-time. The aim of all capitalist productive activity is the collection of surplus value. This may require technical progress. If it does, capitalists will not hesitate to apply it and do all they can to stimulate research. Yet, although this will stimulate progress, progress itself is never the aim of the effort, it is merely the result. The aim is, and will remain, profit. This is of course, the main difference between capitalist growth and growth under socialism. The first is driven on by competition for surplus value, the second is planned to enhance the peoples' standard of living. Both systems increase man's ability to overcome the impediments nature has put on his route to happiness, but under capitalism the process is relatively slow. The impetus of consciously planned progress is gained only when the infrastructure becomes ripe for the 'leap' to socialism.

It is here necessary to explain some of Marx's terminology. Capital, in this terminology, as in capitalist terminology, is divided into *constant capital* (c) and *variable capital* (v). In Marx's system, constant capital, however, includes, in addition to the 'fixed capital' (i.e. the factory buildings, machines etc.) also such items as fuel and raw materials which in the capitalist economic terminology are normally included in the variable capital. Marx's variable capital consists therefore of wages alone. The constant capital, i.e. the means of production, does

[36] F. Engels, *Anti-Dühring*, pp. 282-283.

not create any value because its original value is transferred, wholly or partly, into the new finished product. The variable capital, however, changes and grows through the creation of surplus-value. The *rate of surplus-value* $(\frac{m}{v})$ is the ratio of surplus-value to variable capital.

Hence:

$$\text{The degree of exploitation} = \frac{\text{Surplus Value}}{\text{Variable Capital}} \quad \frac{m}{v}$$

The growth of the surplus value (m) may take place in two ways:

(a) Through the prolongation of working hours, or the 'sweating of labour'; it is then called '*Absolute surplus-value*'.

(b) Through the reduction of the necessary labour time required to produce a given good, i.e. by better organization or improved machinery; then it is called '*Relative surplus-value*'.

As labour becomes increasingly better organized and learns to defend itself against exploitation the first method of exploitation, the collection of 'absolute surplus-value', is replaced by the second method, the collection of 'relative surplus-value'. This method is indeed more suitable for the gathering of capitalist profits once society has achieved a certain level of industrial development. Instead of increasing the number of hours a worker has to spend at work the capitalist may even reduce his working-time and still increase his exploitation. As the 'necessary labour-time' (the time required to produce the worker's subsistence) may have been reduced through technical or other improvements even more drastically than the hours of labour returned by the capitalist to the labourer, the former may still benefit significantly from switching from the 'absolute' to the 'relative' surplus-value. For example, let us assume that thanks to innovations in a factory the 'necessary labour time' is reduced from six to four hours, and the working day from eight to seven hours. The labourer would gain one more hour's leisure and the capitalist would gain one hour's additional exploitation time – relative surplus

value – since the worker would now work for him $7-4=3$ hours whereas before he worked for him $8-6=2$ hours. Therefore in their quest for 'relative-surplus' capitalists endeavour to develop science and technology and consequently promote progress.

Marx distinguished three stages in the development of the 'relative surplus-value'. *First*, the concentration of labour and better supervision of workers – 'capitalist simple co-operation'. *Second*, the reduction of time wasted by workers – the stage of manufacture, 'division of labour'. *Third*, the maximum increase in the production of surplus-value – the stage of industry, the introduction of machines. In all cases wages are never the value or price of labour but only the value or price of labour-power.[37] They depend upon the absolutely necessary subsistence needs of the workers and on the cultural level of the working class. The employer tries to reduce wages to the minimum necessary to keep body and soul together, and the workers try to raise wages to the maximum obtainable under the given technological conditions. The struggle between these opposing 'pulls' can increase the workers' share in the produce of their labour but never make it equal to it, except when the working class captures political power and with it the ownership of the means of production. Until this happens the motive for economic growth and expansion must remain profit. Profit, which is surplus-value, is the excess of income over cost of production. Hence, the requirements of the people will only be satisfied in as far as profit can be earned in the process. The rate of profit, i.e. the ratio of surplus-value to the capital invested will under capitalism be the decisive factor in making the choice of what ought and what ought not to be produced at a given time or place.

The rate of profit thus dominates all investment decision.

$$\text{Rate of Profit} = \frac{m}{c+v}$$

$$\text{Rate of Surplus-Value} = \frac{m}{v}$$

[37] For full discussion of 'wages' see Marx & Engels, *Selected Works* (Moscow, 1958), Vol. II, p. 29.

Where m = Surplus-Value c = Constant Capital (Fixed capital + raw materials),

v = Variable Capital (Remuneration of labour).

However, different rates of surplus-value may exist in various sectors of the economy. Some industries use more fixed capital than others. The former have a greater share of 'constant capital' (c)* which does *not* directly produce any profits for the capitalist. Marx called the composition of the constant and variable capital (c+v) in any enterprise the 'organic composition of capital'. Thus, the larger the relative share of 'constant capital' (c) in an enterprise the 'higher' its 'organic composition'. Consequently, it appears quite possible that equal amounts of capital which are invested in different industries may yield unequal amounts of surplus-value. In fact, it seems that the surplus value (m) received by the capitalist in industries with a high organic composition of capital would always be less than that received from industries with a low organic composition. This, however, cannot be, because if it were the case then all capitalists would never invest in high organic composition industries. The dilemma is solved by the workings of what is now called the price mechanism. The flight of capital from the industries with a high organic composition of capital produces a shortage of products and consequently a miss in prices. The higher prices, then, compensate the investors for their relatively high 'no-profit-yielding' capital investment. A 'spontaneous' adjustment takes place which equalizes profits. Eventually the total amount of surplus-value which is produced is distributed among all capitalists in an approximate proportion to the magnitude of their invested capital. This process of equalization of profits in the various sectors comes about in something like the following manner.

Let us assume that the value of commodities produced in an industry with a high organic composition of capital is 120 units of a currency. This would be made up:

* which may only indirectly increase profits by reducing the share of expenditure of variable-capital (v).

Constant capital	(c)	90 units
Variable capital	(v)	10 units
Surplus value	(m)	20 units
		120 units *Total* – (High organic composition)

And let us assume that the value of commodities produced in an industry with a low organic composition of capital is 140 units of currency, made up in the following manner:

Constant capital	(c)	80 units
Variable capital	(v)	20 units
Surplus value	(m)	40 units
		140 units *Total* – (Low organic composition)

In both industries the capitalists' outlay (c+v) is 100 units. In one, owing to the surplus value (m), the total value of the product has become 120, in the other, with lower organic composition of capital, it has become 140.

Now, the price mechanism interferes and, value i.e. outlay + average profit, becomes 130.

$$\frac{m'+m''}{2} = \frac{20+40}{2} = 30 = \text{Average surplus-value.}$$

$$(c+v) + \frac{m'+m''}{2} = 130 = \text{Average profit and inputs.}$$

The products of the 'high organic composition' industry are sold for 10 units below, and the products of the 'low organic composition' industry for 10 units above their normal value. The individual deviations from value cancel one another and the sum of the values of all commodities together becomes equal to the sum of the cost prices of production.

$$(120 + 140 = 260)^*$$
$$(130 + 130 = 260)$$

* $$(c' + v' + m') + (c'' + v'' + m'') = 260$$
$$(c' + v') + (c'' + v'') + \frac{m' + m''}{2} + \frac{m' + m''}{2} = 260$$
$$2(c + v) + m' + m'' = 260$$

In other words, the *high* profits in the 'low-organic-composition-of-capital-industries' cause over-production of the particular goods thus produced, which is followed by a fall in their prices while at the same time the *low* profits in the 'high-organic-composition-of-capital-industries' cause under-production which will be followed by too high prices. The final outcome of these contradictory trends must then be the equalization of profits in both high and low organic composition sectors (as illustrated above). This mechanism is of great importance in the development of a higher standard of living. It prevents the attraction of all capital to the 'high organic composition industries' and increases the general welfare through the reduction of the average price level.

Any improvement in the high organic composition industry will in the long run increase the workers' purchasing power, assuming that all other things remain equal. For example, let us assume that the constant, and therefore non-surplus-value creating capital (c) in a given industry is increased at the expense of the variable expenditure (v). Then, instead of

$$90 + 10 + 20 = 120 \quad (c + v + m = 120)$$

we may get (if the rate of profit for 1 unit outlay on labour is 100%, i.e. 2)

$$99 + 1 + 2 = 100 \quad (c + 9) + (v - 9) + \text{rate of profit from labour per unit } 100\%$$

The average profit (for the whole economy) which was before 130 units is now reduced to 121.

Low organic composition industries

(c) 80 + (v) 20 + (m) 40 = 140 (Total)

Old High-Org. Comp. Industries

(c) 90 + (v) 10 + (m) 20 = 120 (Total)

Average profit (Old situation) $100 + \frac{20+40}{2} = 130 - 100 = 30$

Under the new improved condition in the high organic composition industry we get:

(c) $99+(v)\ 1+(m)\ 2=102$ (Total) $-\ 100=2$.

Hence, the new average price will be $100+\frac{2+40}{2}=121$.

Marx discussed the social and economic implications of this observation in Volume III, Chapters IX, and X, of 'Capital', where he shows how 'average of profits' influence the behaviour of capitalists as a class. He shows how on the one hand, all capitalists are engaged in a life and death struggle for survival against each other, while on the other, they must co-operate, as a uniform collective, to keep down the wages of the workers. This is self-evident if one remembers that the 'price mechanism' reduces all profits towards 'the average' which will only be high if all owners of means of production do their utmost to extract as much surplus-value as possible from their enterprises.[88]

Finally, the increasing importance of the 'high-organic-composition of capital' industries, the rise of technical improvements which are forced upon the capitalists by their own competition and by the workers' struggle for a higher standard of living, can only lead capitalism towards self-destruction. The growing trend to replace surplus-value-yielding labour by machines, which, as Marx maintained, do not yield any surplus-value, must either lead capitalism towards disintegration, or towards increasing class contradictions in order to facilitate continued exploitation. Since competition amongst themselves does not permit capitalists to refrain from introducing machines they will surround themselves with corrupt elements of the working class, who, for a fee, will defend them against the exploited. Eventually, however, once the workers become conscious of the reality of their exploitation, they will free themselves by revolution.

The same laws, which have earlier been discussed in connection with the reaping of surplus-value in industry, hold also true with regard to agriculture. There is, however, a difference. In agriculture, as Marx knew it, the owner of the land and the farmer were usually different persons. This duality of owner and holder leads to a lower organic composition of

[88] It should be noted that Marx emphatically rejected the theory of 'The Law of Diminishing Returns'.

capital in this sector of the economy.* Consequently, profits should have been larger. But the monopoly of private ownership of land prevented a free flow of capital into agriculture and thereby the equalizing effect of the 'price mechanism'.[31] The prices of agricultural products are determined by value and not by the costs of production. The difference between value and the cost of production is what Marx called the 'absolute rent'. This difference, which Ricardo had already shown to be the difference between first, second, third, etc., quality land, is skimmed off by the land owners (as distinct from the lease-holders) and becomes the cause of high food prices.

Again, profits are made equal in all sectors of the economy. For example let us assume that the surplus-value extracted from labour is equal to 100%, then –

Profits in industry for 100 Units investment will be 10 Units.

$$100 = 90\,(c) + 10\,(v)$$

Profits in agriculture will be 20 Units, divided 10 and 10 between the lease holder and the land owner.

$$100 = 80\,(c) + 20\,(v)$$

Rent, which is therefore the excess of surplus value occurring in agriculture owing to its low organic composition of capital, thus becomes the equalizing factor with regard to the profitability of investments.

So in whatever sector the capitalist is investing his money his capital reproduces itself and gives rise to the employment of more factors of production. But, as Marx pointed out, it is necessary to distinguish between two departments of production. Department I, which is dedicated to the production of the means of production, i.e. producers' goods. And Department II, which is dedicated to the production of consumers' goods. With regard to value, production in both departments has to be divided into three parts:

(1) Replacement goods.

*Obviously the farmer will have less incentive to make heavy long-term investments in the land.

(2) The replacement of variable capital (wages).
(3) Surplus value.

As long as no progress takes place, i.e. under what Marx called simple reproduction, as distinct from extended reproduction – which means growth, the sum of variable capital (v) and of surplus-value (m) of Department I, must be equal to the constant capital (c) of Department II.

$$I, (v+m) = II, c$$

(Wages and profits from producer goods must be equal to constant capital for consumer goods.)

In the process of exchange between Department I and II (Producer and Consumer goods), workers and capitalists from the producers' goods industries (Department I) get goods from the consumers' goods industries (Department II). At the same time, however, the capitalists of consumers' goods industries (Department II) receive constant capital (c) for new production. Thus Department I provides producers' goods for both Departments, and Department II produces consumers' goods for both Departments.

When, however, progress takes place, i.e. in a developing economy, the sum of the variable capital (v) and the surplus-value (m) of Department I, I, (v+m), is greater then than the sum of the constant capital (c) of Department II. $I, (v+m) > II, c$. The difference, then, between I, (v+m) and II, c forms the excess which goes to capital accumulation. With the progress of accumulation (i.e. of the excess of I, (v+m) over II, c.) the share of constant capital (c) grows, whereas the share of variable capital (v) diminishes. This is what Marx called the 'Law of the Accumulation of Capital'.

From this it follows that constant capital (c) in each Department grows more rapidly than variable capital (v) and surplus value (m).

$$\Delta I, c + \Delta II, c > \Delta I, (m+v) + \Delta II, (m+v)$$

Moreover, the growth of constant capital in Department I must be greater than the growth of constant capital in Department II.

$$\Delta I, c > \Delta II, c$$

Hence, the greater rate of growth, i.e. of capital accumulation,

takes place in the producers' goods industries and the smaller one in the consumers' goods industries. The priority of accumulation and growth in the producers' goods industries is what Marx called an economic 'Law' which must apply to any possible 'extended reproduction' – i.e. growth.

The motive force behind extended production under capitalism is capitalistic competition for profits. However, as growth cannot be equal in both compartments I and II under these conditions, capitalism contains an element of instability which makes crises of over-production inevitable. As labour is robbed of part of the fruits of its production its purchasing power (demand) can never suffice to consume all that is produced. Consequently as accumulation grows and less and less labour is required to produce more and more goods the maladjustment must result in over-production. In the beginning this process will be disguised, as factors of production will shift from the consumer goods industries to the producer goods industries. Eventually, however, this will only make the crisis, when it finally breaks, more severe. Between 1825 and Marx's death such crises appeared to occur at regular intervals of approximately ten years. During each of the depressions, when there was no market for consumer goods and costs of production were low, some plant renewal took place which, according to Marx, would gradually increase employment and demand and get a new business cycle on its way.

The development of large-scale producers' goods industries and the technical improvements which reduce the demand for labour must, therefore, according to Marx, and contrary to Ricardo's predictions, eventually lead to mass unemployment.[39] The resultant worsening conditions of the working class will, however, always be relative and not absolute, for this is the nature of development.[40]

Let us summarize, 'With the accumulation of capital, large numbers of workers and colossal means of production are concentrated in gigantic enterprises. The operation of the immanent laws of capitalist production leads to the crushing of the weaker capitalists by the stronger ones. Side by side with the centralization of capital, or the expropriation of the many

[39] K. Marx, *Capital*, 1962 edition, Vol. I, p. 644.
[40] *Fundamentals of Marxism-Leninism*, Moscow 1964 edition, p. 236.

capitalists by the few, there develops the deliberate application of science to production, the methodical cultivation of the land, and the transformation of the instruments of labour into such instruments as can be used only in common. The moment comes when it becomes not only possible but essential to convert the decisive means of production into social property. This is because the contradiction between the social character of production and the private capitalist form of appropriation has become intensified to an extreme degree.

'The accumulation of capital creates not only the objective, but also the subjective, prerequisites for the transition from capitalism to socialism. Society becomes more and more sharply split into a handful of financial magnates on the one side, and opposing them the mass of the workers united by large-scale industrial production. The proletariat rises with increasing determination to struggle against capital. The working class strives to convert capitalist property into socialized property. This process is incomparably less protracted than the transformation of scattered private property, arising from the personal labour of the small handicraftsman and peasant, into capitalist property. Under capitalism, the mass of the people, led by the working class, is confronted with the task of liberating society from the yoke of a few usurpers.

'Along with the constantly diminishing number of financial magnates, who appropriate all the benefits of the developing productive forces, grows the indignation of the working class, which is disciplined, united and organized by the very process of capitalist production itself. The capitalist mode of production becomes a fetter upon the further development of the productive forces of human society. "Centralization of the means of production and socialization of labour at last reach a point where they become incompatible with their capitalist integument. This integument is burst asunder. The knell of capitalist private property sounds. The expropriators are expropriated." This is the historical tendency of capitalist accumulation.'[41]

[41] The paragraph is taken from the summary of the chapter VIII of Part III (Political Economy of Capitalism) in the Moscow 1964 edition of *Fundamentals of Marxism-Leninism*, pp. 237-238. The inserted quotation is from Marx, *Capital*, Vol. I, 1962 edition, p. 763.

MARX AND ENGELS:

Summary of view on economic development

Economic development is inherent in dialectical and historical materialism. It is the keynote to all Marxist theory. History is the record of man's increasing success in overcoming the obstacles placed in his way by the laws of nature. Man of course cannot abolish these laws. But he can construct a rocket which will travel into outer-space. With each generation the amount of human knowledge grows. With each new discovery knowledge is added to the accumulated stock. All the obsolete, inaccurate information is discarded and only the valuable is preserved. As there is no process of 'unseeing' or 'unknowing' a thing, man's understanding of his environment is continually increasing. However, by understanding it he also learns to influence it and indeed does so. He becomes the recreator, as well as the victim of his environment. At each stage of development man is thus faced with reality which reflects his past and present level of success in learning to rend from nature his sustenance. The degree to which he is able at each stage of history to produce his nourishment is the *infrastructure* of his economic environment. But the human relations, political and social, cultural and legal, in fact the whole structure of society standing upon this infrastructure is its *superstructure*. The laws of gravitation apparently bind man irrevocably to the Earth, but by understanding them he can construct a rocket which will carry him into outer space, free of the Earth. Freedom, as Marx defines it is the understanding of necessity. Once the infrastructure has changed and no longer corresponds to the prevailing superstructure the contradiction must sooner or later lead to a revolution of the socio-ideological – i.e. cultural, framework. A 'leap' occurs a revolution in thought; society adjusts itself to its new economical reality, which of course is at this very moment already on the way to an even further advanced stage of development.

As long as the state of human knowledge, i.e. productivity, did not suffice to produce more than the bare necessities of subsistence, and no one could therefore rob the worker of the fruits of his labour, prisoners of war were killed. When owing

to improved knowledge productivity increased and a man could be deprived of part of his produce, prisoners were turned into slaves. When man had learned to make machines for which slave labour was unsuitable, and which were too costly to be owned by the individual artisan, labour became divorced from its means of production and the classes of society reorganized into capitalists and workers. The direct coercion of the slave owner was replaced by the discipline through hunger of the capitalist. As the aim of all capitalist production is profit, and profit depends on surplus-value, i.e. on the time the worker can be made to produce goods and services over and above the time necessary for the production of the value equal to his wages, capitalism, being unable to increase the exploitation of labour by prolonging its working hours, must continually stimulate technical and scientific improvements of its means of production – thus to pave the way towards its own substitution by a new social structure. The competition among the capitalists themselves, and the opposition of the workers to their exploitation, become the motive force, raising mankind's standard of living and preparing the road to the planning of the development of human and natural resources under the social ownership of all means of production. The contradictions, dialectically inevitable, in the economic infrastructure give rise to revolutionary changes within the superstructure, and these in turn react upon the infrastructure, hastening the resolution of the contradictions by the passage to a new stage. The contradictions of capitalism, its private appropriation of socially-produced wealth, its cyclic crises, necessarily bring to birth socialist theory. This cannot happen of course until the economic infrastructure is ripe for change. But once this socialist theory arises and develops in the minds of men it eventually bursts asunder the socio-legal bonds fettering the development of infrastructure – an idea becomes a material force when it takes possession of the minds of the masses. There is thus endless *dialectic interplay* between infrastructure and superstructure.

The concentration and organization of labour, which was in itself a pre-requisite of the capitalist mode of production, enables the working class to defend itself effectively against increasing exploitation and even to increase its share in the

fruits of higher productivity. The capitalist, however, is also forced to improve his means of production in order to be able to compete with the competitors of his own class. Thus inexorable progress in science and its application is forced upon the capitalist which prevent stagnation and reversion to older modes of production.

Hence the better understanding of nature, the increasing scientific knowledge and the inexorable progress of its application is the most stable element in human development: The social and political superstructure is transient, subject to fluctuations, and continually adjusting itself to new economic realities but also reacting upon them. The degree of people's conscious understanding of their real economic and social environment is decisive in their power to control History. Marxism claims to provide the *method* for this understanding.

CHAPTER IV

The Neoclassical Economists (1870's - 1920's)

The contribution of neoclassical economics to the apparatus of economic analysis was the addition of the concept of *Utility* as an integral part of it, and the introduction of the idea of *Maximization*, i.e. of the utilitarian philosophy and psychology, and later, of the study of the preferences displayed in the market, as a normative approach to the study of political economy. In this way the neoclassicists provided the alternative to the classical 'labour-cost' theory, opposing it to and supplementing it with a 'scarcity-utility' theory.

The most important members of this school, whose work has a bearing, though indirectly in most cases, on the theory of economic development were: W. S. Jevons (1835-1882), K. Menger (1840-1921), F. Y. Edgeworth (1845-1926), A. Marshall (1842-1924), J. B. Clark (1847-1938), L. Walras (1834-1910), V. Pareto (1848-1923), P. H. Wicksteed (1844-1928), Irving Fisher (1867-1947), K. Wicksell (1851-1926), and A. C. Pigou (1877-1959). Their relevance for the study of growth springs paradoxically from their deductive method of constructing micro-static models of equilibrium and from the study of the 'responses of the system of interrelated variables which they constructed under impact from the variables they labelled exogenous'.[1] Obviously, a comparison of different static positions, in time, can provide a 'growth theory' provided, of course, that each system of inbuilt variables has a 'unique steady-state' solution. In addition to this they did in fact, though not deliberately, provide a list of growth-producing forces by separating in their systems the stabilizing from the

[1] John Buttrick, *Theories of Economic Growth*, ed. B. F. Hoselitz, 1960, pp. 158-159.

disequilibrating factors. The way in which they presented their models, showing clearly which factors narrow down and which increase the ranges of variation from the parameters, helped to stress the division between the stabilizing and the growth-producing factors. Moreover, 'they demonstrated that their model was perhaps invariant with respect to changes in several socio-political variables, e.g. private property and the profit motive'.[2] Finally, they introduced the use of mathematical techniques for the development of theorems of empirical importance and made economics to a certain extent into an empirical and normative study. 'In sum then, to evaluate the contribution of the neoclassical authors to growth theory and policy, we must examine what they did not do and their reasons, either explicitly stated or easily inferred, for this neglect, as well as their positive achievements. They provide this information themselves by underlining the importance of exogenous variables, such as technology, tastes, and population, and speculating as to the behaviour of these variables over time . . . Furthermore, insofar as exogenous variables are capable of conscious control, e.g. by government, the neoclassicists devoted considerable space and attention to the invention of recipes which if followed, would make for desirable economic change.'[3]

It may be advisable to add a few words about the use of mathematics in part of neoclassical economics. Mathematics is basically a method of reasoning – i.e. a form and branch of logic. It is in fact a substitution of equations for real propositions in order to infer from them and translate the inferences back to reality. This method is justified because mathematics is a specific kind of logic which is as good as any other kind for reaching conclusions by starting off from real premises. Hence, although mathematics can never be, and indeed never is, the only way to present and interpret economic activities it may well be the most useful one in a number of specific cases.

The application of mathematics to economic analysis has taken several forms since it was first used by Giovanni Ceva in 1711, and by Cesare Beccaria in 1765 to work out the relationship between the hazards and the profits involved in smuggling. In the first place it has taken the form of mere

[2] *Ibid.*, p. 159.

[3] *Ibid.*, p. 160.

'translation', which is the explanation of economic propositions with the help of symbols and graphs. Secondly, mathematical methods were applied to problems which were too complex to be expressed verbally with the necessary degree of clarity. And thirdly, as Walras and Pareto used it, mathematics was employed to incorporate and organize economic theory into a complex of interdependent factors which can be presented in the form of a set of simultaneous equations.[4] Sometimes these equations become in the process so complicated and divorced from reality that they are useless, but many times they are very helpful indeed.

W. S. JEVONS (1835-1882)

Jevons believed that the basis of all true economic theory must always be 'the great springs of human action – the feeling of pleasure and pain',[1] and the only reliable method for its study 'a sort of mathematics which calculates the causes and effects of man's industry, and shows how it may best be applied'.[2] He was in fact sure that all economic phenomena 'should be investigated according to the same scientific methods with which we are familiar in other complicated sciences, such especially as meteorology and terrestial magnetism'.[3] True to these rules he substituted sometimes by Procrustean techniques, 'exact inquiries, exact numerical calculations', [for what he called 'guess-work and groundless argument . . .']' This he did successfully in his study 'On a Serious Fall in the Value of Gold' (published in 1863),[5] in which he did in fact solve all the basic problems involved in the use of index-numbers, like weighting of representative units etc., thus making a major contribution to the development of statistics.

Treating the economy as a calculus of pleasure and pain in close analogy to 'statical Mechanics' and treating the 'Laws of Exchange' as the 'Laws of Equilibrium of a lever', and by explaining the nature of 'Wealth' and 'Value' in terms of

[4] See Oskar Morgenstern, 'Value Economics' in the *Encyclopedia of Social Sciences*, Vol. V, p. 364, for a very good summary of mathematical economics. Also under 'Economics', 'Vienna School' and 'Cambridge School'.

[1] Paper read to the British Association in 1862.

[2] *Letters and Journals*, ed. by his wife in 1886.

[3] *Investigations in Currency and Finance*, 1st ed. 1884, p. 4.

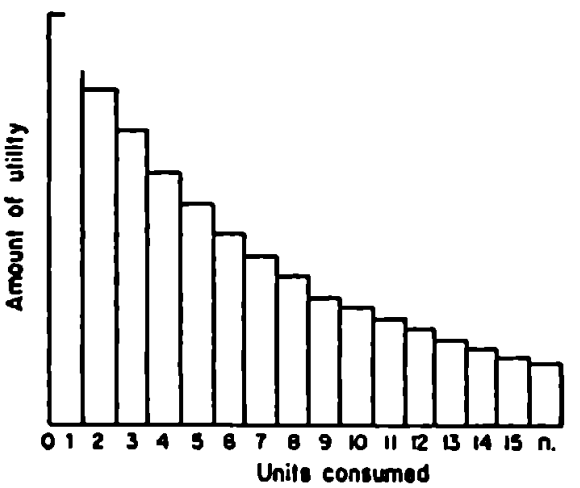
[4] *Ibid.*, p. xxiv.

[5] *Investigations on a Serious Fall in the Value of Gold*, 1st ed. 1863.

'indefinitely small amounts of pleasure and pain, just as the theory of Statics is made to rest upon the equality of indefinitely small amounts of energy',[6] Jevons presented economic theory not only with the basis of the whole system of Infinitesimal examination of marginal utility and maximization assumptions, but also with a completely new approach to value. He introduced it as an index of utility in place of the classical labour-value theory. Taking this sort of utility value as his premise, Jevons believed that its degree in a commodity must always be a function of the quantity of the latter alone; that the utilities of a thing to different people need not and cannot be compared; that there exists a Law of Variation of Utility, i.e. diminishing marginal utility etc., and that consumers allocate their expenditure between the various commodities they buy in such a way that the last (margin) unit of each good is equal in utility to the last unit bought of each of the other commodities relative to price.

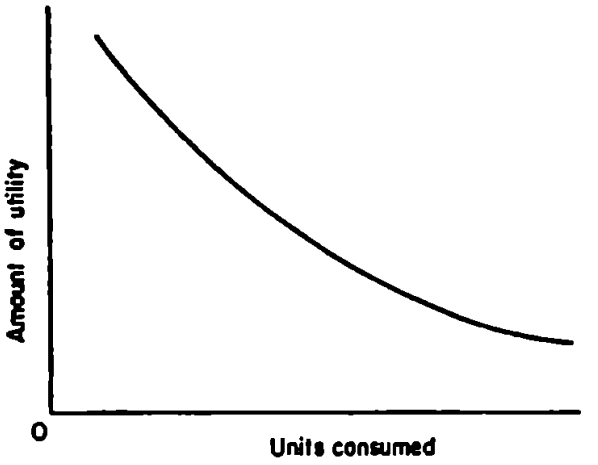
He demonstrated his theory of Demand and Supply, which was based on these assumptions, in the following four diagrams:[7]

Proposition I. The amount of utility derived from consuming successive units of some food within a limited period decreases with each additional unit.[7a]

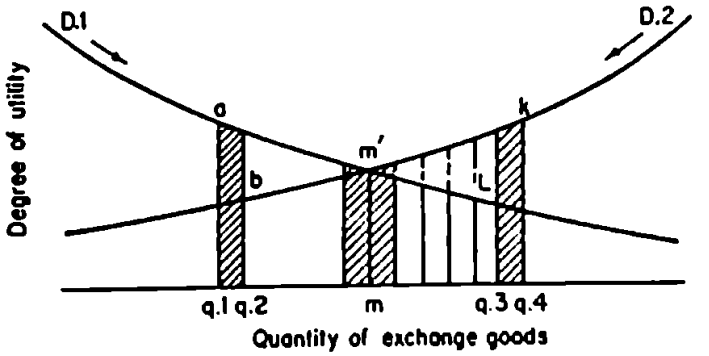


[6] *Theory of Political Economy*, 3rd edition London 1888, pp. vi/vii.
[7] *Ibid.*, pp. 46, 49, 97, 173.
[7a] "Give me yet more of it, that, surfeiting,
The appetite may sicken and so die". (*Twelfth Night*, Act I, Sc. 1).

If the units of consumption were divided into infinitesimal fractions the same proposition could be presented as a curve.



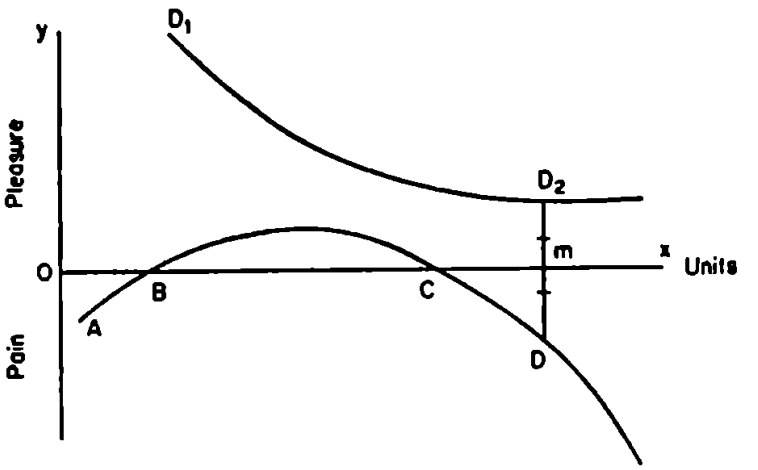
Proposition II. If two persons exchange goods they can continue doing so profitably until the ratio of exchange is such that the last unit of one person's goods which is given in exchange for the last unit of the other person's goods have both the same degree of utility.



The declining amount of utility each of the two consumers derives from his goods is measured along the curves D.1 (for the first consumer) and D.2 (for the second consumer). In the process of exchange the first consumer loses q.3,q.4,L. and gains in exchange q.1,q.2.a. However, if, as Jevons assumed,

people are acting rationally, maximizing their utility, they will not continue their exchanges beyond the quantity m. because beyond m. the exchanging parties would lose by the transaction. Therefore the last unit of exchange in all transactions must be equal (mm') in utility, or relative to one to the other and to price.

Proposition III. In the matter of labour Jevons substituted the simple exchange formula by introducing the concept of negative utility – 'disutility'.



The curve D.1,D.2 indicates the amount of utility (pleasure) a consumer obtains from consuming successive units of products. The curve ABCD shows the related 'disutility' (pain) experienced by the same consumer from working successive units of time. All work done which is registered above the line OX is adding pleasure and all work below the line OX is causing him displeasure. At point m (on the line OX) the amount of utility gained from additional consumption is exactly offset by the amount of displeasure experienced from more work. At any point beyond (to the right of) m the excess of disutility from labour over utility from additional consumption increases. Obviously the consumer will maximize his total utility from labour, i.e. will be in equilibrium, at point m.

The same ideas of Jevons, which are demonstrated here graphically, were also explained algebraically by their author,

and independently a few years earlier by Fleeming Jenkins, a Professor of Engineering at Edinburgh University.[8] Jevons defined the market as two or more persons dealing in a number of commodities, ignoring the possibility that the market may react differently when both the number of parties exchanging goods and the number of exchangeable goods themselves are appreciably increased. Moreover he concluded from his models that 'so far as is consistent with the inequality of wealth . . . all commodities are distributed by exchange so as to produce the maximum of benefit', and that therefore, if totally free, exchange must be to the best advantage of everybody. He concluded his chapter on exchange and utility with an attack on the labour-cost of production theories of value. He wrote 'The fact is, that labour once spent has no influence on the future value of any article: it is gone and lost for ever . . . Industry is essentially prospective, not retrospective; and seldom does the result of any undertaking exactly coincide with the first intentions of its promoters. But though labour is never the cause of value, it is in a large proportion of cases the determining circumstance, and in the following way: – Value depends solely on the final degree of utility. How can we vary this degree of utility? – By having more or less of the commodity to consume. And how shall we get more or less of it? – By spending more or less labour in obtaining a supply.' Briefly, 'Cost of production determines supply; Supply determines final degree of utility; Final degree of utility determines value.'[9]

There is very little discussion of profit in Jevon's *Theory of Political Economy*. Profit was merely the 'wages of superintendence, insurance against risk and interest'. (Perfect competition.) Consequently he had no real views on the process of capital formation and consequently made no contribution in this sense to the theory of economic growth. 'The single and all important function of capital,' in his view, was 'to enable

[8] *The Graphic Representation of the Laws of Supply and Demand, and their Application to Labour*, (1870). Jenkins began from the criticism of the wage-fund theory which led him to an analysis of the demand and supply of labour. Jenkins incidentally was the first to criticise Jevons in that his 'utility' cannot be practically useful as it cannot be measured. But most important of all his ideas was the statement that only a rising level of demand can maintain progress in a society. (*Is One Man's Gain Another Man's Loss?*).

[9] *The Theory of Political Economy*, 2nd ed. 1879, pp. 164-165.

the labourer to await the result of any long-lasting work – to put an interval between the beginning and the end of an enterprise . . . Capital enables us to make a great outlay in providing tools, machines, or other preliminary works, which have for their sole object the production of some important commodity, and which will greatly facilitate production when we enter upon it.'[10]

The rôle of the State in Jevons's view was to insure the 'Freedom for all commercial transactions'. Consequently he was troubled by the 'working classes, with their growing numbers and powers of combination . . .' being led 'by ignorance to arrest the true growth of our liberty, political and commercial'. He thus comes exactly to the opposite conclusion of Marx – (that all progress is stimulated by the combination of the workers to resist exploitation), stating that 'even if all could combine with equal ease they would only make all things dear and hinder the production of the commodities upon which we live'.[11]

As T. W. Hutchison points out 'Jevons's vision of social progress here implied a diminution in the social services as self-reliance and independence increased, rather than a steady expansion of public provision'.[12] His final conclusion on the subject of government was 'We must neither maximize the functions of Government at the back of quasi-military officials, nor minimize them according to the theories of the very best philosophers. We must learn to judge each case upon its merits, interpreting with painful care all experience which can be brought to bear upon the matter.'[13]

KARL MENGER (1840-1921)

The second economist who explored marginal utility from the point of view of a theory of value during the 1870's was Menger. In his book *Grundsatze der Volkswirtschaftslehre* (1871)[14] he proceeds to analyse consumers' behaviour from the point of

[10] *The Theory of Political Economy*, pp. 223-224.
[11] Introductionary Lecture at Manchester in 1866.
[12] T. W. Hutchison, *A Review of Economic Doctrines 1870-1929*, 1962, p. 47.
[13] *The State in Relation to Labour*, 1882, p. 166.
[14] Translated into English as *Principles of Economics*.

view of the most primitive civilization (Jungle-'Urwald') in which heads of families allocate trees, measures of water and corn between alternative uses so as to gain the maximum 'Bedurfnisbefriedigung' (utility), and exchange goods with the same idea.

In Menger's system there is a difference between 'things' and 'goods'. The world is full of 'things' but they only become 'goods' when man has a want for them; when they can be made to satisfy given wants and when man knows of their existence and ability to satisfy them. Accordingly, Menger graded them into goods of first 'order', second 'order', third, fourth and so on, of which those of the first order were goods which directly satisfied a human want, i.e. consumer goods, and those of a 'higher order' which contributed only indirectly to the satisfaction of man's wants, like raw materials, fuels and machines. In addition to this he divided goods into economic and 'non-economic' ones. The former were those which are scarce and the latter in abundance in relation to man's needs. The former, he claimed, were both valuable and useful, the latter merely useful but not of value. Value, then, in Menger's analysis does not depend on the cost of production but only on the intensity of want and scarcity. Value is thus related to economic goods. It arises from the satisfaction of the wants of individuals, i.e. from 'utility'. National demand is the sum-total of all individual demands which need not necessarily be equal in their intensity from one individual to another.

Each individual arranges his scale of preferences according to the intensity of his demand;[15] as the demand for one good diminishes with the consumption of successive units of it the demand for another good rises to take its place at the head of the individual's list of preference.[16]

The table is, of course, a statement of the principle of diminishing marginal utility, similar to Jevons's in content though not form. Utility, it appears in this system, is always the function of each good alone and, surprisingly so, not of a combination of groups of goods. The allocation of resources is an 'Ex-ante' (forward-looking) process and therefore the produc-

[15] *Principles of Economics*, Translation Dingwall & Hoselitz, p. 51.

[16] *Ibid.*, p. 93. The table is of course merely for the illustration of the idea and not aimed at a numerical assessment of 'utility'.

Goods	I	II	III	IV	V	VI	VII	VIII	IX	X
	Measure of degree of intensity of want.									
	Food				*Tobacco*					
	10	9	8	7	6	5	4	3	2	1
	9	8	7	6	5	4	3	2	1	
	8	7	6	5	4	3	2	1		
	7	6	5	4	3	2	1			
	6	5	4	3	2	1				
	5	4	3	2	1					
	4	3	2	1						
	3	2	1							
	2	1								
	1									

tion of 'high order' goods can only be a function of the anticipated demand of 'low order' (consumers') goods, which is transmitted through present scarcity.

The exchange of goods is the result of the different demand schedules, the gradations of the intensity of demand at any given time between different people. The principle here is what today is called the 'opportunity cost'. Consumers are supposed to be continually weighing the satisfaction of one of their wants against the loss of satisfaction of another. They exchange goods in order to maximize their total satisfaction from their stock of goods.[17] Hence the consumer will always exchange the unit of the good which gives him the least satisfaction for another which gives him more. Menger was not unaware of the powers of monopoly in this respect, but he also recognized its limitations. He knew that maximization of profits imposes even on monopoly far-reaching restrictions.[18]

Obviously, Menger rejected the labour-cost value theory and he did so in almost identical words with Jevons: 'No one asks about the historical origin of a good in estimating its value,' he wrote,[19] 'but takes account of the services which it is going to yield . . . Certainly, comparing the value of a good with the value of the means of production used in producing it, may tell one how far the past act of production was economic or worthwhile; but the goods used in its production have no necessary or direct influence on the value of a product'. In fact

[17] *Ibid.*, p. 99. [18] *Ibid.*, p. 212. [19] *Ibid.*, p. 120.

Menger went too far in underrating the relevance of the costs of production. The value of 'high order goods' in his analysis was determined by the prospective value of the consumer goods they helped to produce. The place of the entrepreneur, in his view, was merely that of a sort of 'computer' which calculates the best combination of factors of production. Money, Menger believed, was the medium of exchange because of its great 'liquidity', and he shows this by a historical summary on this subject.

In his contribution to the *Encyclopedia* Menger discussed economic development in terms of 'Laws' and 'Stages' which are reflected in the historical development of money. He analysed the motives for holding money in terms of 'precautionary' and 'transaction' motives. Economic progress did not originate from the division of labour as Smith suggested, but from both accumulation of capital and division of labour – only that the accumulation of capital comes first. Progress, in his words, came when 'a people progressively directs goods of ever higher order to the satisfaction of its needs, and especially if each step in this direction is accompanied by an appropriate division of labour'.[20]

The second of Menger's two books *Studies in the Methods of the Social Sciences and of Political Economy in Particular*, which was published in 1883, has a very wide range of subjects and is consequently less precise than his first one. In this work he endeavoured to show what social scientists ought to do and how they should go about doing it. He wanted economists to separate Economic History and Statistics from Economic Theory as two, or three, entirely different disciplines. Theory was to deal with the 'exact laws' of economics and their premises, whereas Economic History and Statistics were only auxiliary subjects good for testing theories or illustrating facts and conclusions. In addition to this a third kind of study was to analyse statistical data for applied economics. All these 'categories' should, however, be kept strictly separated from each other. In his paper 'The Mistakes of Historicism'[21] Menger comes to the conclusion that Economic History and Statistics are in fact no part at all of Political Economy and should not

[20] *Ibid.*, p. 73.
[21] '*Die Irrtumer des Historismus*', p. 27.

be treated as part of it. Theoretical economics, he said, can only be dependent on the assumptions of self-interest and all-round knowledge of conditions and their understanding. There is no advantage in the method of mathematical examination of quantitative relationships, as the relevant point is not the *quantity* but the *nature* (Wesen) of economic phenomena.

F. Y. EDGEWORTH (1845-1926)

Francis Ysidro Edgeworth came to study economic theory in an attempt to discover a clear mathematical conception of exact utilitarianism.[22] Economics dealt with quantities, and quantities could be measured and translated into mathematical terms and formulae. In his *Mathematical Psychics* (1881) he tried to do just this. He thought that the main advantage of his method was in the greater clarity of mathematical expression when it comes to independent but mutually determining relationships of variables. His 'micro-economic' conception led him to the belief that a division should in fact be made between micro- and macro-analysis. The former was in the realm of economics, whereas the latter lay in the sphere of Ethics and Politics. Economics was therefore the science investigating the arrangements between agents who each tended to achieve his own maximum utility, while Politics and Ethics investigated the arrangements which 'conduce to the maximum sum total of utility'.[23] The former was within the province of his 'economic calculus'; the latter required a calculus created 'to compare the happiness of one person with the happiness of another, and generally the happiness of groups of different members and different average happiness'[24] – i.e. a 'moral calculus'. Thus economics, in Edgeworth's world, was a three dimensional 'calculus' comprising the dimensions of Time, Numerals (the sum-total), and Intensities. Pure economics dealt with utility in the time and intensity dimen-

[22] *New and Old Methods of Ethics*, (1877).

[23] *Mathematical Psychics. An Essay on the Application of Mathematics to the Moral Sciences*, 1881.

[24] *Ibid.*, p. 7. It sometimes appears as if Bentham had turned man into a continually measuring pain against pleasure machine and that Edgeworth had technically improved this by making him into a sort of cash-register calculating machine.

sions, ethics and politics in the numeral, sum-total, dimension. The time and the numeral ones presented no particular problem; that of intensity, however, was difficult, as it was not easily measurable.

Though Edgeworth was far more careful than many other mathematical economists regarding the applicability of his calculi to the solution of practical economic problems, he too believed that, for example, wage-bargaining should be approached by his three-dimensional mathematical apparatus. He suggested in fact that wage-rates should be set not merely in accordance with the time and personal utility (or rather 'disutility') dimensions, but with consideration for the entire utility including, as it does, that of the workers concerned. This third, total, dimension would come best to light, in his view, when wage negotiations were conducted in complete individual freedom, i.e. without any monopolistic interference like collective bargaining. 'It is a circumstance of momentous interest,' he wrote,[25] 'visible to common sense when pointed out by mathematics – that *one* of the general indefinitely numerous *settlements* between contractors is the utilitarian arrangement of the articles of contract, the contract tending to the greatest possible total utility of the contractors. In this direction, it may be conjectured, is to be sought the required principle.' Economics was the problem of maximum allocation which only under conditions of perfect competition could lead to perfection. Maximization of utility can be achieved under perfect competition alone. Under monopoly, however, the laws of economics cannot operate – there would be no place for economics as a science.[26]

Among Edgeworth's more important practical contributions to economic analysis were, for example, the *indifference curves* and the *contract curve*[27] which indicate the possible points of exchange of goods between two parties. In this connection he also showed that the individual's degree of utility gained from any given good is not the function of the good alone, as Jevons

[25] *Ibid.*, pp. 51-53.
[26] *Papers*, Vol. I, pp. 138-139.
[27] Edgeworth's 'Indifference' maps differ from those which we use today in that the price-lines radiate from the origin and therefore indicate what one gives up rather than what one gains by exchange. Practically, however, this makes no difference to the results.

and Menger seem to have assumed, but the result of the combination of all other goods which the party may have consumed and which are available. This logical conclusion made 'utility' even more immeasurable and returned it from its place of an almost measurable quantity back to the chaos of innumerable influences. Another important contribution of Edgeworth was his equilibrium analysis under conditions of interference from two monopolies.[28] Finally, his definition of Distribution became a sort of ideological groundwork for much of the Victorian wage theories. 'Distribution,' as he defined it, 'is the species of Exchange by which produce is divided between the parties who have contributed to its production.' Workers balance the disutility from labour against the utility from wages. In static equilibrium there are no profits; all the entrepreneur receives is the wages of management.

What he professed to demonstrate was 'the course which the higgling of the market takes – the path as it were, by which the economic system works down to equilibrium. Now as Jevons points out, the equations of exchange are of a statical, not a dynamical, character. They define a position of equilibrium, but they afford no information as to the path by which that point is reached.'[29] In fact, he rightly lamented, 'we have no general dynamical theory determining the path of the economic system from any point assigned at random to a position of equilibrium. We know only the statical properties of the position'.[30]

ALFRED MARSHALL (1842-1924)[31]

Marshall more than any one else dominated economic thought in the English-speaking world between the 1870's and the 1920's. Having first studied mathematics and ethics he approached political economy from the mathematical side. His first ambition was to translate the theories of J. S. Mill and Ricardo into mathematical terms. By 1870 he had already completed his own mathematical theory of economics,[32] which

[28] *Pure Theory of Monopoly*, (1897).

[29] *Papers*, Vol. II, p. 39. [30] *Ibid.*, Vol. II, p. 311.

[31] His most important works were: *Principles of Economics* (1890); *Industry and Trade* (1919); and *Money, Credit and Commerce* (1923).

[32] *Principles*, 8th ed., pp. 838-858.

was later included in the famous '*Principles*'[32] as the 'Mathematical Appendix'. All his life he feared the risk of producing a theory so divorced from reality and practical application that it would not only be useless but worse, misleading. In his own words, he felt like having spent his whole life trying to present 'in realistic form as much as I can of my note XXI'[34] of this mathematical appendix.

Among the great thinkers who influenced his work were above all Cournot and J. S. Mill, and for a time also Roscher, Marx and Lassalle. Yet, although one can detect the influences of various schools in his work, the mathematical, the utilitarian, the historical German and the Viennese, it was never intended, nor did it indeed become, a sort of synthesis of all these streams. In as far as Marshall was concerned he was never looking for a compromise but only for the truth. 'Truth is the only thing worth having, not peace.' His work is therefore nothing like a symposium, but is rather a mere combination of pure theory with historical and realistic examination. Always distrusting pure theoretical analysis divorced from concrete actual examination, he refused, for example, to publish his diagrammatic analysis for fear that readers might attach to it too much practical value for the solution of actual problems.[35] Hence, without using this terminology, Marshall divided political economy into theory and applied economics, while he continually pointed to the uselessness of the one without the other. The former presented the tools for economic analysis, the latter the concrete examination of the facts in reality. This reality being unique and extremely complex in each situation, 'The forces to be dealt with . . . so numerous, that it is best to take a few at a time: and to work out a number of partial solutions as auxiliaries to our main study.'[36] The method to be followed here, Marshall suggested, was to '. . . begin by isolating the primary relations of supply, demand and price in regard to a particular commodity . . . reduce to inaction all

[33] *Ibid.*, p. 838.

[34] *Ibid.*, p. 855. (Ref. p. 393). 'We may now take a bird's-eye view of the problems of joint demand, composite demand, joint supply and composite supply when they all arise together, with the object of making sure that our abstract theory has just as many equations as it has unknowns . . . neither more nor less . . . '.

[35] *Memorials*, (ed. A. C. Pigou), p. 21.

[36] *Principles*, Preface to the Eighth Edition, pp. xiv/xv.

other forces by the phrase "other things being equal" . . . In the second stage (only) more forces are released from the hypothetical slumber that had been imposed on them: (and) changes in the conditions of demand for and supply of particular groups of commodities come into play; and their complex mutual interactions begin to be observed. Gradually the area of the dynamical problem becomes larger; the area covered by provisional statical assumptions becomes smaller; and at last is reached the great central problem of the Distribution of the National Dividend among a vast number of different agents of production. Meanwhile the dynamical principle of "Substitution" is seen ever at work, causing the demand for, and the supply of, any one set of agents of production to be influenced through indirect channels by the movements of demand and supply in relation to other agents, even though situated in far remote fields of industry'. In summary then Marshall believed that 'The main concern of economics is . . . with human beings who are impelled, for good and evil, to change and progress. Fragmentary statical hypotheses are used as temporary auxiliaries to dynamical – or rather biological – conceptions: but the central idea of economics, even when its Foundations alone are under discussion, must be that of living force and movement.'[37]

It is possible to arrange Marshall's contribution to the idea and study of development under three headings: (a) The idea of the dynamic equilibrium. (b) The introduction of the *time* element into the value – cost of production and value – utility controversy, and (c) the use of the Principle of Substitution as an explanation of progress through maximization.

(a) The idea of the dynamic equilibrium was the notion of the continual adjustments which take place in the economy. This notion did in fact change the idea of Equilibrium from its static state into a sort of elusive element – always sought but never attained. It became a 'tendency' rather than an actual situation.

(b) The second major contribution, the introduction of the time element, came in the form of the distinction between the lengths of time necessary to adjust production to demand and the resultant price fluctuations. 'The conditions of normal

[37] *Ibid.*, p. xv.

supply are (not) definite . . .' He wrote,[38] 'they will be found to vary in detail with the length of the period of time to which the investigator refers . . .' But, 'Of course there is no hard and sharp line of division between "long" and "short" periods . . .' All the same 'Four classes stand out.' In each, price is governed by the relations between demand and supply. As regards *market* prices, Supply is taken to mean the stock of the commodity in question which is on hand, or at all events 'in sight'. As regards *normal* prices, when the term Normal is taken to relate to *short* periods of a few months or a year, Supply means broadly what can be produced for the price in question with the existing stock of plant, personal and impersonal, in the given time. As regards *normal* prices, when the term Normal is to refer to *long* periods of several years, Supply means what can be produced by plant, which itself can be remuneratively produced and applied within the given time; while lastly, there are very gradual or *Secular* movements of normal price, caused by the gradual growth of knowledge, of population and of capital, and the changing conditions of demand and supply from one generation to another.'[39] Obviously Marshall regarded both supply and demand of equal importance to the value of a good.

(c) The third contribution of great importance to growth theory was the 'Principle of Substitution'. Growth is brought about because 'As far as the knowledge and business enterprise of the producers reach, they in each case choose those factors of production which are best for their purpose; the sum of the supply prices of those factors which are used is, as a rule, less than the sum of the supply prices of any other set of factors which could be substituted for them; and whenever it appears to the producers that this is not the case, they will, as a rule, set to work to substitute the less expensive method . . . society substitutes one undertaker for another who is less efficient in proportion to his charges . . .'[40]

Marshall's attitude to nationalization and even only to state regulation of industry was surprisingly negative '. . . The industries in which government departments and local authorities have succeeded are few in number, but important. They are mainly concerned with "things that sell themselves";

[38] *Ibid.*, p. 341. [39] *Ibid.*, pp. 378-379. [40] *Ibid.*, p. 341.

that is, things which are in large demand, and more or less standardized by natural causes . . . (transport, water, light, power etc.) . . . they all meet elementary needs; call for little or no adaptation to changing habits, or varying tastes. . . .'[41] Dynamic and growth producing industries are best left to private enterprise.

JOHN BATES CLARK (1847-1938)[42]

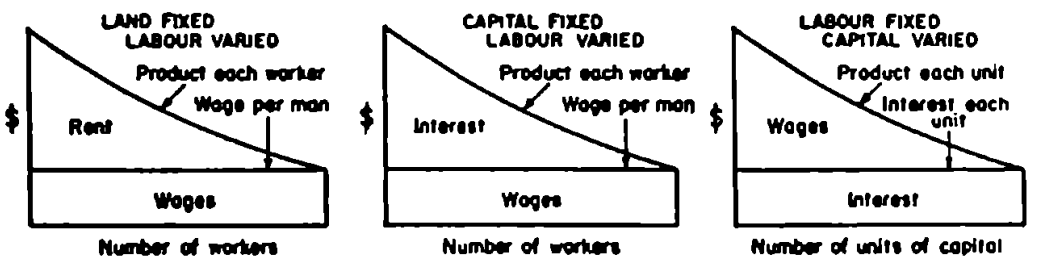
Clark's first book, *Philosophy of Wealth*, was written under the influence of the German school of economists. In it he criticized the traditional psychological groundwork of economic motivation, complaining that the better elements of human nature were a forgotten factor in certain economic calculations and that 'inaccuracies in the science which result from inadequate conceptions of man are not to be rectified . . .' as sometimes suggested 'by a proper allowance for distributing forces' alone, because they were in fact of the very essence of the problem. What was required, he thought, was above all 'a correct conception of human nature'.

His second and far more important book, *Distribution of Wealth*, dealt exhaustively with marginal productivity and the laws of diminishing returns. His contribution here was in showing that the law of diminishing returns was universal and not restricted to land. This led, of course, to his conclusion that the true economic problem was the optimum combination of factors of production.[43] Wages, he decided, depended on the

[41] *Industry and Trade*, 1919, p. 668.

[42] His books were: *Philosophy of Wealth*, 1885; *Distribution of Wealth: A Theory of Wages, Interest and Profits*, 1899; and *Essentials of Economic Theory*, 1907.

[43] *The Distribution of Wealth*, pp. 149-150. (Corrected illustration taken from E. Whittaker, *Schools & Streams of Economic Thought*, p. 294.



size of the working population relative to the amounts of capital and land. The relative quantities of productive agents can however be varied, and the 'capital' can be adjusted to the labour supply.[44] As for 'just wages', Clark reasoned, that they should be equal to the marginal productivity of labour, because the 'over marginal productivity' was not due to the workers' personal higher efficiency but due to the use of capital equipment.[45] Under static equilibrium conditions all agents of production were justly rewarded because there can be no profit but only a remuneration of the entrepreneur according to the 'marginal productivity of his supervisory services'. Profit, thus, merely reflected the result of temporary deviations from the normal trend, i.e. for dynamic changes in the economy.

In his last book, *Essentials of Economic Theory*, Clark touched upon the problem of this dynamic change, and came to the conclusion that if the economy were to take on the theoretically static form this 'would not strikingly alter its actual shape. The actual form of a highly dynamic society hovers relatively near to its static mode though it never conforms to it'.[46] – 'Normality rules the world.'

LEON WALRAS (1834-1910)[47]

Like most other true descendants of the great eighteenth century French theoretical tradition, Walras passed almost unnoticed in his contemporary France. His main 'crime' was his failure to accept the official line of *laissez-faire* as the only true economic dogma, to which he added another crime of almost equal 'gravity', namely the use of mathematics. In fact it is only recently that Léon Walras was re-discovered by economists and restored together with his follower Pareto to the place they deserve in modern economic analysis.

His major contribution to economic analysis was the idea

[44] *The Distribution of Wealth*, pp. 150-160.

[45] *Ibid.*, pp. 319-333.

[46] *The Essentials of Economic Theory*, p. 105.

[47] His most important contribution outlined here was his book *Elements d'économie politique pure*, which appeared in two parts, Part I, Exchange, in 1874, and Part II, Production, in 1877. The book was translated into English in 1954 by William Jaffé from the French 1926 edition *Elements of Pure Economics or the Theory of Social Wealth*, Allen & Unwin.

of the general equilibrium in which all values in the economy mutually determine each other and in which man operates simultaneously in two markets: one market in which he sells and another in which he purchases.

Walras begins his analysis with the case of two persons exchanging two commodities. The exchange continues until both parties maximize their utility – i.e. until the marginal utility (*raretés* in Walras' terminology) are equal to each other in relation to price.

$$\frac{MU'}{P'} = \frac{MU''}{P''}$$

As a man will divide his total income between all available commodities in the same manner assuming of course that he acts rationally and spends all his income, i.e. that marginal utility of all commodities will be equal to each other in relation to their prices, Walras's equilibrium position must be:

$$\frac{MUm}{Pm}$$

Introducing the concept of *numéraire*, a term in which all prices can be equally expressed, Walras then sets out to examine the market, or indeed all markets, i.e. the economy as a whole. Obviously the quantity and exchange value of each commodity can then no longer be treated as a function of itself, but must be examined in relation to all other alternative goods, their quantities and their prices. He must therefore draw up two different sets of equations for each of the m commodities in the economy, one with reference to price and another with reference to quantity. Since each commodity in the economy exchanges for $m-1$ (m minus one) other commodities, the number of equations for each commodity in the economy must be equal to $2(m-1)$.

The first set of equations, with reference to price, we may call the Demand equations, and the second set, with reference to quantity, we may call the supply equations.

The Demand equation shows the demand for the commodity in terms of any other commodity in the economy:

$$D_{ba}=F(P_{ba};\ P_{ca};\ P_{da};\ \ldots\ P_{ma})$$

i.e. The Demand of *b* in relation to *a* will be equal to the function of the prices of *b* in terms of *a*.

The other equation states the equality of the value of the quantity which is exchanged in terms of the value of any other commodity.

This means that the total number of equations in the economy must be:

$$(_m - 1)_m \text{ Demand equations}$$
$$\text{and, } (_m - 1)_m \text{ Supply equations}$$
$$\text{i.e. } 2m(m-1)$$

The number of unknowns in the economy, however, is also $2m(m-1)$ where half of the unknowns are the *value* of every commodity in terms of every other and the other half the *quantities* of all commodities in terms of all others. Hence, the number of equations for the economy is equal to the number of the unknowns and therefore, theoretically at least, they should be solvable.[48]

Politically Walras seems to have been inclined towards a moderate form of socialism. He believed in government supervision of the economy while as much as possible scope was to be left for the regulation of business by the price mechanism. He complained that Marx never said how, for example, the state was to set about its task of equating production to demand 'in complete ignorance of the quantities of what should be produced'. In a long passage criticizing both Marxist and Capitalist economists in his *Economie sociale* Walras wrote[49] '. . . Certainly economists have not demonstrated scientifically the principles of free competition. Fortunately for them free competition organizes production more or less well. In going into ecstasies over the admirable manner in which it does this they regard their task as accomplished. But socialism must proceed differently. It must distinguish itself from "economism" above all in its knowledge of political economy, and it must explain why and how this or that principle will lead to and maintain

[48] For a more detailed explanation of Walras's method see *Elements of Puer Economics*, pp. 237-263. Or a simplified form in G. J. Stigler, *The Theory of Price*, 1952 edition, pp. 290-295. Or Edmund Whittaker *op. cit.*, pp. 278-280 with footnotes 17-27.

[49] Quoted from T. W. Hutchison, *A Review of Economic Doctrines 1870-1929*, p. 214.

equilibrium of the demand and supply for services and products. In doing this it will advance from the literary to the scientific stage. This is what Marx's collectivism fails to do. Even more lamentably than "economism" which presents as working well a system which works badly, Marxism presents as working well a system which will not work at all.'

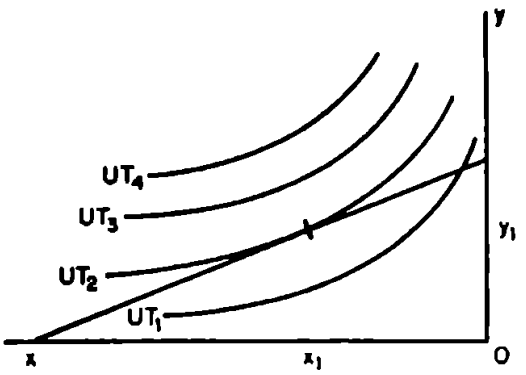
Having such views Walras had little chance of securing an academic job in late nineteenth century France. Fortunately, however, a friend from Lausanne managed to get for him the chair of political economy when it was founded at Lausanne University in 1870. There he remained and taught until 1893 when owing to ill health he resigned, and was followed by Pareto as Professor of Political Economy in Lausanne.

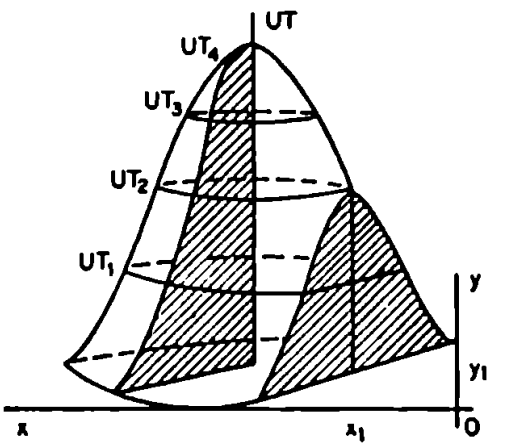
VILFREDO PARETO (1848-1923)[50]

While Walras had extended his theory to cover producers' goods with the help of a constant co-efficient of production, assuming that the factors of production involved remained constant, Pareto greatly improved the system by allowing the co-efficient of production to be variable. He did so by introducing into the Walrasian system an improved variety of the Edgeworthian indifference map. The basic idea here was that a line can be drawn showing an individual's indifference between alternative combinations of goods. If one draws a number of such indifference curves one next to another, progressing as one does so from a combination of goods close to the origin (small quantities) to ever greater quantities, one gets a kind of topographical contour map showing ever-rising degrees of utility. One gets in fact a three dimensional map. Along the axis X one can now measure, say, units of bread, and along Y units of wine. On the 'hill' above the paper the contour lines can show the total utility one can get from any combination of the two goods, or groups of goods. At each point along the same 'contour' line the consumer is indifferent in relation to all other points on the same contour line with regard to his utility. At the same time the consumer's budget line can trace all the possible combinations of bread and wine which are

[50] His most important books were *Cours d'economie politique*, 1895; *Manuale di Economia Politica*, 1906; *Traité de sociologie générale*, 1919.

within his budget. The intersection of the budget line with the highest possible indifference curve (i.e. highest possible utility) will give the maximum satisfaction.





As Oskar Morgenstern[51] summarised it the idea was that if a man is indifferent of a choice between a number of goods – say, 'a combination of 1 of x; 0·9 of y; and 0·8 of z; on the one hand, and of 1·1 of x; 0·8 of y; and 0·7 of z; on the other – then, the equation of the line of indifference is $I = F(x; y; z; \ldots) = F(\Psi)$. Where Ψ stands for the 'Ophelimity' function (which means in Paretos' terminology 'that which makes a good desirable to the consumer'). If I, then, is a constant, and as the derivative of any constant must be O, the first derivative of this expression will be:

$$O = \Psi_x'dx + \Psi_y'dy + \Psi_z dz + \ldots$$

This equation expresses the equalization of the utilities of different commodities at the margin. The advantage of this method of analysis is that it assumes only the comparability and not the measurability of utility.[52]

Politically Pareto started from a point of view that 'One of

[51] See 'Economics', *Encyclopedia of Social Sciences*, Vol. V, p. 367.

[52] $\psi_x'dx$. Partial differentiation of Ψ with respect to x; Total differentiation = sum of partial differentiations if x, y, z . . . are independent.
A good explanation see G. J. Stigler, *op. cit.*, pp. 68-81.

worst possible governments is a parliamentary dictatorship in possession of centralized control,' for 'Each time the state absorbs the whole economic life of the nation the same phenomena of corruption and political disorganization are to be observed. That is one reason, among many others, why Socialism is to be condemned.'[53] Having quarrelled with the political 'authorities' in Italy Pareto, like his predecessor to the chair of political economy at Lausanne, Walras, settled in Switzerland, professing 'neutral and scientific economic analysis'. In 1912 he began to write his political sociology in which he ridiculed the very same economic liberalism which he had embraced several decades earlier. The outstanding thing about his personality, at least in his later days, was his independence. As a member of the Italian Senate, 'In one of the last of his many political newspaper articles he warned the new Fascist government against five things: warlike adventures, restricting the freedom of the press and opinion, punitive taxation of the rich and the peasants, alliances with the Church, and any infringement of the most absolute freedom of teaching in the universities.'[54]

Though Pareto never wrote a sort of 'Principles', his conclusions were clearly in favour of a mixed economy continually adjusting state action and private competition to the changes in the economic reality at any given time. While criticizing the 'free enterprise system' where the 'admirer of the "superman" will assign a co-efficient of approximately zero to the utility of the lower classes, and get a point of equilibrium very close to a state where large inequalities prevail . . . ', Pareto was no less critical of the socialist formula of distribution 'to each according to his need', as it could only mean 'to each according to the decisions of the central authority', because the bureaucrats were the only alternative mechanism to the price mechanism.[55]

PHILIP HENRY WICKSTEED (1844-1927)[56]

Wicksteed's first contribution to theoretical economics was by

[53] *Revue des Deux Mondes* 1891. Here quoted from T. W. Hutchison, *op. cit.*, p. 217.

[54] See T. W. Hutchison, *op. cit.*, p. 318. (Also footnote on the same page).

[55] Of course one can shoot bureaucrats; not so a price mechanism.

[56] *An Essay on the Co-ordination of the Laws of Distribution*, 1894; *The Common Sense of Political Economy*, 1910.

way of an examination of Marx's theory of value in the light of the Jevonian utility-value theory.[57] His method here in criticizing Marx's value theory was to turn Marx's approach upside-down, as Marx himself had done with Hegel's philosophy. He began from the demand side and worked his way towards the value-cost, unlike Marx, who related the price to the cost of production. For Wicksteed, then, 'A coat is not worth eight times as much as a hat . . . because it takes eight times as long to make it . . . (but) the community is willing to devote eight times as long to the making of the coat because it will be worth eight times as much to it.'[58]

In his *Alphabet of Economic Science* which he published in 1888 Wicksteed first introduced the term 'marginal utility' as a translation of the German term 'Grenz nutzen'; the expression has ever since been universally adopted in micro-economic terminology. The main merit, though not the only one, of the *Alphabet* was its clearness. Even Pareto, who was one of the severest critics of his time, recommended the *Alphabet* very highly to all students of political economy.[59]

His second book, the *Essay on the Co-ordination of the Laws of Distribution*, published in 1894, is of a very different kind. In it he makes his great contribution to the marginalist theory of distribution of the factors of production: he develops the theory of marginal productivity. If the product of production which has to be shared by the various factors of production is P, then, according to Wicksteed, the ratio of 'participation' of any factor K must be the derivative of p in relation to k multiplied by the factor K.[60]

The most important contribution to the marginal productivity analysis in the *Essay* is, however, the proposition that if each factor of production is rewarded according to its marginal productivity, then the sum of all the rewards of all factors of production together will be equal to their product.[61] Unfortunately this assumption was partially withdrawn by Wicksteed in

[57] Published in the left-wing publication *To-Day* in October, 1884.
[58] Quoted from Lionel Robbins' introduction to Wicksteed's *Common Sense*.
[59] It is even now highly recommendable to students who don't know calculus.
[60] $\frac{dp}{dk} . K \quad \left(\frac{dp}{dk} = \lim \frac{\Delta p}{\Delta k} \qquad \Delta k \to 0\right)$
[61] For an easy explanation see Stigler, *The Theory of Price*, *op. cit.*, p. 24-30.

his subsequent and best-known book, *The Common Sense of Political Economy*, which was published in 1910.

The aim of this work was to give the reader a close understanding of the working of the commercial and industrial world, introducing also the non-economic factors, and to show that most useful new ideas can in fact be derived from the volume of economic analyses already available, treated by the method of the marginal analysis. The book then includes among other things, an examination of money and exchange and finally the concept of equilibrium as affecting the economy as a whole. This is followed by a detailed examination of things like marginal and total utility and the laws of increasing and diminishing returns, and by some chapters dealing with practical problems of his day, socialism and the nationalization of land, an idea which Wicksteed retained from his early writings. As Professor Robbins pointed out,[62] the main difference between Wicksteed's *Alphabet* and *Common Sense* was that the former started from the idea of the rate at which total utility is increasing, whereas the latter started from 'the positions on the relative scale of preferences which marginal units of different commodities occupy. In the *Alphabet*, in spite of the earlier recognition of the relativity of the utility concept, utility is treated as if it were something absolute and measurable. In *Common Sense*, the sole relevance of *relative* utility is emphasized and the idea of *measurability* tends to give place to the idea of order . . . In all this, the influence of Pareto is very strongly discernible . . .' However Professor Robbins warns his readers not to suspect Wicksteed of lack of originality; this he certainly had.

Politically, Wicksteed was greatly influenced by the socialist ideas of his time, so that in 1885 he proclaimed that 'All agree that an era of socialistic legislation is upon us.'[63] A strange understanding of Victorian legislation indeed if taken in retrospect. In fact he never became a socialist in the accepted sense of the word. He himself claimed: 'I am sometimes supposed to be a Socialist by my friends who are not Socialists, and I am

[62] The Introduction to Wicksteed's *Common Sense*, 1932, p. xix.
[63] *Our Prayers and Our Politics*, p. 10.

generally not considered one by my friends who are.'[64] The key to Wicksteed's political views may perhaps be found in his general approach. He rejected, in fact, the division between economic and non-economic utility; he regarded as of equal importance from the marginal utility point of view, the marginal utility derivable from an act of altruism, such as giving some child a bar of chocolate, and that obtained from consuming it oneself. It is this very likeable approach which makes Wicksteed's theory less rigid than those of many of his contemporaries, but it also makes the whole study of economics far more elusive. Of similar consequence also is his introduction and stressing of the element of expectations in his market analysis. Prices, he argued, were influenced by expectations, not by actual market conditions, because they only adjust over time – a thought which led him to a point which would today be called the beginning of a dynamic market analysis. His supply curve of 'commodity preference' is likewise a method which with little adaptation can today be referred to 'liquidity preference' models for money.

IRVING FISHER (1867-1947)[65]

Fisher started as a student, and later as a teacher, of mathematics at Yale University in the U.S. His first ideas about economics were set out in his doctor's dissertation, which he called *Mathematical Investigations in the Theory of Value and Prices* and which was published in 1892. His major contributions to the study of economics came, however, somewhat later, and were his theory of the price level and his theory of capital and interest. In the second part of his *Investigations*, after introducing the imaginary measure of utility 'utils', he, like Walras and Pareto, studied the utility of a commodity as a Function of all other variables in the economy. He examined,

[64] *The Inquirer*, 28.11.1908. 'The Social Ideals, etc.' Quoted from T. W. Hutchison, *op. cit.*, p. 97.

[65] His principle contributions appeared in *Mathematical Investigations in the Theory of Value and Prices* (1892); *The Nature of Capital and Income* (1906); *The Rate of Interest: its Nature Determination and Relation to Economic Phenomena* (1907); *The Purchasing Power of Money; its Determination and Relation to Credit and Crises* (1911); *The Making of Index Numbers. A Study of their Varieties, Tests and Reliability* (1922); *The Theory of Interest as Determined by Impatience to Spend Income and Opportunity to Invest it* (1930).

in fact, the relationships which influence the prices and quantities of given commodities, like the effects of complimentary goods, substitutes, and income effects in the sense of the introduction of inferior goods. The method he adopted here in his analysis was that of indifference curves and price lines. His next contribution was the introduction of a clear distinction between *income* and *capital*. He defined income as the flow of goods and services within a given period, and capital as the stock of goods available, or rather in existence, at a given moment. In his discussion of capital and interest he developed a kind of 'time preference' theory. People, he argued, try to arrange their expenditure over time in such a way that the marginal utilities at different times will be identical. Saving thus becomes 'expenditure deferred, whereas borrowing is, as it were, putting the clock forward'. The rate of interest is, therefore, the equalizing agent between borrowing and lending. Going into the apparent paradox of high interest rates coinciding with heavy borrowing rather than high interest rates acting as deterrents on borrowing, he wrote: 'Borrowers can now afford to pay a high "money interest" (because of the prosperity profits). If, however, only a few persons see this, the interest will not be fully adjusted and borrowers will realize an extra margin of profit after deducting interest charges. This raises an expectation of a similar profit in the future and this expectation, acting on the demand for loans, will raise the rate of interest. If the rise is still inadequate the process is repeated . . . When a fall of prices begins, the reverse effects appear.'[66] All is thus merely an 'inequality' of foresight. 'In the actual world, however, . . . inequality of foresight produces over-investment during rising prices and relative stagnation during falling prices. In the former case society is trapped into devoting too much wealth to productive uses and in long production processes while in the contrary case under-investment is the rule.'[66]

Fisher also believed that the rate of interest depended upon the standard by which it was measured. In a passage in which he compared the rates of interest if paid in two different standards, gold and wheat, he showed that if the one appreciates in terms of the other, the subsequent rates of interest will

[66] *The Determination of Interest and Prices*, 1930, pp. 75-77.

follow a similar course. In fact the rate of interest in the relatively depreciated standard will be equal to the rate of interest of the appreciated standard plus the rate of appreciation plus the product of both.

In summary, Fisher did not look upon the rate of interest as a function of the productivity of capital, but as the function of what he called 'the impatience to spend' and 'the opportunity to invest'.

Another famous contribution of Fisher to the quantity theory of money was his development of the formula

$$P = \frac{M.V}{T},$$

(the price level (P) being equal to the multiplication of the quantity of money (M) by the velocity (V) of its circulation divided by the quantity of goods and services (T) available in the economy), into the formula

$$P = \frac{M.V + M'.V'}{T},$$

where M′ stands for the volume of bank deposits and V′ for their velocity.

The difficulty with these equations from the mathematical point of view is that the individual elements are in fact not independent but interrelated factors. For example, a rise in the volume of M may have several effects on people. It may perhaps frighten them and thus immediately also affect V. The price level P will therefore be influenced not by the change in M but by a combination of the change in M and in V. Therefore, mathematically, the equation is meaningless. The same problem also arises if approached from the T (goods and services) side. There again a rationing of goods, for instance, would affect the velocity in an unpredictable manner. Yet, with all these reservations in mind, Fisher's equation is still a useful device for the explanation of the price, money and goods relationship.

ARTHUR CECIL PIGOU (1877-1959)[67]

Pigou's approach to economics can perhaps be summarized by his own statement that 'The main motive of economic study is to help social improvement.'[68] Pigou more than any other modern economist is identified with 'welfare economics'. His first book *Wealth and Welfare* was published in 1912 when he was Professor at Cambridge, and it was published again in an improved form as *The Economics of Welfare* in 1920. Welfare in his terminology includes three elements; the general state of well-being or happiness, 'economic welfare', which is the kind of welfare measurable in terms of money, and 'social economic welfare', which is a combination of both the measurable and the unmeasurable factors of the well being of society as a whole. Pigou's economics of welfare is concerned with the last.

Most of Pigou's early writings were concerned with topical problems of applied economics. Only after he succeeded Marshall as Professor of Political Economy at Cambridge in 1908 did he turn to the theoretical problems. In his inaugural address he already foreshadowed the line he was to take in his first theoretical work *Wealth and Welfare*, which was to be published four years later. 'I shall be glad,' he said, 'if a man comes to Economics because he has been interested by Professor Edgeworth's Mathematical Psychics or Dr Fisher's Appreciation and Interest: just as I shall be glad if he comes to it because he is looking forward to business and wishes to learn something of the broader aspects of his future career; but I shall be far more glad if he comes because he has walked through the slums of London and stirred to make some effort to help his fellow men . . .' It would, however, be totally wrong to look upon Pigou as a revolutionary social reformer. The opposite is the truth. He is the sort of philanthropist who can say that the national dividend 'constitutes the Kernel of economic theory because . . . it is the centre of sound philanthropic endeavour'[69], while at the same time he may insist that

[67] *Wealth and Welfare*, 1912; *The Economics of Welfare*, 1920; *Industrial Fluctuations*, 1927; *A Study in Public Finance*, 1928.

[68] *Economics of Welfare*, London, 1952, Introduction, p. ix.

[69] *Economic Journal*, 1907, p. 535.

the rich and the poor are in effect two different races, with different needs, and that for this reason the rich were by the very nature of things better fitted to enjoy more wealth than the poor. From this he concluded that from the point of view of the maximization of the whole society's welfare from wealth, the equalizing of the distribution of the national product would be 'seriously doubtful'.[70]

The idea of his first book was to write a study of the causes of periodical aggregate unemployment. Yet as he became increasingly aware of the fact that this problem could not be treated separately from a general analysis of the economy, the book eventually turned out to be a general study with a mere last chapter on the original problem. In his revised edition of the book, which appeared as *Economics of Welfare* in 1920, he deleted the last chapter altogether, thus giving up the original idea of his study. The unifying elements in his work are the idea of 'social economic welfare' as distinct from the welfare of the individual and pure economic welfare, and the concept of the national dividend. The book is divided into the analytical part which includes his classification (Welfare, Economic Welfare, National Dividend) and methods of measurement (Index numbers etc.), and the discussion on the size of the national dividend and the allocation of resources through the 'private' or through the 'social' marginal net product, in which he points out that the free play of private self-interest need not necessarily lead to the optimum distribution of resources from the social point of view. The rest of the book is concerned with particular studies of topical and practical problems of economic policy, such as the control of monopoly, co-operation, public industries, labour unrest and wages, and arbitration.

Basically his approach starts from the observation that the aim of economics ought to be the maximization of welfare rather than the maximization of wealth, and that these two are to a certain extent related to each other. Moreover, the maximization of welfare must depend on the quantity of a

[70] *Economics of Welfare*, p. 90. See also E. Whittaker, *op. cit.*, p. 309, 'Pigou's qualification opened the way for people of a colonizing nation to justify their receiving higher incomes than were allowed to the subject people, as well as for the present rich remaining better off than the present poor'.

society's total economic output, its distribution, and the variability of both. This led him to state a number of intricate contradictions which he believed to have detected in the economic world. First, that welfare does not necessarily require a maximum per capita output, because the welfare from rest may be preferable to the welfare from increased wealth. Secondly, that equal distribution of wealth may not be conducive to maximum welfare in society, because of the 'two races' already mentioned. Thirdly, that the variability of the national dividend may not come about without either reducing its quantity or lessening its equality. '. . . elements of welfare,' he wrote,[71] 'are states of consciousness and, perhaps, their relations; . . . welfare can be brought under the category of greater and less' because 'there is present something measurable, (in welfare). The one obvious instrument of measurement available in social life is money. Hence, the range of our inquiry becomes restricted to that part of social welfare that can be brought directly or indirectly into relation with the measuring-rod of money. This part of welfare may be called economic welfare . . . It consists of the group of satisfactions or dissatisfactions which can be brought into relation with a money measure.' The national dividend or the national income is the indirect counterpart to economic welfare, through which the changes in the latter are affected. 'The two concepts . . . are thus co-ordinate, in such wise that any description of the content of one of them implies a corresponding description of the content of the other.'[72] But it would be an over-simplification to assume that the amount of welfare is merely directly related to the size of the national dividend, because it is evident to Pigou 'that any transference of income from a relatively rich man to a relatively poor man of similar temperament, since it enables more intense wants to be satisfied at the expense of less intense wants, must increase the aggregate sum of satisfaction. The "old law of diminishing utility" thus leads securely to the proposition: Any cause which increases the absolute share of real income in the hands of the poor, provided that it does not lead to a contraction in the size of the national dividend from any point of view, will, in general, increase economic welfare.'[73]

[71] *Economics of Welfare*, pp. 10, 11 & 23.
[72] *Ibid.*, p. 31.
[73] *Ibid.*, p. 91.

Practically any change in welfare is the consequence of what Pigou called the 'marginal social net product', which is the marginal private net product of each member of society plus the negative and or positive effects accruing from it to society as a whole, which, unfortunately, is hardly measurable.

JOHAN GUSTAF KNUT WICKSELL (1851-1926)[74]

Wicksell studied mathematics and philosophy and was awarded his *fil.-cand.* (B.A.) by the University of Uppsala early in 1872. After this, it was thirteen years before he returned to the university for his *fil.-lic.* (M.A.) examination in mathematics, physics and mechanics. During this time he became involved in a number of political controversies, especially because of his Neo-Malthusian views, which led him to believe that it was necessary to have a good knowledge of economics if one was to take an active share in politics. For ten years he travelled in France, Germany, Austria and England, studying political economy, until he returned home to Sweden to take his Ph.D. in economics in 1895. In 1900, after a considerable public scandal, and after having taken another exam in Law, he was grudgingly appointed Associate Professor of Political Economy at Lund. In 1904 he was finally promoted to the chair of Political Economy which he held until 1910. 'In conservative circles in Sweden,' writes Erik Lindahl in his introduction to the English edition of Wicksell's Selected Papers,[75] 'Wicksell was looked upon as an extremely dangerous person, who by all means should be kept out from the universities. He had made himself known as an advocate for Birth Control . . . He also had expressed a defeatist opinion about Sweden's capacity of defending itself against Russia. Besides this he had deeply offended the religious feeling in the country by his rather ruthless agitation against the dogmas of the Church. Wicksell's activities in these respects were in general depreciated in liberal quarters also. However, the action against his promotion was there regarded as an attack on the Freedom of Science. An im-

[74] Major books: *Uber Wert, Kapital und Rente*, 1893; *Finanztheoretische Untersuchungen*, 1896; *Geldzins und Guterpreise*, 1898; *Vorlesungen uber Nationalokonomie*, 1901 & 1906; *Lectures on Political Economy*, trans. E. Classen, 1934, Vol. I, II. (Also in translation *Selected Papers on Economic Theory*, 1958).

[75] *Selected Papers on Economic Theory*, p. 22.

portant fraction of academic teachers as well as of students strongly emphasized that academic promotions should be settled on the basis of scientific merits only, and without consideration to whether the applicant was supposed to cherish ideas dangerous to Society or not.' Obviously he had little in common with views like those of Pigou on the 'two races' in society. In his *Lectures* he claimed[76] that 'there is one inequality from which we can never abstract, without making a serious mistake, namely social differences and the unequal distribution of property. If we assume that the rich man carries his consumption so far that the marginal utility, the utility of the last unit, is little or nothing to him, whilst . . . the poor man must discontinue his consumption of practically all commodities at a point at which they possess for him a high marginal utility, then it is not difficult to imagine . . . that an exchange between a rich man and a poor man may lead to a much greater total utility for both together – and therefore for society as a whole – if it is effected at a suitable price fixed by society, than if everything is left to the haphazard working of free competition. And what is here true on a small scale is just as true on a large scale. Thus, for example, the fixing by society, or by union workers, of a minimum wage or a maximum working day would, within certain limits . . . be of distinct advantage to the workers and consequently to the most numerous class of society.' As for the superiority of capitalism because of the 'free choice of consumption goods', Wicksell simply pointed out that 'Actually the lower classes in present day society do not in the least possess free choice of consumption; as far as means of subsistence proper are concerned, they are allotted all the cheapest brands, and their remaining consumption is similarly organized.'[77] And he concludes that 'A compulsory rationing of the most important commodities, as in wartime, would certainly give them greater freedom in their "choice of consumption goods".'

In his first book Wicksell developed an outline solution to the pure theory of value and distribution. In his second book he applied this solution to the problems of public finance and taxation. In the third book he made his major contribution by

[76] *Lectures on Political Economy*, p. 77. (Eng. Trans.).
[77] *Ibid.*, Vol. I, p. 227.

examining the relationship between the rate of interest, the general price level and the volume of business. His conclusions were that 'the accumulation of capital consists in the resolve of those who save to abstain from consumption of a part of their income in the immediate future. Owing to their diminished demand, or cessation of demand, for consumption goods, the labour and land which would otherwise have been required in their production is set free for the creation of fixed capital for future production and consumption and is employed by entrepreneurs for that purpose with the help of the money placed at their disposal by savings. Of course, this process presupposes an adaptability and degree of foresight in the reorganization of production which is far from existing in reality, though this is as a rate of secondary importance in comparison with the main phenomenon. The rate of interest at which the demand for loan capital and the supply of savings exactly agree, and which more or less corresponds to the expected yield on the newly created capital, will then be the normal, or natural real rate. It is essentially variable. If the prospects of the employment of capital becomes more promising, demand will increase and will at first exceed supply; interest rates will then rise and stimulate further saving at the same time as the demand from entrepreneurs contracts until a new equilibrium is reached at a slightly higher rate of interest. And at the same time equilibrium must *ipso facto* obtain – broadly speaking, and if it is not disturbed by other causes – in the market for goods and services so that wages and prices will remain unchanged. The *sum* of money incomes will then usually exceed the money value of the consumption goods annually produced, but the excess of income – i.e. what is annually saved and invested in production – will not produce any demand for present goods but only for labour and land for future production . . .'[78]

From all this it follows that, again in Wicksell's own words, 'if the banks lend their money at materially lower rates than the normal . . . then . . . saving will be discouraged and for that reason there will be an increased demand for goods and services for present consumption. The profit opportunities of entrepreneurs will thus be increased and the demand for

[78] *Ibid.*, Vol. II, pp. 193-195.

goods and services . . . will evidently increase to the same extent as it had previously been held back by the higher rate of interest. Owing to the increased income thus accruing to the workers, landowners, and the owners of raw materials etc. the prices of consumption goods will begin to rise, the more so as the factors of production previously available are now withdrawn for the purpose of future production. Equilibrium in the market for goods and services will therefore be disturbed'.[79] As a result of this there must be a rise in rents and wages which will again be followed by higher prices. As long as there are still unemployed resources available, which is as long as production can be extended, this rise may not cause much concern. Eventually, however, when all labour is employed and competition between employers begins, higher wages will no longer be accompanied by greater production and the price inflation will be on the way. 'How great this rise might be in a certain period, say, during the first year after the fall in the rate of interest,' Wicksell concluded, 'is difficult or even impossible to determine *a priori*'. But the principle is clear. Low interest rates will stimulate economic activity and at the same time subject the whole sysem to the dangers of inflation.

THE NEOCLASSICAL METHODOLOGY – SUMMARY

We have seen how neoclassicism developed from the stage where marginal utility was treated as a function of one good alone,[79] to the stage where it was treated as a function of a number of goods and their quantities,[80] and thence to the stage where it was extricated from its dilemma of immeasurability by the introduction of the indifference curve analysis,[81] From this point it was later developed by Hicks and by Allen into the state in which it survived to our own days.[82]

Briefly the method can be illustrated by the following example:[83] Let us assume that we have three variables, A, B,

[79] See section on Jevons, Menger, Marshall, Walras.
[80] See section on Edgeworth, Wicksteed, Wicksell.
[81] See section on Fisher, Pareto.
[82] This method, which owes something to J. B. Clark and more recently to Slutsky, will be discussed in the next chapter.
[83] This is a simplified example of that of John Buttrick, *op. cit.*, p. 162.

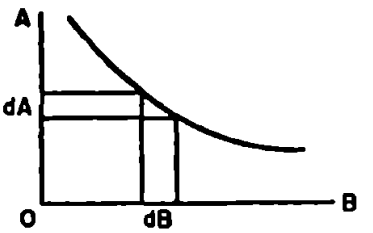
and C; each of these three variables is related to the remaining two in the way we have shown in our discussion of Walras, namely:

$A = f(B,C)$ (i.e. B & C are independent and A is their dependent variable.)

$B = g(A,C)$

$C = h(A,B)$ (Where f;g;h; stands for the words – function of . . .)

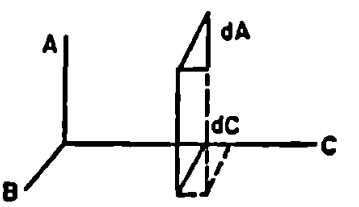
If then we reduce all additional quantities or units of the variables involved to infinitesimal size we are able to carry out the following operations, which is here demonstrated on a scale very much magnified



In this example we have looked upon C as if it were *constant*. We gave an infinitesimal addition dB to B and got an infinitesimal addition dA to A. (The d signifies the infinitesimal addition). The addition to A is thus denoted by $\frac{dA}{dB} = f'_B$. This can be also stated as $dA + f'_B dB$ (dA is the addition caused by B when C is constant.)

If we now take *this new value* of A, hold B constant and give C an addition dC, and then repeat the operation we performed with A and B, we get another further addition to A: $\frac{dA}{dC} = f'_C$

i.e., $dA = f'_C dC$



I. Therefore the total addition to A will be: $dA = f'_B\,dB + f'_C\,dC.$
Similarly we can get $dB = g'_A\,dA + g'_C\,dC,$
and $dC = h'_A\,dA + h'_B\,dB$

Hence, the relations under consideration appear in terms of at least six parameters $f'_B;\ f'_C;\ g'_A;\ g'_C;\ h'_A;\ h'_B;$ (f'_B is, of course, $\frac{dA}{dB}$ with C constant, and f'_C is $\frac{dA}{dC}$ with B constant, and g'_A is $\frac{dB}{dA}$ with C constant, etc.)

II. Let us now look at what happens in observable phenomena to the ratios between the variables, i.e. let us examine what will happen to A if we give a small addition to B without keeping C constant.

These ratios are: $\frac{dA}{dB};\ \frac{dA}{dC};\ \frac{dB}{dC};$

III. By comparing I to II. we get:

$$\frac{dA}{dB} = \frac{f'_C h'_B + f'_B}{1 - f'_C h'_A} = \frac{f'_B g'_C + f'_C}{g'_A f'_C + g'_C} = \frac{dA/dC}{dB/dC}$$

(The first part of this equation was obtained by the division of the first and the third line of No. I and by substitution.)

These equations include all the variables and all the parameters which we have so far introduced. As in reality we can never hold one variable constant, if it is in fact related to the others, we cannot observe the parameters. What we can do, however, is to observe the ratios $\frac{dA}{dB}\ \frac{dA}{dC}\ \frac{dB}{dC}$

If, now, we know from the observation of our reality that, for example, $\frac{dA}{dB} < O$ and that $\frac{dA}{dC} < O$ (i.e. that both are decreasing functions) we can conclude that $\frac{dB}{dC} > O$

(i.e., is an increasing function), because to satisfy our equations $\frac{dB}{dC}$ must be opposite in sign (+/—) to $\frac{dA}{dC}$ and $\frac{dA}{dB}$.

If, for the moment, we ignore all that we may know from the observation of reality, the parameters f_B; f_C; g_A g_C; h_A; h_B; can be limited by any of the following relationships:

$>O$; $<O$; $=O$; $\geqslant O$; $\leqslant O$; O (No limitation).

The number of possible combinations between the parameters is therefore enormous. But if we restrict the possibilities to

$$\frac{f'_C h'_B + f'_B}{1 - f'_C h'_A} = \frac{f'_B g'_C + f'_C}{g'_A f'_C + g'_C} < O$$

we reduce the number of possible combinations considerably. Yet the number still remains too large to be really useful. However, we may accept that some assumptions about at least one of the parameters are obvious enough to be taken for granted – for example, that f'_B must be smaller than O ($f'_B < O$). (i.e., that for any value of C, if held constant, A decreases when B increases, as in the case of diminishing returns.)

Having added such an assumption, we may then construct all the possible combinations which will satisfy the relationships exposed by the equations (III) on the previous page (144) and which will hold good when $\frac{dA}{dB}$ has the negative sign we have either observed or assumed. These are:

(1) $f'_B < O$ $f'_C < O$ $h'_B \geqslant O$ $h'_A \geqslant O$ $g'_C \geqslant O$ $g'_A \leqslant O$

(2) $f'_B < O$ $f'_C > O$ $h'_B \leqslant O$ $h'_A \leqslant O$ $g'_C < O$ $g'_A < O$

(3) $f'_B < O$ $f'_C = O$ (No restrictions on the others)

But if we re-write set (I). (p. 144), and divide the first equation by dB and the second and third equations by dA, we get the following new set of equations:

$$\underset{(-)}{\frac{dA}{dB}} = \underset{(-)}{f'_B} + \underset{(+)}{f'_C} \frac{dC}{dB}$$

$$\frac{dB}{dA}\overset{(-)}{=}g'_A+g'_C\frac{dC}{dA}\overset{(-)}{}$$

$$\frac{dC}{dA}\overset{(-)}{=}h'_A+h'_B\frac{dB}{dA}\overset{(-)}{}$$

The signs given in brackets above the symbols are those we have already agreed upon.

If we now re-examine the equations we discover that.

(1) $f'_C<O$ [84] (i.e. is negative). This already restricts our choice of possibilities by eliminating combination No. 2 (above), which stated that $f'_C>O$.

Further, we can now say that:

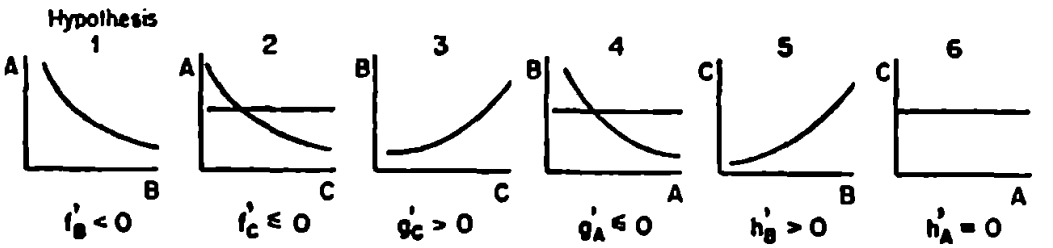
(2) If $g'_C>O$ then $g'_A\leqslant O$
If $g'_C=O$ then $g'_A<O$

(3) If $h'_B>O$ then $h'_A\leqslant O$
If $h'_B=O$ then $h'_A<O$

Hence only the combination $h_B>O$ and $h_A=O$ is consistent with (I). Consequently the result of all these operations is to show the restriction of the parameters to

$f'_B<O \quad f'_C\leqslant O \quad g'_C>O \quad g'_A\leqslant O \quad h'_B>O \quad h'_A=O$

To sum up: the hypothesis $f'_B<O$ and the observations $\frac{dA}{dB}<O$ and $\frac{dA}{dC}<O$ produce the following conclusions:



[84] This is of course only if we do not intend to accept a limitation of the sort:

$$\left|f'_B\frac{dB}{dC}\right|>\left|f'_C\right|$$

i.e., that we accept limitations on the parameters only with regard to sign and not with regard to size. The same is also true for all other parameters.

From these relationships we can derive economic conclusions to answer questions of the type: 'What will happen if we change A?' In our example we could then answer from No. 6 that C will remain constant, and from No. 4 that B will either remain constant or decrease.

What then are the difficulties which the neoclassical method cannot overcome? In the first place there is no way to deal with exogenous factors. Secondly, as soon as magnitudes are added to the signs the number of possible combinations becomes so large that they get completely out of hand.[88] And finally, the A, B and C of any system may not really be observable. As for 'Growth', it is obvious that it could only be brought into the equilibrium-seeking method of the neoclassicist in the form of a disequilibrating factor. Growth is in fact relegated to the technicians, sociologists and psychologists, and then treated as a *result* of exogenous forces; these had an effect on but were not a result of, the economic system. From the economist's point of view growth was therefore unpredictable. The equilibrium itself, too, was based on a number of unrealistic suppositions, like the perfect mobility of factors of production and the full flexibility of demand towards the various maximizations. Monopolistic influences were ignored, and the operation of the price-mechanism grossly exaggerated. Utility was related to each commodity itself, and made a function of income. The shape of the curve of its function was arbitrarily decided to be negative. Finally the method justified the exclusion of all factors labelled 'exogenous', by tacitly assuming that it was dealing with short-term development while at the same time it depended on the equilibrium of the price mechanism, and this of course is a manifest long-term process. The exclusion, as 'exogenous', of factors like technical innovations, population growth, and changing tastes, by the words 'all things being equal', made mathematical prediction in economics much easier, but also almost entirely useless. Recognizing this, the neoclassical economist would try to include in a different way the so-called exogenous factors. A new invention, for example, was assumed to give a temporary monopoly, (surplus profit) to

[88] See example footnote 84 on page 146.

the inventor, but the 'monopolistic' profits would soon by way of the price mechanism, attract competitors and equilibrium would once more be restored. The changes thus caused by exogenous factors could therefore be ignored in a long-run analysis.[86] In summary, they treated growth as an exogenous factor, arising from independent sources like technical progress, which could be incorporated into the system *via* the operation of the price mechanism. The agent of progress thus was competition.

This treatment of the indigenous factors as self-adjusting elements, had, however, the advantage that they could be all lumped together into one fictitious variable such as 'real national income per head' or capital labour ratio', and then made part of a formula for predicting the effect of the growth-producing variable on the 'fictitious variable' representing the equilibrating economy.[87] This method, attractive as it may appear, had however the shortcoming that it did not permit the economist to trace the path through which the new optimum equilibrium position would eventually be achieved. In effect it turned the whole method into the study of long-term results alone. Even here, however, the method could only hold good if the world were moving towards the assumed 'free competition' equilibrium, and if it were true that the so-called 'exogenous' factors were really independent variables. Unfortunately it is likely that both these assumptions may not be justified. In fact the whole substitution of raionalized mathematical functions for the human relations of real life seems highly doubtful. Only with regard to government operations like taxation did the neoclassical approach find a number of independent variables, more easily introducible but here too, one was faced with different welfare criteria of an ethical and political, rather than purely economic, nature. In summary, as

[86] The same would be the case with labour or capital which would also move in response to changes in tastes, for instance, to new equilibrium positions, provided of course that we lived in a world of perfect mobility. More generally then, 'maximisations' were supposed to regulate demand and resources to suit $\frac{MU'}{P'} = \frac{MU(n)}{P(n)}$ This idea was only abandoned with the rise of the great monopolies and trusts and labour unions in the 20's and 30's.

[87] This procedure was later adopted by economists like M. Solow and P. A. Samuelson. (See next chapter).

John Buttrick wrote,[88] 'The neoclassical welfare theorems purposely did not refer directly to observable indicators. Instead, they were purely systemic deductions which for "proof" depended on (a) assumptions which in principle could not be checked directly, and (b) theorems of the "middle level" which did refer to observable variables. The assumptions were consistent with these middle-level theorems, and were also consistent with welfare theorems.' Welfare was made a political rather than economic factor. For growth, however, the only valuable factors which remained were the 'maximization rules'.

[88] *Theories of Economic Growth*, p. 191.

CHAPTER V

The Theories of the Stages of Economic Growth

The object of a growth theory is to explain how factors like population, natural resources, organization of labour and technological know-how combine to produce economic progress. The relevance of such a theory will lie in its ability to show which combination of factors produces growth and which does not. On one occasion one factor may serve as the crucial agent of development; at another time growth may be caused by a different factor, and the first one may remain almost entirely in the background: the theory must account for such differences.

One way of producing such a theory is to trace the history of the progress of economic growth in the more advanced countries of the world and to draw theoretical conclusions from the observations. This method was for obvious reasons particularly attractive to the members of the German Historical School,[1] though their conclusions about the laws of development which they sought varied.[2] One of these is the subject of this chapter, the Hildebrand or List approach[3] of the ascending stages of economic progress.

List's point of departure was the search for a theory upon which he could base practical national policies to promote industrialization. This explains his consistent opposition to protection of agriculture; it explains too his fundamental idea that

[1] Friedrich List; Bruno Hildebrand; Karl Bucher; Gustav Schmoller and Werner Sombart.

[2] For example, the 'organic life' approach of Growth, Maturity, and Decay of Wilhelm Roscher, or the 'General culture progress of mankind' approach of Karl Knie.

[3] Bruno Hildebrand (1812-1878); Friedrich List (1789-1846). List is quoted here from the American translation of *Das nationale System der Politischen Oekonomie*, 1841.

progress is a function of the state of human association,[4] i.e. of national entities and that a competitive free enterprise society, with a maximum of freedom for each individual, can best allocate resources in an optimal growth-producing manner. Ever present behind all this lay the general philosophy of the historical school, which perceived society as an integrated whole in which cultural, i.e. social, political, economic, technological and educational factors interact inseparably.[5] Of necessity this inductive method was less precise than the deductive approach of the classical school, but at the same time it brought the study of economics into a badly needed closer relation to reality. List, assuming that history develops in the form of a cultural staircase, looked upon economic progress as a succession of stages, beginning at the bottom with an individual, savage, nomadic state of society, stage, which man lived on the fruits of the virgin earth rising to the pre-tribal pastoral stage, and climbing to the socially-organized agricultural stage in which people take an active part in economic production by tilling the soil and sowing crops. These stages were then followed in the developed countries by the agricultural and manufacturing stages, and later by the agricultural-manufacturing-commercial stage, by which List meant the stage in which the people associate in a national state and produce, in addition to their agricultural and industrial goods, a variety of services. In other words the stages as List classified them, and with which we are concerned here, were those of *primary* (agricultural), *secondary* (manufacturing) and *tertiary* (agricultural, manufacturing and commercial) production, where commerce stands for all services like transport, banking, and insurance. A shift from one of these stages to the next is of course the subject matter of any study of economic growth. By applying the classification to the study of the conditions of different societies, List induced what he believed to be the 'laws' of progress, i.e. the necessary requirements and conditions for economic change. Starting from the premiss that

[4] Human progress was supposed to begin with individuals living by themselves, continuing through the stage of nationhood, to the final stage of one world human race. As long as society is in the state of nationhood, economics must be concerned with development on a national basis.

[5] A view which is not very different from that of J. S. Mill on the same subject.

only countries in temperate climates were suited for the development of manufacture, a premiss most certainly influenced by the observation of reality in his time, he decided that all other countries were more suited for the production of agricultural products and raw materials. He concluded therefore that the latter would best profit by trading with the developed countries, exchanging their surplus agra-products and natural resources for the manufactures they required. Their mode of government, List suggested, as indeed for all nations in an agricultural stage, would be despotism.[6] When a country reached a point of saturation in agricultural production and in population and it had some natural resources it would turn to manufacture. The latter would then be stimulated by trade, which should be free from restrictions if the country were trading with a more or less equal business partner, but protected if it were trading with an unequal one.[7] Eventually, however, when manufacture has become well established, protection would no longer be necessary. Yet agriculture should never be protected under any circumstances. This is because the exchange between the agricultural and the industrial sectors is by itself the best stimulant for, and regulator of, its production. Finally, agriculture will benefit from industrial progress through the adoption of industrial production techniques.[8] During these last three stages of progress which culminate in the national agriculture-manufacture-trade society, List envisaged first a direction of manufacture towards the supply of the home-market at the time when the former was also progressively transforming agricultural methods, followed by a second phase during which manufacture turns to the foreign markets, specializing in the goods in which the country has a relative superiority (from abundant raw materials), while agriculture is being developed by the import and export trade of raw materials and foreign manufactures. Finally, in the third stage, manufactures and agriculture reach an equilibrium, and trade turns towards the purely agricultural countries.[9] Thus manufacture emerges as the agent of progress, affecting agriculture and eventually subjecting it to a manu-

[6] List, *National Systems*, pp. 75, 266.
[7] *Ibid.*, pp. 72-73. [8] *Ibid.*, p. 286.
[9] F. List, *Schriften, Reden, Briefe*, IV, pp. 326-328.

facture-like technological re-organization.[10]

However, as List saw it the influence of the progress of manufacture on agriculture was more far-reaching than the technological change suggested. Its prime importance lay in its cultural by-product. Agricultural society in his scheme was by its very nature traditional and limited in initiative-producing stimuli; it was politically suited for despotic government. A manufacturing society was of an entirely different social order. It provided the stimulus and the necessary mental attitudes which were conducive to progress, and it was therefore politically best-suited for a system of maximum personal liberty. List concluded from all this that the superiority of industrial society lies in its social and cultural features, which are the source as much as the consequence of its higher productivity.

This idea, as well as the whole theory of the 'stages' of economic growth, though in a somewhat more developed form, was carried further by A. G. B. Fisher in his book *The Clash of Progress and Security* published in 1935,[11] and by Colin Clark in his *The Conditions of Economic Progress*, which was published in 1951,[12] and by others. In A. G. B. Fisher's classification[13] the first stage is the one in which the 'effort is concentrated mainly on the primary production, on agricultural and pastoral and similar occupations'. In the second stage the 'secondary or manufacturing production and the activities associated therewith began to predominate'. In the third stage increasing resources are used for transport, entertainment, services, flowers, music, art, and so on.[14] In this, the change-producing agent which brings about the transformation from one stage of society to the next is a combination of education, science and technology.[15]

In Colin Clark's division stages of growth are reckoned in

[10] List, *National Systems*, p. 286.

[11] A. G. B. Fisher, *The Clash of Progress and Security*, pp. 25-43.

[12] Colin Clark, *The Conditions of Economic Progress* (1940 and rewritten in 1951), (2nd Ed.), p. 395 & p. 420, ff.

[13] See article 'Capital and the Growth of Knowledge,' by A. G. B. Fisher, in the *Economic Journal*, Vol. XLIII, 1933, pp. 379-389.

[14] A. G. B. Fisher, *op. cit.*, pp. 379-380.

[15] In reality there is in fact no clear-cut historical parallel progress in knowledge and economic utilisation of science, nor is there in fact any necessity for List's political liberalism to be the only sort of government conducive to economic growth – see the U.S.S.R. today.

terms of 'average real income', and therefore the whole process is perceived in the following way. First comes a rise in real incomes, then an increase in the proportion of people engaged in secondary production, i.e. in manufacture and mining; later comes a rise in the importance of tertiary production, i.e. in services and industry.

Hildebrand's criticism of List's theory[16] was basically a rejection of the latter's 'law' of development, which in his view over-emphasized the role of agriculture and underrated the influence of manufacture and commerce. In Hildebrand's view the whole method of starting from the 'saturation' of agricultural production, and continuing via the manufacturing stage towards the trade-manufacture-agriculture stage, was standing on its head, as each mode of production was the product rather than the cause of a society's cultural position. In other words, he believed that it is the social-economic state of a people which impresses itself upon the method of economic production. By way of example he compares ancient Greece to medieval Europe, showing how the political and geographical division of the former forced upon Greek society the predominance of trade and navigation, whereas medieval European society, which was almost self-sufficient, had the greater emphasis on agricultural employment. His conclusion was therefore that it is the cultural and political environment which produces economic diversification of structures and stages and not, as List thought, the 'law of nature'.[17]

P. T. Bauer and B. S. Yamey take a not dissimilar line in attacking Fisher's and Clark's 'stages of economic growth'. By implication they reject the assumption made by the latter, that trade and services, i.e. secondary production, is a function of a relatively higher standard of living than mere primary production. What they disagree with in the Clark-Fisher theory is the idea that secondary production cannot take place until agricultural society has reached a degree of affluence which permits it to divert resources to manufacture and trade. Their method of destroying this view is to point out that, for example, in West Africa much petty trade and many service occupations

[16] Bruno Hildebrand, *Die Nationaloekonomie der Gegenward und Zukunft*, 1848, p. 73.
[17] *Ibid.*, pp. 59-61; 326-327.

are in evidence, but in their opinion agriculture does not produce the surplus necessary by the List-Fisher-Clark theories to justify it. Another example cited against the early 'stages' theory was that of the Low Countries: in their great trading century manufacture and agricultural progress arose only in the wake of trade when it declined.[18]

Hildebrand, after criticizing List, substituted his own 'stages' of growth for the former's. He distinguished stages of distribution rather than of production, and classified human progress as a consequence of social and cultural development which finds an expression in the medium of economic exchange this scheme is (1) the barter economy, (2) the money economy and (3) the credit economy.[19] The gradation implied in this classification is one of decreasing business rigidity. Each of the stages produces its own social organization and institutional framework. There is no place for high specialization in a barter economy, as there is no place for real economies of scale, i.e. large scale production in a pure money economy without credit facilities, joint stock legislation and so forth. Unfortunately, however, Hildebrand never explained the mechanism by which one stage is transformed into the next; in addition to which his theory of necessity lacks a clear-cut distinction between the various stages.

In the early part of our century the most popular theory of stages was that of Karl Bücher. Bücher classified economic development into three stages: *domestic*, *urban* and *national*.[20] In the *domestic* stage society lacked an institutionally organized mode of exchange.[21] The characteristic features of this stage were the inadequacy of weights and measures and the poor transport and communication facilities, and what Bücher called 'the direct connection of each single service with its reciprocal service, and the freedom of action on the part of the

[18] P. T. Bauer & B. S. Yamey, 'Progress of Occupational Distribution.' *Economic Journal* LXI, 1951, pp. 741-755.

[19] B. Hildebrand, *op. cit.* p. 329.

[20] Karl Bücher, *Die Entstehung der Volkswirtschaft*, 1893. English translation *Industrial Evolution*, p. 98.

[21] This definition had the advantage that it did not exclude the existence of a certain amount of manufacture and trade which must have taken place in Europe even in the very early middle ages, for example barrel-making and the salt trade.

individual units carrying on trade with one another.'[22] Afterwards the manorial organization disintegrated and a new system of distribution emerged. First it merely took the form which was best suited to the poor transport conditions, that is, trade in expensive but easily transportable goods like diamonds, spices and fine clothes. As this trade spread more and more people became engaged in producing the objects of exchange, in occupations which were often highly skilled. Eventually a re-organization of trade and labour along new lines took shape. For a time the process of exchange still remained complicated and specialization scarce. Then, after a long interval which Bücher thought necessary for the medieval towns to ripen and organize their defences against armed invasion, the new system took shape. The town people, by now accustomed to co-operation for defence, spread co-operation into other spheres of their lives and new institutions developed which reflected their new mode of social organization. The *urban* stage of economic development has arrived. Yet production in this stage remained restricted to consumers' goods. The following stage is the one of the impersonal market, of the *national economy*. Production becomes large-scale and producers have no more direct connections with consumers. But again, Bücher believed that the transition takes place as a consequence of political changes. A new political structure, the national state, subjects individual interests to national trends and thus transforms the economy.[23]

In Bücher's theory, then, both transitions, first from the manorial-agricultural, or domestic, stage to the trade-manufacturing, or urban, stage, and then from the urban to the impersonal-large-scale-market, or national, stage, are brought about by exogenous political factors. His thesis is therefore of little use to the student of economic growth. At best the theory can be taken as a good descriptive history of European economic development. The puzzle is how the theory ever gained the popularity it enjoyed among the economists of the first quarter of the century.

Not dissimilar in appearance, though very much so in

[22] Karl Bücher, *op. cit.*, pp. 106-107.
[23] *Ibid.*, p. 134.

approach, was Schmoller's theory.[24] He classified economic progress by the structure of the prevailing institutions. However, his classification is historical rather than analytical. As B. F. Hoselitz[25] pointed out, the contrast between Bücher's and Schmoller's interpretation of the validity of economic stages 'consists less in the particular structure of the classification itself, but rather in the use to which economic stages are to be put . . . For Schmoller, the description of a historical development stood in the foreground; for Bücher, the comparison of economic relations on different levels of the developmental scale was of primary importance'. Obviously Bücher's method was the more interesting for the economic theorist.

A more sophisticated method of classification was that of Sombart, who also divided development into three stages, treating them however as mere systemic models. By this he not only escaped the endless controversies of List's and Schmoller's historicism, but also presented more clearly-defined stages which could be methodically analysed and against which different societies could be measured and examined. The construction of these stages took place on three levels of definitions, each of which supplemented the others and restricted them to a higher degree of precision. The first of these levels was the classification according to *forms of social organization* (Vergeselschaftung), the second by the *nature of the economic system*, and the third by the intent or *object of the economic activity*. From the combination of all three levels of classification he then derived his three stages of economic growth, namely, the *individual*, the *transitional*, and the *social*. The individual stage embraces a variety of patterns of social organization like tribal groups, manorial societies and homesteader settlements. The transitional stage includes a variety of structures like the village economy, the African township, and the late medieval European town. The social stage contains the classical slave economy, the colonial economy, and the capitalist and the socialist economies. At Sombart's third level of classification, the town of the second

[24] *Grundriss der allgemeinen Volkswirtschaftlehre*, 1904. See particularly division into five stages (1) Village economy. (2) Town economy. (3) Regional economy. (4) National economy and (5) World economy, in Vol. II. pp. 1126-1131.

[25] See *Theories of Economic Growth*, p. 223.

representing 'the manifold phenomena of economic life'.[29]

Franz Oppenheimer tried to combine the theoretical methodology with the historical approach in his book *System der Soziology*.[30] Adding the degree of the division of labour current in a given society to the list of symptoms which separated one stage from another, he modernized the method of 'stage analysis' by isolating economic growth factors from exogenous influences such as political disturbances. In this sense he may well have been a pioneer in bringing into closer contact the neo-classical mathematical with the German historical sociological method of economic growth analysis.

In summary, then, the theories of stages of economic growth taken together all promoted the development of a necessary link between the classical approach to economic progress, and the inductive approach which is observational and historical. However they could not overcome the one difficulty most relevant to the study of growth, namely the basically static nature of the method. For the very essence of growth must be dynamic, each successive stage merely representing the culmination of processes which had grown out of the preceding stage. Hence, growth analysis by stages became increasingly concerned with processes which take place within each major stage of development, difficult though it may be to define the latter. It turned in fact to the study of the details of growth within the major stages, sub-dividing them into sub-stages of growth, and confining the study to the process of industrial progress. The work done by Walter Hoffmann and Colin Clark may serve as good examples.[31] Their theories though of great interest in many respects, do not answer the one question which is uppermost on the minds of African and South American students of economic development, namely, how does society change from one stage to the next?[32] Arthur Spiethoff, distinct from Hoffmann, continued in the German nineteenth century historical tradition.[33] Studying progress from both the historical, or fact-

[29] See Spangenberd's quotation in B. F. Hoselitz, *Theories of Econ. Growth*, p. 233.

[30] W. Hoffmann, *Studien Und Typen der Industrialisierung*, 1931, Colin Clark, *op. cit.*

[31] F. Oppenheimer, *System der Soziology*, 1923.

[32] In this respect one finds W. W. Rostow's theory far more attractive. See p 165.

[33] *Die allgemeine Volkswirtschaftslehre als geschichtliche Theorie.*

stage of development is separated from the same town in the third stage. This is because the intent or object of economic activity in the second transitional stage may still have been the satisfaction of some direct needs, whereas in the third social stage it has become the accumulation of wealth. This too is the reason why Sombart's third stage of development includes the ancient world's slave economy together with modern capitalism and perhaps, with less certainty, socialism.

Studying the method one cannot help feeling that what Sombart was really trying to do was to bring about a synthesis of Marx's and Engels' development theory with the German neoclassical historical method of looking upon the stages of growth from the distribution side. The outcome was, of course, a far more complex theory of growth in which social, economic, psychological, and productive factors are all taken into account. Sombart discussed the transition from one stage to another only with regard to the rise of capitalism. Here the agent of change is a kind of *capitalist virus*[26] attacking society in the state of subsistence production and transforming it into one motivated by the accumulation of wealth. Marx's dialectics is stood on its head and progress attributed to spiritual rather than material change. How and where this *virus* was bred Sombart discussed in his famous, though not universally accepted, book *Der Bourgeois*.[27]

Sombart's methodology was carried a step further by Max Weber, who introduced the concept and idea of the 'Idealtypus'.[28] He finally divorced the economic analytical stages from their historical content. The stages became mere theoretical edifices, 'ideal stages' constructed for purely analytical purposes designed to allow the examination of historical reality for the purpose of showing how far a given society deviated from, or corresponded to, the ideal prototype. On the one hand this method was advantageous to the analytical economist, providing him with a theoretical tool for the examination of historical economic situations, on the other, the economic historian received a methodological tool for measuring and

[26] W. Sombart, *Der Moderne Kapitalismus*, 1899, Vol. I, pp. 327-328, 329.
[27] W. Sombart. The book was published in 1913 and translated into English under the name *The Quintessence of Capitalism* in 1917.
[28] Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, 1904.

economic performance in comparison with other countries; the failure to provide a reasonable standard of living for a large proportion of the country's population. The symptom of development, on the other hand, is a high *per capita* income.[39]

Having thus defined development and underdevelopment in terms of *per capita* income Kuznets asks whether conditions before development began in the countries which are today developed can be compared with those in present day underdeveloped countries. His answer is divided into two parts. Firstly, he compares the underdeveloped countries of our time with what he calls the 'pioneering countries'. Secondly, he compares them with the old developed countries. As for the pioneering countries, i.e. the 'relatively "empty" countries peopled by Western Europeans and their descendants' (U.S., Canada, Australia) the answer is that none of them ever lagged so far behind the developed countries of their time as do the underdeveloped countries today. There were some pioneering difficulties, Kuznets agrees, but these were the 'penalty of pioneering'. There was neither a problem of underdevelopment in the social structural sense,[40] nor any considerable difference in the *per capita* income. As for the old developed countries, however, Kuznets wrote,[41] '. . . it would take us far afield, both in scope and in time, to look back to the period when the presently developed countries among the older units in Europe were so backward (measured, say by income *per capita*) in comparison with others as to be at all comparable with underdeveloped countries of today'. 'We would have to step back at least three centuries,' he continued, 'and possibly even further back, in some cases (like France) perhaps to the early Middle Ages.' However, in making such a comparison one would not only be faced with insufficient factual information but also with such a very different cultural structure that

[39] See Colin Clark, *Conditions of Economic Progress*, 1951, & U.N. Statistical papers series E. No. 1 Oct. 1950. For countries with high or low *per capita* income.

[40] In 1840 *per capita* income in the U.K. was only 25% higher than in the U.S. *Per capita* income in the U.S. was then twice that of Italy and over three times that of Russia. (Data from G. Mulhall, *Industries and Wealth of Nations*. (1896) quoted here from Simon Kuznets' article 'Underdeveloped Countries and the Pre-Industrial Phase in Advanced Countries.' *Proceedings of World Population Conference*, 1954, Papers: Vol. V.

[41] *Proceedings, op. cit* 1954.

finding, and the analytical, or institutional, point of view. Wading through a great mass of information of historical interest, which he organized into socio-economic moulds called "*Gestalten*", Spiethoff presented economic theory as a complex of interdependent variables, and Bowman and Anderson,[34] following a similar method, formed socio-economic stages from which they extracted the variables which were indicative of change and progress. This method, fashionable in Stage theories, has the merit of giving the economic theorist a greater degree of freedom of action. As N. S. B. Gras[35] pointed out, the economist can thus construct his 'Sombartian moulds' in such a way that they will stress the relationships between institutional variables which he wants to examine. In fact he will be able to study the effect of a change in any one or more of the separate variables on the economic system as a whole. In this way the division into stages may become a valuable analytical tool, though its relevance for the economic historian is far from clear.

From the point of view of the African student, who is particularly concerned with the transition from 'backwardness' to 'progress', two modern historical or stage theories are of special interest. They are Simon Kuznets' and W. W. Rostow's.

SIMON KUZNETS[36]

Kuznets' study is an attempt to compare 'the present situation in underdeveloped countries with the earlier situation of the more developed countries, with special reference to the factors that seem . . . to be critical in respect of potentialities of development'.[37]

The symptoms of underdevelopment in Kuznets' definition are the failure to utilize the existing potentials of an economy within given technical possibilities because of social institutional obstacles;[38] backwardness of the level and character of

[34] Mary Jean Bowman & C. Arnold Auderson, 'Wirtschaftstypen), *Schmollers' Jahrbuch*, 1955.
[35] *Journal of Economic and Business Hisory*, II, 1930, pp. 395-418.
[36] See in this context particularly *Six Lectures on Economic Growth*, 1959.
[37] *Proceedings of the World Population Confernce* 1954, Vol. V.
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economic performance in comparison with other countries; the failure to provide a reasonable standard of living for a large proportion of the country's population. The symptom of development, on the other hand, is a high *per capita* income.[39]

Having thus defined development and underdevelopment in terms of *per capita* income Kuznets asks whether conditions before development began in the countries which are today developed can be compared with those in present day underdeveloped countries. His answer is divided into two parts. Firstly, he compares the underdeveloped countries of our time with what he calls the 'pioneering countries'. Secondly, he compares them with the old developed countries. As for the pioneering countries, i.e. the 'relatively "empty" countries peopled by Western Europeans and their descendants' (U.S., Canada, Australia) the answer is that none of them ever lagged so far behind the developed countries of their time as do the underdeveloped countries today. There were some pioneering difficulties, Kuznets agrees, but these were the 'penalty of pioneering'. There was neither a problem of underdevelopment in the social structural sense,[40] nor any considerable difference in the *per capita* income. As for the old developed countries, however, Kuznets wrote,[41] '. . . it would take us far afield, both in scope and in time, to look back to the period when the presently developed countries among the older units in Europe were so backward (measured, say by income *per capita*) in comparison with others as to be at all comparable with underdeveloped countries of today'. 'We would have to step back at least three centuries,' he continued, 'and possibly even further back, in some cases (like France) perhaps to the early Middle Ages.' However, in making such a comparison one would not only be faced with insufficient factual information but also with such a very different cultural structure that

[39] See Colin Clark, *Conditions of Economic Progress*, 1951, & U.N. Statistical papers series E. No. 1 Oct. 1950. For countries with high or low *per capita* income.

[40] In 1840 *per capita* income in the U.K. was only 25% higher than in the U.S. *Per capita* income in the U.S. was then twice that of Italy and over three times that of Russia. (Data from G. Mulhall, *Industries and Wealth of Nations*. (1896) quoted here from Simon Kuznets' article 'Underdeveloped Countries and the Pre-Industrial Phase in Advanced Countries.' *Proceedings of World Population Conference*, 1954, Papers: Vol. V.

[41] *Proceedings*, *op. cit* 1954.

comparison might become entirely irrelevant.[42] In the developed countries 'the long term acceleration of population growth occurred within the last two to two and a half centuries', whereas the 'economic and technological revolutions, the acceleration in the rate of growth of per capita national product in most countries, including those at the top, is even more recent, dating back not more than a century and a half'. Yet there is also little doubt that the developed countries in northern Europe 'must have had a long period of development and rise before the coming of the economic and technological revolutions'. In other words when modern progress set in some two hundred or more years ago in the by now developed countries they had already undergone a long period of cultural transition, from the thirteenth to the nineteenth century, and were already in the forefront of development in relation to their contemporaries.[43] This then is the one basic difference between the present day underdeveloped countries and the developed countries some two hundred years ago on the eve of their great leap forward: the latter had behind them between three and five hundred years of gradual progress, sustained, though admittedly slow; the former have often to start from scratch. In Kuznets' words, at the time when the technological changes ushered in the modern industrial system, in 'mid or late eighteenth century, many of the developed countries of today were already advanced economically – by contemporary standards; had already experienced fairly sustained growth over the earlier centuries, and enjoyed political independence in doing so; and were the direct participants in the beneficiaries of the extension of knowledge and changes in attitudes that constituted the three revolutions mentioned'.[44] In contrast, 'most underdeveloped countries of today are inheritors of much older civilizations which, however, economically

[42] This is Kuznets' view. I do not subscribe to it without some reservations.

[43] He maintains that the progress in Western Europe was the result of a long process beginning with the learning from the more advanced knowledge in the Near and Far East, and continued by the cultural change which spread between the thirteenth and sixteenth centuries. In other words the cultural changes which took place in the thirteenth and sixteenth centuries were the agents of slow but sustained progress.

[44] He refers to the revolutions of the thirteenth, sixteenth and eighteenth centuries.

superior in the distant past include strongly entrenched elements that constitute serious obstacles to the adoption of the modern industrial system'.

Having examined the comparison of modern and eighteenth century underdeveloped countries by the criterion of per capita income, Kuznets turned for comparison, to another aspect of underdevelopment namely to the relatively large proportions of population engaged in agriculture in underdeveloped countries.[45] In this respect, according to the available evidence,[46] the proportion of agricultural labour to total labour supply is six or more to ten in underdeveloped countries, and two or less to ten in developed countries today. Taking this as a criterion, Kuznets compares the underdeveloped countries of our time with the developed countries at a period in their history when their agricultural labour force in relation to other employment was of the same ratio, i.e. six to ten.[47] In other words, he asks what England, for example, was like in the seventeenth century when six out of ten people were still employed in agriculture, or what France or Germany was like in the first quarter of the nineteenth century. If we extrapolate backwards *per capita* incomes from Colin Clark's data[48] it appears certain that 'incomes in underdeveloped countries today are from about one-sixth to one-third of the per capita incomes of the developed countries a century ago'. Even if one allows for a considerable margin of error and introduces a number of qualifications the fact still remains that 'the pre-industrial level in the developed countries was several times that of most underdeveloped countries today. 'With this in mind Kuznets observed the following (a) Judged by *per capita* incomes there was 'continuity and consistency over the last century in the relative position of countries'. (b) The

[45] The underlying idea here is that industrialisation can only take place when productivity in agriculture has reached a stage high enough to supply a surplus sufficient to feed the industrial labour force.

[46] The data cited by Kuznets are taken from Colin Clark's *Conditions of Economic Progress* and supplemented by special studies for a few countries. The evidence is summarised in the statistical appendix of his paper "Toward a Theory of Economic Growth, presented Columbia University, May 1954.

[47] Approximately: U.S. in 1850, Canada in 1850, U.K. in 1688, Sweden in 1870, with less certainty Norway and Denmark in 1850. In France 43% were engaged in agriculture in 1866 and in Germany 34% in 1880.

[48] Colin Clark, *op. cit.* and G. Mulhall, *op. cit.*

disparity between *per capita* income in the developed, less developed and underdeveloped countries has increased during the last century.[49] (c) Population growth in most of the older underdeveloped countries (China, India, the Middle East) was less rapid in the last century or century and a half than in the more developed countries. 'Since the rate of growth in *per capita* income in the former was also materially lower than in the latter, it follows that the rate of growth in total income, the income mass as it were, was also very much lower.' This, Kuznets maintains, is of utmost importance because different, or changing, volumes of total economic activity require different, or at least modified, institutions.

Comparing the historical legacies of present-day underdeveloped countries with those of the developed countries in their pre-industrial stages, Kuznets draws attention to the fact that the most developed countries today were relatively thinly populated in comparison with, say, India, China, or Indonesia today; that their rate of population growth did not exceed ten per cent per decade[50] whereas most underdeveloped countries today experience an accretion of close to twenty per cent per decade,[51] and that international migration to 'empty' countries which eased the pressure during the nineteenth century is no longer easily possible.

In summary Kuznets warns against too close a comparison between pre-industrial Europe and North America and the modern underdeveloped countries because of the difference in both their absolute and their relative states of development and because of the differences in their immediate antecedents generally. A more fruitful comparison may, however, perhaps be made between the underdeveloped countries and the 'late comers' to industrial progress like Japan and the U.S.S.R., and between the true economic potentialities of the 'old' developed countries and the underdeveloped areas. Finally a study of the 'interplay among economic growth, population patterns, and

[49] According to Kuznets' evidence the increase in *per capita* incomes at constant prices in the developed countries over two and a half centuries was about six times the initial value. This can hardly be the case of underdeveloped countries today where production is still close to subsistence level.

[50] *Demographic Yearbook of the United Nations*, 1952.

[51] He explains this accretion by the fall in death rates and the better age composition.

social change must naturally be the main focus of interest. Furthermore, the periods covered should be long enough for rates of secular change to be established without confusion with more transient changes', because it is 'from such long period studies, with emphasis on the interconnexion of secular trends in population, in economic level and structure, in internal and social institutions, and in the world scene, that we can hope to derive testable conclusions that may be useful in understanding and dealing with the problems of the economic growth of underdeveloped countries'.[52]

WALT WITMAN ROSTOW[53]

Rostow and Kuznets differ primarily in the way they utilize the available historical evidence. Kuznets was concerned with *why*, and Rostow with *how* it happened that at different times in modern history particular economies progressed more than others. In other words Kuznets studied the *absolute* levels of *per capita* output whereas Rostow studied its *rate* of growth. Focusing his examination on the transition from one classical stage of economic development to the next Rostow proposed to show 'that the process of economic growth can usefully be regarded as centering on a relatively brief time interval of two or three decades when the economy and the society of which it is a part transform themselves in such ways that economic growth is subsequently more or less automatic'. He called this 'relatively brief time interval' the 'take-off';[54] i.e. the period in which investment and *per capita* output rise enough to change production techniques and the 'disposition of income flows' so that the upward trend in *per capita* output is perpetuated. However, this can only happen if society is ready for the changes; if earlier developments have prepared society to respond to the possibilities which are opening up and if political, social and institutional changes conducive to the

[52] Simon Kuznets. Underdeveloped Countries etc. *Proceedings of the World Population Conference*, 1954, Papers: Vol. V.

[53] W. W. Rostow. *The Stages of Economic Growth: A non-Communist manifesto*, 1952; 'The Take-Off into Self-Sustained Growth', *The Economic Journal*, March, 1956.

[54] 'The Take-Off into Self-Sustained Growth' *The Economic Journal*, 1956. All following quotations unless specially annotated are from this article.

promotion and perpetuation of progress are culturally possible.

Admitting that 'like other forms of history, economic history is a seamless web', Rostow agrees that from the economic historian's point of view 'the isolation of a take-off period is . . . a distinctly arbitrary process',[65] but it can be justified if merely used 'as a way of giving a rough framework of order to the inordinately complicated biological problem of growth . . .' With this qualification in mind Rostow distinguished three periods in the process of industrialization: 'a long period (up to a century or, conceivably, more) when the preconditions for take-off are established; the take-off itself, defined within two or three decades; and a long period when growth becomes normal and relatively automatic'.

Focusing on the 'take-off' Rostow classified two types of societies: those which had undergone major political and social structural changes and changes 'in effective cultural values', and those which were politically, socially and culturally ready but were held back by 'the high (and even expanding) levels of welfare that could be achieved by exploiting land and natural resources'. Among the former he numbered the old European countries, among the latter the new and thinly populated countries like the United States, 'Australia and perhaps Sweden'. Explaining the process of gathering momentum for the take-off in the first type of countries in what he called 'impressionistic' terms Rostow begins with a predominantly agricultural society. At a point in its history 'usually from outside the society, but sometimes out of its own dynamics, comes the idea that economic progress is possible'.[66] Then the *élite* or 'some disadvantaged group' either for direct

[65] The evidence for the preparatory developments to Rostow's 'take-off' periods is quoted from Colin Clark's *The Conditions of Economic Progress* (2nd edition); Simon Kuznets's 'International Differences in Capital Formation and Financing', *Capital Formation and Economic Growth* – A Report of the National Bureau of Economic Research, New York, 1955, pp. 19-106; Norman Buchanan and Howard Ellis, *Approaches to Economic Development*, 1955; H. F. Williamson and John A. Buttrick *Economic Development*, 1954.

[66] Rostow does not add here any new explanation for this *event* and one gets the impression of a kind of *Deus Ex-Machina* effect which installs the idea of progress in some societies and not in others. In fact it appears that in this respect he can add nothing to what had already been said by other idealistic interpreters of history like Sombart and Max Weber.

economic reasons or 'more often out of non-economic motives, such as the desire for increased social power and prestige, national pride, political ambition and so on', show some economic initiative. Eventually 'new enterprising men[57] come forward willing to mobilize savings and to take risks in pursuit of profit, notably in commerce'. Commercial markets for agricultural products, domestic handicrafts and consumption-goods imports increase.[58] Finally institutions for mobilizing capital appear or expand – capital is invested notably in transport and communications, and modern manufacture spreads 'usually in substitution for imports'. With the improvement of medical care, which normally accompanies this stage of development, a rapid fall in death rates takes place and the resultant high accretion of population comes to bear upon agriculture. By this time the rate of productive investment may rise to five per cent of the national income,[59] i.e. it may not even suffice to keep up with population pressure. Thus, Rostow concludes that 'in general, all this activity proceeds on a limited basis, within an economy and a society still mainly characterized by traditional low-productivity techniques and by old values and institutions which developed in conjunction with them. The rural proportion of the population is likely to stand at 75 per cent or over'. As for the second type of societies, those which were held back by 'the high levels of welfare that could be achieved by exploiting land and natural resources', their problems were far less difficult since their populations were largely derived from countries with 'reasonably acquisitive cultures', so that the problem of overcoming traditional values was less severe. As there was land in abundance population pressure never assumed the forms which influenced industrialization elsewhere.

The 'take-off', when it actually takes place, can then be

[57] In West Africa they are rather 'enterprising women' than 'men'.

[58] There again the lack of an explanation 'why' makes the passage once more remind one of a *Deus ex machina* demonstration effect, because one is led to assume that agricultural production must increase before the rise in the cash-demand for foodstuffs.

[59] Rostow refers the reader at this point to A. K. Cairncross, *Home and Foreign Investment*, 1953, Ch. I, 'For some useful arithmetic on the scale and composition of capital requirements in a growing economy with a 1 per cent population increase'.

traced back to what Rostow termed 'a particular sharp stimulus' like a 'political revolution, . . . technological (including transport) innovation, . . . a newly favourable international environment, such as . . . a sharp relative rise in export prices and/or large new capital imports . . .', to a 'challenge posed by an unfavourable shift in the international environment', such as a wartime blockade. The essential point, however, is that 'the prior development of the society and its economy result in a positive, sustained, and self-reinforcing, response . . .', and that 'forces which have yielded marginal bursts of activity now expand and become quantitatively significant as rapid-moving trends'. He agrees that little of this 'take-off' promoting activity is reflected in the aggregative national income, but asserts that it can nevertheless be regarded as a condition, though not as solely sufficient, for 'take-off'. Another condition is that the proportion of net investment to national income or net product must rise from '(say) 5 per cent to over 10 per cent' and that it is 'definitely outstripping the likely population pressure . . . and yields a clear increase in *per capita* output'.[69]

Eventually, in the third and post 'take-off' stage, of fluctuating yet all the same sustained growth, the 'overall capital per head increases' and the economy matures. Structural changes take place and the average rate of growth is maintained by a succession of new, rapidly growing sectors, with new sets of pioneering leaders. Finally the ratio of agricultural to industrial labour changes in favour of the latter and the country finds its place in the international economy while its people's culture comes to term with the 'requirements for maximizing modern and efficient production. . . .'

Having summarized, though hardly explained the original stimuli for the stages of economic growth, Rostow defined the most crucial stage, i.e. the 'take-off', in the following manner. Starting with the qualification that there are a number of problems of choice involved he proposed that the definition should isolate the earlier stages from the 'take-off' by three

[69] Rostow in his set of non-Marxian 'stages' in *The Stages of Economic Growth*, 1960, dates the various 'take-offs' approximately as follows: (pp. 8-9). Great Britain 1783-1802; France 1830-1860; Belgium 1833-1860; U.S.A. 1843-60; Germany 1850-1873; Sweden 1878-1900; Japan 1878-1900; Russia 1890-1914, Canada 1896-1914; Argentina 1935- ; Turkey 1937- .

related conditions: (a) 'a rise in the rate of productive investment' which he stipulated vaguely as from 5 per cent or less to 10 per cent or more of the national income or net product, (b) 'The development of one or more substantial manufacturing sectors with a high rate of growth', (c) 'the existence or quick emergence of a political, social and institutional framework . . .' which will stimulate and secure the continuity of the growth process.[61] Once the economy has past the early stages of its 'take-off' industrialization can be measured statistically and classification becomes more precise.[62] Thus Rostow excludes from the 'take-off' stage the period in which sea and land transport expand, transforming the face of the country and widening peoples' horizons and inclinations to invest in long-term and often only indirectly profit yielding projects. Similarly he excludes the period when laws and institutions which facilitate saving, lending and investment take root, and which gradually transform the whole outlook of the society involved. In effect he provides a definition of 'take-off' which excludes the major problems. He does not help the student of economic growth to find an answer to the question 'What can be done to transform a backward society into one set on the road to industrialization?' In fact he confronts his readers with the age-old problem of scientific classification – is it enough for classification to be correct or has it got to be useful? He is satisfied to state that for the 'take-off' certain conditions are necessary and that their 'scale and momentum' must be sufficient 'to transform the economy radically', or strong enough 'to outstrip population growth and to yield an increase in *per capita* output'.

'The case for the concept of "take-off",' in Rostow's classifica-

[61] In Rostow's own words (*Economic Journal*, *op. cit.*) 'The third condition implies a considerable capability to mobilize capital from domestic sources. Some take-offs have occurred with virtually no capital imports; e.g., Britain and Japan. Some take-offs have had a high component of foreign capital; e.g., the United States, Russia and Canada. But some countries have imported large quantities of foreign capital for long periods, which undoubtedly contributed to creating the preconditions for take-offs, without actually initiating take-off; e.g., the Argentine before 1914, Venezuela down to recent years, the Belgian Congo currently.' (1956).

[62] In Britain, for example, it happened, according to Rostow, between 1815 and 1850 – the period of the most rapid overall growth. The definition of take-off is designed to exclude Britain 1750–1783; Russia 1861–1890; Canada 1867–1890.

tion into stages, 'hinges, in part, on quantitative evidence on the scale and productivity of investment in relation to population growth.' He explained the essence of this idea in the section of his article 'The Take-Off into Self-sustained growth' in the *Economic Journal*, entitled 'A prima facie *case*'. He wrote: 'If we take the aggregate marginal capital-output ratio for an economy in its early stage of economic development at 3.5 and if we assume . . . a population rise of 1-1.5 per cent per annum it is clear that something between 3.5 and 5.25 per cent NNP *per capita* requires, . . . under the assumptions, that something between 10.5 and 12.5 per cent of NNP be regularly invested. By definition and assumption, then, a transition from relatively stagnant to substantial, regular rise in NNP *per capita*, under typical population conditions, requires that the proportion of national product productively invested moves from somewhere in the vicinity of 5 per cent to something in the vicinity of 10 per cent.' Applying this method of classification to modern underdeveloped countries Rostow distinguished four types of economic conditions: (1) the pre-take-off economies, ('where the apparent savings and investment rates, including limited net capital imports, probably come under 5 per cent of net national product').[63] (2) economies attempting take-off, ('where the apparent savings and investment rates, including limited net capital imports, have risen over 5 per cent of net national product').[64] (3) growing economies ('where the apparent savings and investment rates, including limited net capital inputs, have reached 10 per cent or over').[65] (4) enclave economies; the countries where the apparent savings and investment rates, including substantial net capital imports, have reached 10 per cent or over but the domestic preconditions for sustained growth have not been achieved.[66] In the past, Rostow believes, the funds for financing the take-off have either come from 'shifts in the control over income flows', including income distribution changes and capital imports, and from 'the plough-back of profits in rapidly

[63] Rostow mentions Ethiopia, Kenya, Thailand, Cambodia, Afghanistan, Indonesia.

[64] Rostow mentions Mexico, Chile, Panama, Philippines, Puerto Rico, India.

[65] Rostow mentions Colombia (1950) with a NCF/NDP of 16.3 per cent.

[66] Rostow mentions Belgian Congo (1951), Southern Rhodesia, Burma, Nigeria.

expanding particular sectors'. In the first case he is thinking of the transfer of funds from unproductive to productive elements in the population and often to the government which, through taxation, may convert hoards into productive investment capital, and of a concurrent stimulation of saving by the creation or development of better and safer saving and investment facilities like banks and capital markets. In the second case, Rostow has in mind a situation in which one or more rapidly growing sectors of an economy serve as a lever to raise the capital which is to be ploughed back into the economy. In this case it is the demand for capital to finance expansion rather than the supply thereof which is the decisive factor.[67] An example is the cocoa trade in Ghana, which is both the cause and the source of savings. In more general terms Rostow argued that 'developing economies have created from their natural resources major export industries; and the rapid expansion in exports has been used to finance the import of capital equipment and to service the foreign debt during the take-off'.[68] However, 'the development of such export sectors' by themselves do not suffice as the capital gained in this way may easily be squandered on unproductive items like the great number of luxury cars in Ghana (1960).[69] Another well known source of funds for investment is of course foreign aid and foreign loans. These have played a major rôle in the take-off stage of many economies, among which Rostow mentions the United States, Russia, Sweden and Canada but correctly excludes Britain, Japan and others, to show that foreign aid or loans are not really essential under all possible conditions.

In summary then, it is necessary for the take-off that any surpluses over consumption be productively employed, that institutions for the supply of cheap working capital develop and that one or more sectors of the economy undergo rapid growth and their profits productively re-invested. In addition foreign capital may be of great help but not absolutely essential.

[67] Banking developed in Britain before 1783 and in Russia before 1890.

[68] In the U.S., Russia and Canada it was grain which fulfilled this function; in Sweden timber, in Japan silk.

[69] The example of Ghana is not taken from Rostow but from my own observation. Since 1962 things have, however, somewhat improved in this particular respect.

Another problem raised by Rostow in connection with the take-off is the supply of Entrepreneurship. For this again, he makes the distinction between the European settlement countries like North America, Australia, South Africa, and the countries where 'development of adequate entrepreneurship was a more searching social process'. Taking for granted that social rather than economic forces are at the roots of the process, Rostow believes that 'some group must successfully emerge which behaves as if it were moved by the profit motive'.[70] He departs here somewhat from earlier idealist interpreters of history, like Sombart and Weber, and quotes a list of nations which experienced economic progress without having been influenced by the Protestant ethic.[71] He retains, however, the concept of the entrepreneural *élites* with their 'appropriate value system' (?) If these élites are deprived of social recognition and unable to achieve it in a conventional way, and are 'flexible' and 'powerful' enough to do so, they will seek what he calls alternatives to conformity.[72]

Since 'most take-offs have been preceded or accompanied by radical changes in agricultural techniques and market organization' Rostow finds the take-off producing élite among the section of farmers which are 'willing and able to respond to the possibilities opened up for them by new techniques, landholding arrangements, transport facilities, and forms of market and credit organization'. He concludes his section on the sources of entrepreneurship with the statement that 'whatever further empirical research may reveal' about men's motives, they have 'varied greatly, from one society to another, and they have rarely, if ever, been motives of an unmixed material character'.[73]

In his 'non-communist manifesto' *The Stages of Economic Growth*[74] Rostow reached the conclusion that overall growth is

[70] He qualified this statement by speaking of an 'approximation' and by leaving the major overhead items to be generated 'if necessary', by some form of state initiative . . .'.

[71] He mentions for example the Samurai, Parsees, Jews, North Italians and Turks among others.

[72] It may be interesting to compare Rostow's problem of 'conformity' with Lenin's assessment of the role of the Social Democrats when they are in coalition with the left and when they are in coalition with the right.

[73] This is of course correct but does not provide any useful answer.

[74] *The Stages of Economic Growth*, Ch. IV. pp. 97-102 and 177.

merely the sum of different rates of growth which depend on factors like population, incomes, tastes, etc., and upon the 'primary and secondary effects of changing supply factors, when these are effectively exploited'. What are these 'primary and secondary', or, as he also called them, 'primary, supplementary and derived' sectors? The first is the sector where new resources or techniques set in motion expansionary forces elsewhere in the economy; the second where direct expansion takes place as a result of the stimuli from the first sector,[75] and the third where the expansion is the result of the rise in total income or demand. The first and second sectors reflect the changes in supply, whereas the third reflects changes in demand. But at all times the progress of the economy is maintained 'as the result of rapid expansion in a limited number of primary sectors, where expansion has significant external economy and other secondary effects'. Obviously, the sectors in which the primary stimuli take place are different from case to case. One significant primary sector of this kind was in the past in many countries railroad construction. This played a major role in the development of the United States, Germany, Russia, Sweden and Japan. Everywhere it not only reduced transport costs but also widened markets.[76] However, Rostow does not believe in a 'magic key' sector, but in the necessity of a number of basic conditions which must also be present if the take-off is to take place. These are a growing effective demand (which he believes usually originated from dishoarding, capital importation, and/or increased productivity and from an increase in consumers' real incomes spent on domestic goods), expansion of capacity and introduction of new 'production functions', a high rate of plough-back of capital, some ability to generate initially required capital, and that the initial leading sectors are of a kind which can produce a chain reaction of demand and supply which will spread throughout the whole economy.[77]

[75] Rostow's example is coal, iron and engineering in relation to railroads.

[76] American railroads 1850's; Russian and Canadian before 1914. Another sector in my view which played a similar role was the supply of the armed forces.

[77] Unlike, in my view, cocoa or diamonds. Food can be grown between the cocoa trees, so that all the cash incomes may be used on foreign luxury goods; mining for diamonds is not labour-intensive enough to produce a consumers' market. This is the situation in Ghana as I see it. *Vide African Quarterly*, Sept., 1965.

In conclusion, then, Rostow's definition of the take-off is an *industrial revolution* 'tied directly to radical changes in the methods of production, having their decisive consequences over a relatively short period of time'. This requires 'a massive set of preconditions' which basically change the societies' 'effective scale of values' and which must, in order to lead towards sustained growth bring with it 'slow-moving changes in the economy and the society as a whole'. Above all it needs 'one or more new manufacturing sectors' which grow rapidly and become the 'engine of economic transformation'. 'Its power derives from the multiplicity of its forms of impact, when a society is prepared to respond positively to this impact. Growth in such sectors . . . in itself tends to raise output per head; it places incomes in the hands of men who will . . . plough it into highly productive investment; it sets up a chain of effective demand for other manufactured products; . . . enlarged urban areas, . . . whose population and market organization help to make industrialization an on-going process; and, finally, it opens up a range of external economy effects which, in the end, help to produce new leading sectors when the initial impulse of the take-off's leading sectors begins to wane.'

CHAPTER VI

Contemporary Theories - A Survey[1]

'Denial of profit by socialism and recognition of profit by capitalism has never served as the feature distinguishing socialism from capitalism. The difference is in the way profit is formed, appropriated and used.'

Professor Evsei Liberman.

CHARACTER AND SCOPE OF MODERN THEORIES OF GROWTH

In a survey of growth theories published in 1952[2] Moses Abramovitz defined growth as 'sustained change in the output of economic communities'. Output, he wrote, is at any given time determined by the 'supply of resources (labour, "land", capital,) the state of the arts, the organization of markets, the legal framework of economic life, and the psychological attributes of the population', all of which make up 'the *immediate determinants* of output'. The object of a theory of growth, he maintained, is to explain the long-term changes in these *immediate determinants* and to examine the influence of the changes in one, or several, or all of them on the economy as a whole. The methods of doing this he described as both inductive and deductive. Inductively the immediate determinants were treated 'as variables whose movements are to be explained rather than assumed', i.e. as data and true dependent variables. Obviously this method must lead the

[1] This chapter is modelled upon Moses Abramovitz's contribution 'Economic Growth' in *A Survey of Contemporary Economics*, ed. B. F. Haley, New York, 1952, Vol. II, pp. 132-182. Henry J. Bruton's contribution 'Contemporary Theorizing on Economic Growth' in *Theories of Economic Growth*, ed. B. F. Hoselitz, (III. 1960) pp. 239-298. Also F. H. Hahn and R. C. O. Matthews: article 'The Theory of Economic Growth: A Survey' in *The Economic Journal*, Vol. LXXIV, 1964.

[2] *A Survey of Contemporary Economics, op. cit.*

examination into 'the regions normally assigned to other disciplines, particularly the other social sciences'. Deductively, some or all the immediate determinants were taken to be subject to secular changes of specific kinds and the effect of each of them, or of several grouped together, upon output were examined while all other immediate determinants are held to be constant. The former method suffers from its inability to explain the significance of changes in the variables; the latter from inability to explain the causes of the changes in the immediate determinants. A combination of both methods may therefore be the best way of achieving a satisfactory explanation for 'observed changes in output'. However, this does not exclude the possibility of getting useful results by either one alone of these methods.

The following is a resume of the causes for secular changes in the supply of the immediate determinants of output as given by Abramovitz in his contribution to the *Survey of Contemporary Economics*.[3]

(1) *Changes in the supply of labour.* These may be due to population growth and to changes in the proportion of the population employed and unemployed. The first alternative touches upon such factors as birth and death rates and the age composition of the society, the second, on levels of income, degree of urbanization, social attitudes, education, opportunity to work, working conditions, taxation, organization of labour, and, again, age composition.[4]

(2) *Changes in the supply of land.*[5] These may result from seizure, purchase or reclamation of land from the sea; from productivization of land unused hitherto; and from technological progress affecting the utilization of the land. The first kind of changes, are self-explanatory; the second refer to the opening up of 'reserve' lands or the productivization of uncultivated areas through government intervention by the threat of confiscation or high taxation of untilled land; the

[3] *Op. cit.*

[4] Abramovitz mentioned P. H. Douglas, *Theory of Wages*, 1934, and W. E. Moore, *Industrialization and Labour*, 1931, as good background readings.

[5] Changes which are due to the addition of labour or capital to land are of course excluded.

third, i.e. technological, kind of changes refer to alterations in the economic significance of areas as a result of a sudden demand for some mineral which had hitherto been considered worthless, such as oil in the nineteenth and uranium in the twentieth century.[6]

(3) *Changes in the supply of capital.* In this connection two problems have to be considered: first, the problem how the changes in the supply of capital 'are transformed into changes in the quantities of the factors actually employed', and, secondly, how the latter are themselves influenced by the changes. The first problem was traditionally thought to be solved almost automatically through the mediation of the price mechanism via the marginal rate of substitution or of real returns. However, Keynes and more recent writers on the subject have introduced some modifications. They usually advocated some mild price inflation to 'help', as it were, the price mechanism by preventing price rigidities and other impediments which may frustrate the adjustment process.[7] The second problem, how factors themselves are influenced by the changes, is studied with regard to the laws of diminishing and increasing returns.[8]

(4) *Changes in the psychological and other qualitative attributes of the population.* The problems here, except for those already mentioned in connection with the determinants of the supply of labour, are mostly outside the sphere of economics and belong in most cases to that of other social sciences. They are predominantly problems of productivity of labour itself, as distinct from its equipment, which means problems of health, income and social valuation of work, as well as of degree of mobility, adaptability and similar environmental conditions. Finally there are also involved on the demand side psychological factors which affect both productivity of labour and capital formation.[9]

[6] Abramovitz mentions W. H. Dean, Jr., *The Theory of Geographic Location of Economic Activities*, 1938, as a reference for further study of the problem.

[7] *Vide* Abramovitz *op. cit.*, footnote 9, page 137, for list of writers holding this view. They include A. C. Pigou, Dan Patenkin, Franco Modigliani.

[8] *Vide.* Colin Clark, *The Conditions of Economic Progress* 1951, Ch. II. See Abramovitz *op. cit.*, p. 138, footnote 10.

[9] Like the extended family in West Africa which makes saving impossible.

(5) *Changes in the business organization of the society.* These effect the economy through the rate of investment and saving and the nature of finance. The rate of investment differs with the size of firms and the availability of competent staff and organizational capacity. The rate of saving is influenced by the strength of investment incentives, marketing facilities, monopoly and new methods of production, the nature of labour organization and saving facilities. The link between saving and investment is the financial organization. Any change here will necessarily affect the rate at which savings are turned into investment, and it will also affect the rate of saving itself.

(6) *Changes in the legal and political framework.* Here the economic system is affected through changes in the laws of contract and property, monopoly, land-development and conservation; through the laws governing economic institutions – i.e. the laws governing corporations, unions, co-operatives, banks, securities and such like – through taxation and subsidies, and laws which affect the distribution of wealth, like laws which regulate inheritance and wages; and through direct government action – investment, for example, where private capital is either unable or unwilling to step in, as in some long-term projects, education, health, communications and so on.

(7) *Changes in the discovery and dissemination of knowledge.* This problem has at least two aspects. First there is the problem of discovery itself, and secondly there is the problem of the utilization of the discovery. Both aspects are not easily quantified and measured, but they are undoubtedly among the most important growth-producing factors. In recent decades both aspects of technical progress have moved increasingly closer together. Industries tend more and more to encourage and finance research, so that the old sequence of discovery first and industrial development later is replaced by industry becoming its own source of technological progress.

In summary Abramovitz states:[10] 'We are interested in the influences that determine the pace of all these processes, the advance of fundamental knowledge, the translation of fundamental knowledge into commercial applications, and the dif-

[10] Moses Abramovitz, *op. cit.*, pp. 142-144.

fusion of such applications. The factors involved include cultural characteristics like the influence of rationality as a thought pattern, the status of science as an occupation, the place of material progress as a social and individual goal, the importance of pecuniary standards, especially in their bearing on the size, quality, and vigour of the entrepreneurial class, the mobility of the population among occupations and places, and its tolerance for novel methods and products.' To these he adds a second group of causes which include such organizational and institutional arrangements as the quantity and kind of government support for scientific education, legal protection for inventions, taxation as incentive or disincentive for investment, the size and organization of firms, the character of competition and union controls. 'Finally,' he concludes, 'the outcome is influenced by more narrowly economic causes. The size of the market is important since it limits the field of application of a discovery. The abundance of saving and the cheapness of finance, particularly for new firms, influence the pace of exploitation and, therefore, the pressure that is brought to bear on established firms to be technically progressive. The character and quantity of resources affects the relative economy of capital-using, land-using, and labour-using methods and, therefore, the direction if not the pace of technical advance. And the amount of such capital and its degree of obsolescence clearly influence the profitability of exploiting new goods and ways of making them.' Obviously this list of factors indicates the magnitude of the problems involved, and the complexity of their interrelations.

THE 'HARROD-DOMAR' MODEL[11]

We begin the summary of modern growth theories with the *capital stock adjustment theories* of R. F. Harrod and E. D. Domar. We do so because their model is a simple and formal one well suited to serve as a framework into which additional elements can be introduced one by one until it becomes as

[11] R. F. Harrod, 'An Essay in Dynamic Theory', *The Economic Journal*, Vol. XLIX, 1939. E. D. Domar, 'Capital Expansion, Rate of Growth, and Employment', *Econometrica*, Vol. 14, 1946. E. D. Domar, 'Expansion and Employment', *American Economic Review*, Vol. XXXVII 1947. R. F. Harrod, *Towards a Dynamic Economics*, 1948.

complex as the present state of growth analysis itself. Behind the model rests the attractive idea that output increases as a linear function of increments to the real capital stock. Ignoring technical progress and taking population to be constant, additional investment and increased productivity of extra capital are the sole sources of increased output. Hence, taking these assumptions for granted, economic growth will depend on the rate of income saved and on the rate at which net investments contribute to output in terms of value.

In 'An Essay in Dynamic Theory'[12] published in 1939 Sir Roy Harrod advanced the idea that the rate of growth of national output depended entirely upon the rate at which income is saved annually and the rate at which net investment contributes to output in value. This, of course, is provided that additional investment and increased productivity of extra capital are the sole contributing factors to increased output. This means that output rises at a rate $= Y_t s'$ (multiplier) times v (capital output ratio).[13] For example if the propensity to save is 1/10 and the capital/output ratio is 4/1, national output will increase by the rate of (1/10):4 = 1/40 = 0,025 (2.5%). Substituting Sir Harrod's symbols: The proportionate output increase is called *Gw*-'*the warranted growth rate*'; the ratio of annual saving to income is *s*; and the incremental capital-to-output ratio when all accumulations are best used *Cr*.

Hence the warranted rate of growth $Gw = s/Cr$

As long as *s* and *Cr* change in similar proportions and in the same direction there is no reason why the economy should not proceed to grow steadily though both the *s* and the *Cr* may not be constant parameters from one year to another. The warranted rate of growth *Gw* can thus also be expressed:

$$\Delta Y/Y = Gw$$

Since *s* is equal to accumulation (ΔI) divided by income (Y); and *Cr* is equal to accumulation (ΔI) divided by additional income (ΔY); and $Gw = s/Cr$

[12] *Economic Journal*, 1939.

[13] The symbols here are not those of Harrod but those I use myself: For *Multiplier* $I = Y.s'$ and for *Acceleration principle* $I = v(Y_t - Y_{t-1})$; v=capital. output ratio.

$$Gw = \Delta I/Y : \Delta I/\Delta Y = \frac{\cancel{I}}{Y} \cdot \frac{\Delta Y}{\cancel{I}} = \frac{\Delta Y}{Y}$$

A very similar idea was put forward by E. D. Domar in his article 'Expansion and Employment' published in 1947.[14] He begins from the obvious truth that with full employment and without technical progress, and given a constant general price level, the requirement that income paid out should be returned as expenditure and that savings be equal to investment are merely expressions for the maintenance of the existing level of income: 'If underdevelopment was present yesterday,' he wrote, 'it would still remain today. If yesterday's income was at a full employment level, that *income level* would be retained today. It may no longer, however, correspond to full employment.'[15] What happened by way of investment is a rise in capacity. If unemployed labour is still available the rise will make a contribution to growth, but under the full employment assumption made earlier it must lead to unemployment – that is, to surplus capacity. Domar's problem is therefore to find 'the conditions needed for the maintenance of full employment over a period of time, or more exactly, the rate of growth of national income which the maintenance of full employment requires'. In Harrod's terminology, what Domar was after was the warranted rate of growth, i.e. *Gw*. Since additional investment means more capacity and more capacity with full employment means unused capacity one of two things can happen: either substitution of capital for labour, i.e. unemployment, or destruction of capital. The former alternative may in the best case take the form of a shorter working day for labour; the latter, space projects and aid to Africa. Domar proposed, therefore, to substitute his own system for that of Keynes. Instead of making employment a function of income, as it appears in Keynes's multiplier, he made the fraction of the labour force employed a function of the ratio between national income and

[14] *Vide American Economic Review*, XXXVII, quoted here; all subsequent quotations from E. D. Domar, *Essays in the Theory of Economic Growth*, 1957, pp. 83-108.

[15] For example: Total incomes (Y)=150, average propensity to save (s') 1/10 =15. For full employment Y=I+C i.e., 150=15+135. However I is addition to K, and if K can replace labour then next year there must be some unemployment.

productive capacity, where 'productive capacity' meant the total output of the economy at what is usually called full employment (with factors like tastes, price/wage structure, and so on, given). The conclusion from this is that only a growing income can solve the unemployment problem. If increased investment is leading to increased incomes (via the multiplier) and at the same time results in a surplus of unused capacity, then only an even higher rate of increasing income can prevent unemployment by filling the gap between capacity and demand. This difference, i.e. capacity less demand, to which attention had already been drawn by Marx,[16] is usually allotted to technical progress – i.e. to productivity (independent of capital formation) which may cause goods to be cheaper and thus increase the purchasing power (demand) of incomes. However, Domar asks, if it were altogether true that the technical factor alone is the growth producing element without unemployment, why is providing underdeveloped countries with textbooks and technical advice not sufficient?[17] His answer is: 'A change in productive capacity of a country is a function of changes in its natural resources . . . its labour force . . . capital and in the state of technique,' all taken together.

Since changes in natural resources and techniques are not easily quantified, changes in total capacity are better expressed by the changes in the quantity and productivity of labour or capital. Therefore Domar put capital 'in the centre of the stage' and suggested variations in total capacity should be estimated by measuring the changes in the quantity of capital and its productivity. This can be done because the productivity of capital reflects the changes in the three other related elements, namely, natural resources, technology and labour. The essence of Domar's approach is thus that from the theoretical point of view any new establishment not only increases incomes but also capacity and that the two need not be equal. The question to which he seeks to find an answer is 'what should be the magnitude of investment, or at what rate should it grow, in order to make the increase in income equal to that of productive capacity?' What he wants is an equation one side of which would represent the increase (or rate of increase)

[16] *Vide* Chapter *The Dialectical Materialists.*
[17] Domar, *Essays*, p. 88.

of productive capacity, and the other side that of income. The solution of such an equation would then be the rate of growth.

Using Domar's symbols, I is the rate of annual investment, and s annual productive capacity per unit of newly created capital. Thus, productive capacity of I units invested will be Is per annum. But new investment must of necessity take some factors away from old establishments. Therefore, (say, because machines in some old factory are prematurely scrapped) total capacity will not really increase by Is units of money per annum but by something less. This Domar designates as $I\sigma$. Where σ is 'the potential social average productivity of investment'.[18] σ, then, is the increase in productive capacity. Hence a difference between s and σ indicates a certain misdirection of investment. Investment grows faster than labour and technology. Also, σ 'indicates the increase in productive capacity which accompanies' (rather than is caused by) each unit of additional investment. Finally, σ has a potential character. If it is high it shows that the economy can increase its output, not that it necessarily does so.

Therefore, $I\sigma$ is the supply side – the rate at which the economy can progress – whereas $I\alpha$ (α=the marginal propensity to save) is the demand side of the system.[19] The important point to note is the difference between the effect of investment on the productive capacity on the one hand and on national income on the other.

Domar shows this algebraically in the following manner. Let investment increase at an absolute annual rate of ΔI. This will raise absolute incomes by ΔY. Hence, by the multiplier $\Delta Y = \Delta I/\alpha$. If the economy is in equilibrium Y must be equal to productive capacity. Therefore if equilibrium is to continue income and capacity must grow at the same rate. But we have seen that the annual increase in productive capacity is $I\sigma$ and the annual increase in actual income is $\Delta I/\alpha$. For equilibrium therefore $\Delta I/\alpha = I\sigma$.[20]

[18] Domar *Essays*, p. 89.

[19] Here it should be stressed that the multiplier relationship deals with additions to national income as a function of additional investment, and not total investment.

[20] In the familiar terminology of CCU'C students: $Y = I/s'$; $Y = v(Y_t - Y_{t-1})$; $\therefore I/s' = Iv$.

The equation can be solved: $\triangle I/\alpha = I\sigma$; $\triangle I = I\sigma\alpha$

$$\frac{\Delta I}{I} = \sigma\alpha \quad [21],$$

where the $\Delta I/I$ is the annual rate of growth of investment, i.e. the percentage of growth, and $\sigma\alpha$ is the amount by which the annual relative rate must grow to maintain equilibrium. Assuming that marginal and average propensity to save are equal and constant, Domar concludes that for equilibrium incomes must increase at the annual relative rate of $\sigma\alpha$.

In summary, full employment requires that 'investment and income grow at a constant annual relative (or compound interest) rate equal to the product of the propensity to save and the average (to put it briefly) productivity of investment'.[22]

Similarly the expression $\Delta Y/Y = \sigma\alpha$ shows the requirements for the maintenance of full employment over time. 'It shows that it is not sufficient in Keynesian terms, that saving of yesterday be invested today, or . . . that investment offset savings. Investment of today must always exceed savings of yesterday' to make up the difference between the rising capacity and normal additional product of the multiplier. More than that, as Sir Harrod had shown,[23] the additional investment must proceed in absolute terms and at an accelerated rate.

Further, the effects of the multiplier and the increase in capacity do not take place simultaneously. Both the creation of additional income and of higher capacity require a lapse of time to work themselves out. It should also be noted that the amount of net investment may rise or fall, but that as long as there is net investment productive capacity will continue to

[21] In the terminology used here this would be $\triangle I/I = s'\sigma$.

[22] Domar, *Essays*, pp. 91-92. Domar's example is as follows:

$Y = 150 \quad \alpha = 12/100\ (12\%) \quad \sigma = 25/100\ (25\%)$.

Hence full employment requires $Y.\alpha = 150.12/100$. As a result of this capacity will rise $Y.\alpha.\sigma = 150.12/100.\ 25/100$. Therefore, national income would have to rise (for equilibrium) by the same amount. However the relative rise of income will equal the absolute rise divided by the income itself. Hence it will have to be

$$\frac{Y.\ \alpha.\ \sigma}{Y} = \frac{150.12/100.25/100}{150} = \sigma.\alpha = \frac{3}{100} = 3\%$$

[23] *The Economic Journal*, Vol. 49, March, 1939, pp. 14-33.

increase. The same is not true with regard to national income. Any relative fall in investment, i.e. failure to rise at the same rate as before, will cause an absolute fall in national income.[24] This is because national income is not a function of the amount invested, but the function of the rate of increase of net investment. 'Thus the whole body of investment, so to speak, increases productive capacity, but only its very top – the increment – increases national income.'[25] It may therefore be more practical to re-state the Harrod-Domar equations in the form of time-difference equations. This is the method adopted by Henry J. Bruton in his contribution to *Theories of Economic Growth*, edited by B. F. Hoselitz.

Let us assume that O_t is the capacity rate of output in period t, and that K_t is the capital stock and k the capital output ratio, which for technological reasons we hold to be constant, in period *t*. Output will be equal to capital divided by the technological constant.

$$O_t = \frac{1}{k} K_t \quad [26]$$

As the capital output ratio (k) is held to be a technological constant it will be the same in the year t and in the year t — 1 Hence,

$$O_{t-1} = \frac{1}{k} K_{t-1}$$

The difference between output in year t and t — 1 will be equal to the capital in year t multiplied by the technological constant less the capital in year t — 1 multiplied by the same technological constant.

$$O_t - O_{t-1} = \frac{1}{k}(K_t - K_{t-1})$$

However, the difference between capital in period t and capital in period t — 1 is the investment (I) which took place

[24] *Vide* R. C. O. Matthews, *The Trade Cycle*, 1959, Chapter II.

[25] Domar, *Essays*, p. 98.

[26] For example if the state of technology permits 5s. of additional output for each pound of added capital the equation would read $K_t/4$, where capital is defined as real capital and output as value of produce less cost of factors of production.

during period t–1 and which becomes capital in period t.

$$K_t - K_{t-1} = I_t$$

Hence the addition to output generated by the addition to capital during period t will be the investment created during period t–1 (I_{t-1}) multiplied by the technological constant $\frac{1}{k}$

$$O_t - O_{t-1} = \frac{1}{k} I_{t-1}$$

Both sides of the equation may now be divided by O_{t-1}

$$\frac{O_t - O_{t-1}}{O_{t-1}} = \frac{\frac{1}{k} I_{t-1}}{O_{t-1}}$$

But the expression on the right side of the equation is $\frac{1}{k}$ multiplied by $\frac{I_{t-1}}{O_{t-1}}$ which is the ratio of net investment to capacity in the period t–1. If, now, we designate this ratio (net investment/output) by v it appears that as long as the technological constant 1/k does not change capacity will increase from year to year by (1/k)v, i.e. by

$$\frac{v}{k}$$

In Bruton's words,[87] this equation (I),

(I) $$\frac{O_t - O_{t-1}}{O_{t-1}} = \frac{v}{k}$$

states 'capacity will grow at a constant percentage rate, determined by the productivity of the additional capital stock, k, and the proportion of the capacity devoted to the creation of new capital.'

For the effect of investment on demand two further equations

[87] Bruton, *op. cit.*, pp. 244-245.

are required, one for consumption expenditures and another for investment expenditures. Consumption (C_t) is a function of income (Y_t) and the propensity to save (s).

$$C_t=(1-s)Y_t \quad [28]$$

Similarly investment (I_t) is a function b (dependent on the capital-output ratio) of the change in income during the preceding period. $I_t=b(Y_t-Y_{t-1})$

Therefore, because $Y=C+I$

(II) $$Y_t=(1-s)Y_t+b(Y_t-Y_{t-1})$$

And (III) $$\frac{Y_t-Y_{t-1}}{Y_{t-1}}=\frac{s}{b-s} \quad [29]$$

Hence income grows at a constant percentage rate which depends on the propensity to save and the extent to which changes in income induce investment. From equation (I) we can see that capacity grows at the rate v/k[30] and from equation (III) we see that income grows at the rate s/b-s[31]

[28] $Y = C+I \quad I = Ys \quad \therefore \; Y = C + Ys$ and $C = Y - Ys$
$C_t = (1 - s)\, Y_t$

[29] (II) $Y_t = (1 - s)\, Y_t + b\,(Y_t - Y_{t-1})$
$\therefore$ (2) $Y_t - (1 - s)\, Y_t = b\,(Y_t - Y_{t-1})$
$\therefore$ (3) ~~Y_t~~ $-$ ~~Y_t~~ $+ sY_t = b\,(Y_t - Y_{t-1})$
$\therefore$ (4) $$\frac{s}{b} = \frac{Y_t - Y_{t-1}}{Y_t}$$

Again (2) $Y_t - (1 - s)\, Y_t = b\,(Y_t - Y_{t-1})$
$\therefore$ (5) $Y_t - (1 - s)\, Y_t - bYt = -\, bY_{t-1}$
$\therefore$ (6) ~~Y_t~~ $-$ ~~Y_t~~ $+ sY_t - bY_t = -\, bY_{t-1}$
$\therefore$ (7) $(b - s)\, Y_t = bY_{t-1}$
$\therefore$ (8) $$Y_t = \frac{b}{b-s}\, Y_{t-1}$$

Insert operation (8) as the denominator in operation (4)

$$\frac{s}{b} = \frac{(Y_t - Y_{t-1})}{\frac{b}{b-s}\, Y_{t-1}}$$

$\therefore$ (9) $$\frac{s}{b} = \frac{(Y_t - Y_{t-1})\,(b - s)}{b(Y_{t-1})}$$

$\therefore$ (10) $$\frac{s}{b} \cdot \frac{b}{b-s} = \frac{Y_t - Y_{t-1}}{Y_{t-1}} \text{ i.e. } \frac{Y_t - Y_{t-1}}{Y_{t-1}} = \frac{s}{b-s}$$

[30] $\dfrac{O_t - O_{t-1}}{O_{t-1}} = \dfrac{v}{k}$ [31] $\dfrac{Y_t - Y_{t-1}}{Y_{t-1}} = \dfrac{s}{b-s}$

Therefore, equilibrium growth requires

$$\frac{v}{k} = \frac{s}{b-s}$$

Since total savings must be equal to total investment, and the saving-income ratio is assumed to be constant, v must be equal to s. $v=s$ [32]

Therefore equilibrium growth requires

$$k=b-s$$

b must be bigger than k by the amount of the saving ratio (s). Because of this difference *a careful distinction must be made between k (the supply parameter)* and *b (the demand parameter)*.

Given that equilibrium prevails in period t, and k is equal to b—s in the following periods t + 1, t + 2 etc., equilibrium growth can be maintained. 'But if k, b, and s, are constants, the equilibrium path may be difficult to maintain'.[33] 'Suppose, for example, that the system is growing smoothly, but because of a shock of some sort, income suddenly fails to grow at the required rate, and excess capacity appears. Entrepreneurs may then seek to reduce their capital stock by reducing investment, but a reduction in investment leads to further reductions in the income and the desired ratio between capital and output cannot be re-established'.[34] Furthermore, if the equilibrium rate of growth were determined by the behaviour of the capital stock, i.e., if input coefficients were constant, then the rate at which total output increases would be limited by that of inputs. The rate of growth of inputs must however be slower than that of output. Therefore, as Bruton points out,[35] 'With constant input coefficients, the equilibrium rate of growth will be the full employment of labour rate of growth only if the rates of growth of capital and labour are equal'.

Where the saving function (s) is concerned the problem is complicated by the difficulty to distinguish between net and gross expenditure. For example, if saving (S) is defined as the difference between income (Y) and consumption (C), i.e., Y—C, how should, say, expenditure on education be classified?

[32] $I = S \quad v = s/Y \quad s = I/Y \quad \therefore \quad v = s$

[33] Bruton, *op. cit.*, p. 245.

[34] *Vide* R. C. O. Matthews, *The Trade Cycle*, 1959, Ch. II, particularly p. 23.

[35] Bruton, *op. cit.*, pp. 248-249.

It does not directly affect capacity and therefore S cannot be directly equal to additional I, and therefore S will not bring forth the expected value of $\Delta I/K$. [36]

'With respect to the demand for capital accumulation, the chief conceptual problems are concerned with the appropriateness of the accelerator and the distinction between induced and autonomous investment'.[37] If an equation $I_t = b'(Y_t - Y_{t-1})$, means that increased income automatically produces investment, it is as much as assuming that income increases first, i.e. that more output is produced by the old capital, and only after some time capital is adjusted to suit the requirements of the already producible income. In fact it would make investment demand (b') an automatic consequence of technological needs. However, if it is assumed that investment precedes the growth of income or output, i.e., is dependent on entrepreneurs' expectations rather than on the actually experienced higher demand, the following equation is more appropriate : $I_t = B''(Y_{t+1} - Y_t)$, where Y_{t+1} stands for estimated income in year t+1.[38] Finally, investment may also depend on a combination of both b and B''. In any case it is clear that the equation $I_t = b(Y_t - Y_{t-1})$ must have a more complex contentthan a mere response of investment to technology. Bruton therefore recommends treating b as 'a behaviouristic parameter with certain technological limitations, and not merely as a technological coefficient handed to the economist by the engineer".[39]

THE INPUT DOMINATED THEORIES

(a) *The Flexible Capital - Output Ratio Models*[40]

In 'A Contribution to the Theory of Economic Growth'[41] Pro-

[36] In poor countries only a small proportion of total consumption affects capacity.

[37] The question is whether investment demand is an automatic response to technology.

[38] *Vide* Burton, *op. cit.*, p. 250.

[39] *Ibid.*, p. 251.

[40] R. M. Solow, 'A Contribution to the Theory of Economic Growth', *Quarterly Journal of Economics*, Vol. LXX, 1956. T. W. Swan, 'Economic Growth and Capital Accumulation,' *Economic Record*, Vol. XXXII, 1956. J. E. Meade, *A Neo-Classical Theory of Economic Growth*, 1961. P. A. Samuelson, 'Parable and Realism in Capital Theory', *Review of Economic Studies*, XXIX, 1962.

[41] *Quarterly Journal of Economics*, Vol. LXX, 1956, pp. 65-94.

fessor Robert Solow developed a neo-classical system which may well be called an *input adjustment model.* To the familiar Keynesian Accelerator he added two further assumptions which gave the system a greater degree of flexibility. Firstly he assumed that at each point of time all labour and capital was readily available 'on the market' so to say, and secondly, that profits and wage rates are adjusting themselves automatically and without time interval. In other words he introduced a 'cost mechanism' which automatically adjusts labour and capital costs in a way which produced a capital output ratio to suit equilibrium growth requirements. Both full employment and the expectations of entrepreneurs could continually be maintained and satisfied and growth would follow an even path if the balance between profits and wages was not disturbed. In reality the adjustments of capital to labour and to cost are seldom or never instantaneous, and historically economic growth progressed more rapidly than population growth –[42] (Had it not done so how could *per capita* income ever have increased anywhere?) therefore the warranted rate of growth deviates from the actual trend. But this does not alter the fact that at all times there exists an optimum combination of inputs from the technological point of view, which is the optimum combination of labour and capital relative to their supply prices. Towards this optimum the economy is continually driven by the operation of the price (cost) mechanism earlier mentioned. The entrepreneur in his quest for profit becomes the catalyst of development. Implicitly there is an equilibrium rate of profit towards which all capitalists are drawn and which represents the true development line of equilibrium growth. The rate of profit from capital is the ratio between the share of output going to capital production (q) and the capital output ratio (k), i.e. the rate of profit from K. is equal to q/k. Hence a constant capital-output ratio (k) (which is assumed because of the automatic cost-adjustments) will produce a constant rate of profits from capital.[43] With fixed co-efficients the rate of returns on capital will tend to

[42] Perhaps this can be explained by some Malthusian effect.
[43] Assuming of course no changes take place in the distribution of wealth.

remain constant and the path of growth will follow equilibrium. However, as capital accumulation proceeds more rapidly than the supply of labour the rate of returns on capital cannot remain constant over time and therefore the requirements for steady growth must include 'a specific innovational pattern' as it is called by W. Fellner.[44]

In other words continuous growth requires a continually rising capital-output ratio (k). Therefore, if the capital-labour ratio can be varied so that more capital is combined with relatively less labour, growth can be maintained without causing unemployment. But as the capital-output ratio must increase rather more than the rate of growth to make up for the diminishing returns from capital there comes a time when it must reach the upper limit. This is when the proportion of income saved, s, reaches close to unity. Since the rate of growth depends on the saving capital-output ratio s/k [45] eventually one of two things must happen: either growth must cease or unemployment begin. To avoid this a change in the technical determinants would then be necessary.[46] Without technological improvements s/k must remain equal to the rate of growth of the labour force (n). Thus equilibrium requirements would be $n = s/k$ or $k = s/n$. It may therefore be decided to maintain a certain balance between real wages and profits, which can be theoretically determined, in order to produce a capital-output ratio of a desired value, i.e. which is equal to $k = s/n$. F. H. Hahn and R. C. O. Matthews illustrate this value and its determinants by the following diagram.[47]

[44] *Vide* W. Fellner, *Trends and Cycles in Economic Activity*, 1956.

[45] $s/k = Gw$.

[46] This is very similar to Marx's prognosis of the path of economic growth under Capitalism.

[47] F. H. Hahn and R. C. O. Matthews, *The Economic Journal*, Vol. LXXIV, Dec. 1964, Fig. 1, 1, p. 788.

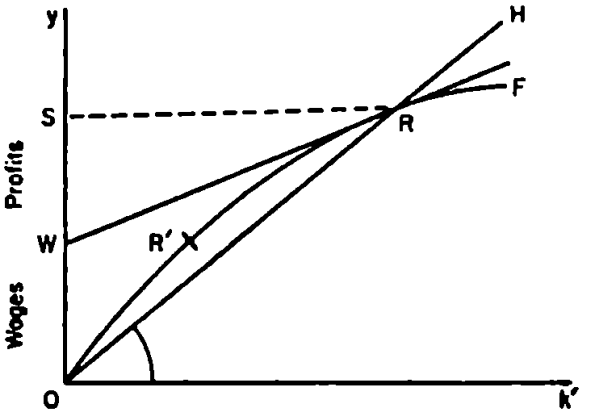
Y = Output per man.

k = Capital per man.

OF shows the productive relationship between labour and capital taking into account diminishing returns.

OH is a straight line from origin with a slope n/s (i.e., slope = capital-output ratio.

WR is a tangent to OF at point R. The slope of the tangent measures the marginal product of capital which is the rate of profit at R.



OH is the capital-output ratio with a slope n/s, i.e. the warranted rate of growth.[48] OF is the natural rate of growth taking into account the law of diminishing returns. At point R both the warranted and the natural rates of growth are equal; k=s/n. The slope of a tangent WR at this point will be WS/SR and this must be equal to the marginal product of capital dy/dk', which is the rate of profit at R. Hence output is divided between profit WS and wages OW. R therefore represents a construction where all unknowns coincide in a way which ensures full employment.

'What the neo-classical argument thus amounts to is that any tendency for the capital stock to grow more or less rapidly than population can be avoided by choosing a method of production of the appropriate capital intensity.'[49] Growth is dominated by supply considerations with a flexible capital – output ratio. In Harrod's model the rate of saving determined the rate of growth, in the neo-classical model the rate of savings is a result of the other determinants like the capital-output ratio and population growth. Obviously s will be greater in an economy with a high capital-output ratio than in an economy with a low capital-output ratio but the rate of growth will be the same for both as long as the rates of population growth are equal. The most obvious shortcoming of the method is the implied assumption that over time all machines yield the same rate of profit and that entrepreneurs will use them

[48] $k=K/O=k'/y=s/n$. $\therefore y/k'=n/s$. $\therefore y=(n/s)k'$.
[49] *The Economic Journal*, Vol. LXXIV, 1964, p. 789.

whatever their age, mode of production and labour demand. Harrod rejected the neo-classical model on purely Keynesian grounds. He argued that the neo-classical assumption that investment is equal to full employment savings and that the equilibrium rate of interest (r) is equal to the rate of profit (p) need not be true. If it is not, then monetary forces may determine the rate of interest (r) at a level R', instead of the previously assumed R on the tangent WR, and the whole theory can no longer be valid. The monetarily determined rate of interest will cause entrepreneurs to choose a combination of capital-output ratios which is not consistent with full employment growth. In addition to this it may also be true that the required division of incomes, between wages (OW) and profits (WS)[50], which will assure the steady-state equilibrium growth can force the real wage level below subsistence wages, and similarly a discrepancy between the rate of interest and profit expectations may prevent full employment.

Another way to adjust the natural to the warranted rate of growth through the output-capital ratio, also in the Keynesian tradition, was proposed by J. R. Hicks in his *A Contribution to the Theory of the Trade Cycle*[51] and by several others.[52] 'This is by variations in the degree of utilization of capital, instead of by variations in the capital-intensity of the technique chosen.'[53] In Hicks' and Goodwin's systems the economy oscillates around the natural growth path. As Hahn and Matthews[54] wrote, 'A fast natural rate due to fast population growth, leads to cycles that are characterized by a comparative predominance of booms over slumps, and hence leads to a high average degree of utilization. The average degree of utilization, as determined by the average level of activity over the cycle, appears as a variable that enables the trend rate of growth to adjust to the natural rate, even if the planned capital-intensity of production does not vary.'

[50] See diagram on page 192.
[51] Oxford, 1950.
[52] R. M. Goodwin, 1953 & 1955; R. C. O. Matthews, 1960.
[53] *The Economic Journal*, Vol. LXXIV, 1964, p. 793.
[54] *The Economic Journal*, Dec. 1964, p. 793.

(b) *The Disaggregate Capital-Output Ratio Models*[85]

In the previous sections it was assumed that the economy consists of merely one producer and one consumer. This assumption is now replaced by a more realistic one. The best known system of this kind, which takes account of the variety of sectors in the economy, is Professor Wassily Leontief's input-output model.[86]

Basically Leontief's type of analysis is concerned with a system in which the products of the economic factors are themselves used to produce other goods at a further stage; iron is consumed in steel, labour consumes its own produce to supply more labour, and so on. Therefore Leontief's model is often presented in vector or matrix form, showing graphically or algebraically the net result of the interaction of the various forces and indicating how progress in some sectors will influence others.[87] The simplest type of model of this kind is one in which the whole economy is divided into a number of industries, each producing one good and using up in the process the products of other industries and their own. No good enters production repeatedly in more than one period (capital good), and the model contains only goods which cease to exist once they are used up in production (current goods). There is no time lag between required and actual production.

Fundamentally there is no difference between this method of presentation of the economy and the method described earlier, i.e.— $Y_t=(1-s)Y_t+b(Y_t-Y_{t-1})$ (58), where $C=(1-s)Y_t$ and $I=b(Y_t-Y_{t-1})$ in the obvious formula $Y=C+I$. The change which does take place is that now each of the factors C and I is no longer aggregate but is 'disaggregated' into its components.

The economy is looked upon as the sum total of *n* sectors, each being a producer and consumer of products at one end and the same time, as illustrated by the following table:

[85] Wassily Leontief, *Studies in the Structure of the American Economy* 1953. R. M. Goodwin, 'The Multiplier as a Matrix', *The Economic Journal*, LIX, 1949, pp. 537-555. P. A. Samuelson and K. J. Arrow's contributions in *Activity Analysis of Production and Allocation*, ed. T. C. Koopmans, 1951. Michio Morishima, *Equilibrium Stability and Growth*, 1964.

[86] Wassily Leontief, *Studies in the Structure of the American Economy*, 1953.

[87] For example, see Hahn & Matthews, *The Economic Journal*, 1964, p. 869.

[88] See page 187.

Sectors of the economy as consumers

	1	2	3		j		n
Sectors	2		2;3				
of the	3		3;3				
Economy	.						
as							
Producers	.						
	i				i;j		
	.						
	.						
	n						n;n

Each i*th* sector will supply each j*th* sector with a certain amount of its product. If the value of the amount of this product absorbed in the production of one unit of the j*th* sector is a_{ij}, and the j*th* sector produces x_j units, then the i*th* sector will produce for the j*th* sector $a_{ij}\ x_{jt}$ (where t designates time), and for all sectors it will produce

$$\sum_{j=1}^{n} a_{ij}x_{jt}$$

In the same way we call the value of the i*th* product, which the j*th* sector uses in order to increase its production by one unit, b_{ij}; then if at time t the j*th* sector increases its production from x_{t-1} to x_t, the i*th* sector will produce for it $b_{ij}(x_t - x_{t-1})$. Therefore the total output of the i*th* sector for investment will be the sum of all sectors together:—

$$\sum_{j=1}^{n} b_{ij}(x_{jt} - x_{j(t-1)})$$

Hence, if we call the total output of the i*th* sector at time t X*it* we have

$$X_{it} = \sum_{j=1}^{n} a_{ij}x_{jt} + \sum_{j=1}^{n} b_{ij}(x_{jt} - x_{j(t-1)})$$

and the total output for the whole economy at time t will be

$$\sum_{i=1}^{n} x_{it} = \sum_{i=1}^{n} \sum_{j=1}^{n} a_{ij}x_{jt} + \sum_{i=1}^{n} \sum_{j=1}^{n} b_{ij}(x_{jt} - x_{j(t-1)}).$$

J. Bruton [59] gives the solution of the equation

$$x_{it} = \sum_{j=1}^{n} a_{ij} x_{jt} + \sum_{j=1}^{n} b_{ij}(x_{jt} - x_{jt-1})$$

as

$$x_{it} = c_1 h_{i1} e^{\lambda_1 t} + c_2 h_{i2} e^{\lambda_2 t} + \ldots\ldots\ldots + c_n h_{in} e^{\lambda_n t}$$

where matrices of coefficients replace the single coefficient which represents "some kind of average behavioristic and technological relationships in the economy as a whole . . . A numerical solution of this formula would involve estimating the value of the roots $\lambda_1, \lambda_2, \ldots\ldots \lambda_n$, the coefficients $h_{i1}, h_{i2} \ldots\ldots h_{in}$, and $c_1, c_2 \ldots\ldots c_n$. The λ's and the h's depend on the s's and b's and the c's reflect the initial conditions of the system. The path of x_i will be dominated by the largest root and after a sufficient period of time the equation may be written simply in terms of the expression containing this largest root.'

Thus with constant a's and b's no industry can grow more rapidly than the others – which in effect is as much as saying that the actual growth of one industry must lead to growth in others, while the inability of one industry to grow may well hold back others. This idea is of course similar to W. W. Rostow's theory of the 'take-off' through development in a small number of pioneer industries. In this mode of representation the assumptions upon which equilibrium growth rests exclude technical innovations and restrict the variable capital-output ratio to the rate of population growth. Capital and labour must increase at an even rate and all sectors of the economy must experience constant returns to capital and labour. In fact capital accumulation must progress in all sectors at an equal rate relative to each sector's share in total output. Only if all these conditions are fulfilled, when all assumptions are really true in reality, will marginal efficiency of capital be equal in all sectors of the economy and equilibrium growth proceed in the form of a circular flow, at what can be described as an ever-increasing radius.[60] This situation, however, is not really reflected in reality.[61] Yet it is this par-

[59] *Theories of Economic Growth*, p. 255.

[60] *Ibid.*, *Vide* footnote 25 on page 256, and also F. H. Hahn and R. C. O. Matthews, in *The Economic Journal*, Dec. 1964, pp. 854-882.

[61] Sustained growth is usually dominated by the growth in some industries which attract more capital than others owing to the higher rate of profits.

ticular observation, that growth is 'pulled forward' by one, or by a small number of outstanding sectors in the economy, which makes the disaggregate model of the capital-output ratio preferable to the aggregate models. Its weaknesses are not the result of disaggregation but of the assumptions which lie behind it. How can it be seriously assumed that growth need be the result of an equal rate of profit from investment in all industries? Even the most confirmed adherent of the 'all-powerful' price mechanistic theories will admit that in a society of changing tastes, technological progress and limited mobility of labour and resources, these assumptions are not really realistic.

In summary then, capital output ratio theories of equilibrium growth require that intended savings should be equal to intended investment and that the rate of growth should in all sectors progress at an even pace, none getting out of line, neither on the demand side nor on the side of supply, nor even through technological innovations.[62] The former condition belongs to the realm of the aggregate, the latter to the realm of the disaggregate model. Therefore, as Bruton pointed out,[63] the capital stock adjustment theories, in both their aggregate and their disaggregate varieties, suffer from three major defects. First, that they are short-run theories[64] and therefore free to make assumptions like that of fixed production co-efficients, the absence of technical progress and changes in tastes, and so forth. This sort of assumption is of course justified in a theory dealing with very short periods, but then most price mechanistic adjustments must also fall by the wayside, as they too are time-consuming. It takes time for the price mechanism to adjust profits in all industries; meanwhile all other things may not remain equal. In addition to this, and secondly, investment has a two-fold effect in the economy. On the one hand it is income-creating while on the other it is creating new capacity. As income and capacity need not increase at one and the same rate the discrepancy must be made up either through unemployment

[62] *Theories of Economic Growth*, p. 258.
[63] *Ibid.*, p. 261.
[64] As the whole theory springs from one alteration in Keynes' model, which is of course a model concerned with short time developments.

or through technological innovations, through both together, or through structural changes which will in fact transform the environment and thereby the economy as a whole. None of these solutions can be consistent with the steady-state assumptions of the capital adjustment model. Thirdly, the theory deals with the problem of growth from the point of departure of full employment and of growth already in progress. This confines the analysis to less than one sixth of mankind and is most certainly evading the most important issues of development today.[65]

(c) *Growth Theories in the 'Ricardian' Tradition*

We now abandon the capital-output ratio, and the income and capacity-creating models of the 'Keynesian' and 'Harrodian' types, and turn to the structural changes which give rise to and also accompany and result from the process of economic growth. We return in effect to Ricardo's behaviourism, Malthus's population determinants, and Adam Smith's technological progress systems. We restate them in modern terminology and modify them to suit the changes which have actually been observed, and sometimes even quantified, during the last century, and finally reproduce them in the form of a modern theory of structural changes. Thanks to the works of such writers as Simon Kuznets and Walter Hoffmann[66] we are less ignorant than before regarding the major structural changes which have accompanied economic development in the past. Their findings seem to indicate that growth in any single industry or in any group of industries seldom follows an even path. Normally, development progresses in an exponential curve with a decreasing rate of growth as time goes on. Initially the industry develops rapidly until it is in line with the rest of the economy; after that it may or may not continue to grow, but its rate of growth will almost certainly decline. For example let us take the electrification of Ghana. Once the Volta River Project is completed and most towns connected to the electricity supply, the electric bulb industry

[65] *Vide* last chapter.

[66] Walter G. Hoffmann, *British Industry 1700-1960*, 1955. Simon Kuznets, *Six Lectures on Economic Growth*, 1959; *Economic Development and Cultural Change*, Supplement V, 1957.

will boom. All those people whose houses are supplied with current will require electric bulbs for their lights. But once initial demand is satisfied and all kerosene lamps replaced by electric lights the demand for bulbs must peter out. This does not mean that the overall demand for bulbs need be reduced. Bulbs will still be in demand for replacements, for new buildings, for more lamps in the existing houses, but the rate of growth of the demand will no longer be exceptional and out of line with the overall growth of the economy and of incomes. So as against W. W. Rostow's theory which described the process of overall development as if it were dragged behind some pioneering sectors which experience an exceptional rate of growth, we now set a Kuznets or Hoffmann theory, wherein an economy drags behind some fast-growing sectors until these finally 'catch up' with the rest. Both theories need not be mutually exclusive: they may, however, describe two different stages of growth. Yet the contradiction is worth noticing because it casts light upon the structural changes which lie behind the entire process. If a single industry which has passed the early stages of rapid growth has caught up with the rest of the economy, the rate of its further progress must depend on a variety of factors not strictly economic. That is, it depends on elements which are no longer automatically responding to what the neoclassical school would label 'indigenous stimuli'. At this point the Ricardian and Malthusian's method of explanation, and that of Adam Smith, appear to be more fruitful than the rigid Keynesian $I_t = K(Y_t - Y_{t-1})$ closed relationship.

Ernst Engel's celebrated demand curve, which shows that the demand for each individual product levels off at some ceiling of *per capita* income, was of course anticipated by Ricardo's capital-formation curve. Obviously demand cannot continually increase at an even rate. If we take foodstuffs for an example, man's wants are clearly limited by his belly. Gradually, therefore, as incomes rise his food will become more diversified and some inferior foods will make place for better ones. Eventually even the diversification will no longer keep pace with the higher income and the surplus will be diverted to pay for products of other industries. But even then demand cannot grow forever. How many motor cars can a man own, how many suits can he wear, in how many houses can he live?

Finally the surplus income will no longer be directly consumed but turned into capital which may either lead to stagnation (the Ricardian assumption) or its own destruction through wars (Marx's assumption when talking of the future of capitalism) or to costly space projects as things appear today. However, in any one of these possibilities part of the income is not directly consumed, i.e. demand does not expand at an even rate of growth. The solution to the first dilemma could lie in population growth, i.e. if the rate of economic growth could be adjusted to the rise in population, and to the second in technology. If progress in technology could reduce production costs exactly in such a manner as to make up for the losses in 'disposable' income owing to capitalization, expansion in the form of the introduction of ever-new products could continue almost indefinitely. This is of course what may have happened in most highly developed economies. It is a well-known fact that the more advanced an economy is the greater the diversity of the products which it produces. In backward countries demand is usually strictly limited to the mere necessities of life. When *per capita* incomes rise the patterns of demand change and industrial products take up an ever greater share. Eventually, the industrial sector draws more and more resources, in labour and materials, from agriculture, and the balance of production and demand shifts more and more away from agriculture and towards industry. Demand for foodstuffs continues to grow at the rate of population growth (except where food is produced for export) and the increasing share of incomes which is no longer spent on victuals maintains the demand for other goods. Finally the increasing share of 'surplus' income is invested, thereby producing even more incomes and higher capacity. Population growth no longer suffices to maintain the required demand, and the economy is caught up in the dilemma of the choice between stagnation or periodical spells of unemployment.

There is, however, yet another aspect to these changes. The change from the early stages of development to the stage when demand for industrial products becomes significant is normally accompanied by the process of urbanization. Industrialization requires a labour force 'fully committed to earning its livelihood by industrial activity', while agricultural productivity

must be high enough to feed the extra mouths.[67] But urban societies have a different cultural structure from rural societies. The people who once have been torn away from their old environment find it easier to adapt themselves to new situations as they arise again and again. They find it easier to accept new ideas and new ways of life and new patterns of demand. Therefore the cultural climate in the towns is usually more favourable for changes in behaviour than that in rural societies.[68]

The technological factor too plays an important rôle in the process. This factor may in effect change the whole pattern of demand in such a way that overall growth will be maintained while particular industries decline and are replaced by others. This was already observed before Kuznets stressed the point.[69] Obviously within a single industry the rate of technological improvements must decline, but this need not be true in the case of the economy as a whole. The scope for improving steam engines may have a limit; the scope for replacing steam by other motive power – electricity, oil, atomic energy – may well be unlimited. Such changes will, however, be accompanied by continually changing rates of efficiency of capital and consequently alter the existing supply and demand relationships, i.e. they will be accompanied by structural changes. The simple capital-output formula will not be very helpful unless one can first understand the environmental situation.

Another determinant of the environment and structure is the rate of population growth and life expectancy. It was assumed that national income cannot grow permanently at a rate higher than that of population growth, unless labour requirements per unit of output were altered by, say, technological improvements. Growth, therefore, required that the rate at which income increased should be either equal to or smaller than the rate of growth of the labour supply. If we

[67] For an example of this transition in early sixteenth century England see Y. S. Brenner, 'The Inflation of Prices in England 1450-1550', *Economic History Review*, 1961.

[68] *Vide* Arthur Lewis, *The Theory of Economic Growth*, 1955, Ch. III & IV, and Bert Hoselitz, 'Role of Cities in Economic Growth', *Journal of Political Economy*, LXI 1953; 'The City, The Factory, and Economic Growth,' *American Economic Review*, XLV, 1955.

[69] Simon Kuznets, 'Quantitative Aspects of Economic Growth of Nations, II, *Economic Development and Cultural Change*, Supplement V 1957.

retain the assumption about the constant labour-output ratio then the equilibrium rate of growth will be determined essentially by demand considerations, i.e. by the rate of saving. A high rate of savings will yield a high rate of growth whereas a low rate of savings will retard it. If new investment must be equal to the propensity to save from income ($I = Ys'$) it is obvious that a higher s' will produce a higher I.[70] The high rates of savings will, however, also effect the level of consumption and therefore of demand for investment, and the difference may again only be made up by a technological factor affecting the capital-output ratio (k).[71] But even if these highly improbable assumptions are retained the population factor is still far less constant than the overall rate of growth trends. It is the rate of growth of the labour force which will affect production, but it is the rate of growth of the total population which determines demand. The two need not increase in an even pattern. In fact they seldom do. It is therefore necessary to examine the age composition of the population in order to predict the rate of growth of the labour force. The problem was touched upon in an earlier chapter in connection with Malthus and need not be discussed here in more detail.[72] The main conclusions were that in most pre-industrial societies a high birth rate is checked by an equally high death rate. When *per capita* incomes rise the death rate declines very significantly. This seems to be the result of better nutrition and housing, and to some extent of better sanitation and medical facilities. Since these improvements are usually accompanied by improved communications and transport the danger of local famines is also considerably reduced. Recently the widespread application of cheap insecticides and detergents to control infections has also contributed to abatement of premature deaths. When *per capita* incomes have risen sufficiently, and little new can be done to check death rates further still, growth slows down. A decline in birth rates which normally sets in at this stage of development strengthens this new trend. Birth

[70] S. S. Alexander, 'The Accelerator as a Generator of Steady Growth,' *Quarterly Journal of Economics* LXIII, 1949; A. Smithies, 'Economic Fluctuations and Growth', *Econometrica* XXV, 1957; J. S. Duesenberry, *Business Cycles and Economic Growth*, 1958.

[71] $It = k(Y_t - Y_{t-1})$

[72] *Vide* U.N.O., *The Determinants and Consequences of Population Trends* 1953.

rates, however, appear to be less influenced by rising incomes than by structural changes. The latter, it seems, are always far less variable than the former.[73] Colin Clark stresses this point in his article in the *International Labour Review*[74] 'Population Growth and Living Standards'. What he says, and what is certainly also true for parts of West Africa, is that many people have the erroneous idea 'that if they can have the latest European and American contraceptives sufficiently advertised and cheaply distributed (presumably through some system of subsidization) throughout the oriental countries, the number of children born in the Orient would immediately and permanently fall. Nothing seems more improbable. Children are born in the Orient, as they were among our ancestors, and as most children are born in the Christian world today, because of their parents' wishes and consciences and religious beliefs, not because their parents wish to prevent them from being born but are unable to obtain contraceptives . . .'[75] The structural changes which appear to reduce birth rates in societies with rising *per capita* incomes are normally caused in part by the realization that children become a burden, that they prevent parents from enjoying the full fruits of the higher incomes and that they are no longer necessary as providers in old age. Similarly it has also been observed that higher incomes often change the prestige symbols of societies by substituting ownership of property for fertility. No less important for sustained economic development than overall growth of population are its age distribution and the psychological changes which accompany and affect *per capita* incomes and expenditure.

A fall in mortality rates during the early stages of population growth, which normally comes in the form of a decline in infant mortality, produces a change in the total population – labour force ratio. While the labour force remains constant

[73] Good examples of the persistence of cultural patterns can be found in the behaviour or nutrition habits of minorities in the U.S.A., or in Jewish communities in Israel. It is also interesting to note that the logistic population growth which I have tried to explain here is extremely similar to the population growth curve of non-human populations. The growth curve seems indeed to be the same for most if not all biological growth processes. See Croxton and Cowden, *Applied General Statistics*, 1962, for further examples.

[74] Published in Geneva, 1953.

[75] It may here be noted that Colin Clark holds the view that there is no reason to believe that rising population must reduce *per capita* incomes.

for some time and then grows only gradually, the total population increases far more rapidly throughout the whole period until the children have reached an age when they too are absorbed in the labour force. If by that time the bulk of those factors which diminish untimely deaths have reached a point of saturation, and mortality rates can no longer be reduced very significantly, the population-to-labour force ratio is reversed. Relative to the rise in total population the labour force will increase more rapidly. Consequently *per capita* incomes, which were reduced in the earlier period, are then increased. However, by this time the same forces which reduced child mortality will also have increased life expectancy and therefore inflated the size of the part of the population not in productive employment. Once again the ratio will move away from the situation which produces high *per capita* incomes, and follow a path of relative decline. In summary then it can be said that as a rule rising *per capita* incomes are accompanied by labour force population ratios which behave more or less in the following manner: First a high rate of population growth, owing to constant birth rates and falling death rates, produces a relatively low labour force-population ratio. Later, a slow rate of accretion, due to falling birth rates, produces a gradually rising labour force/population ratio. Finally, the relatively higher proportion of labourers in the population is reduced once more by a rise in life expectancy. The literature on this subject is vast, yet there appears to be very little certainty about the whole process and the factors which influence it. Particularly thorny is the problem of the fertility of the human race. Colin Clark[76] is of the opinion that 'If every woman married young, and there were no restriction of birth of any kind, . . .' the number of children born to each (not the number of children surviving) would be 'about six'. 'That is to say, this would be the average number of living children born to the average woman who had survived to the age of 45 and had been married all the time. The families of women who died earlier would of course be smaller.' But Clark has to admit that the evidence for this is not really as satisfactory as one would wish it to be. He relies on some anthropological evidence which covers a very wide range of time and place but

[76] 'Population Growth and Living Standards', *op. cit.*

at the same time is rather uncertain and imprecise. In addition to this he has some evidence from Brazil and Ceylon, i.e. from countries 'with a simple agricultural economy where good demographic records are available'. Finally he uses the evidence of the 'medical sub-committee of the recent (1953) British Royal Commission on Population . . . which, by an ingenious statistical method, was put together in such a form as to show what the total fertility of the modern English woman would be if she married early and if through her married life no restriction were imposed upon conception. The answer here also came to a figure in the neighbourhood of six'.

If it is assumed that population growth is the result rather than the cause of rising incomes,[77] i.e. that at least for some time productivity may increase at a faster pace than population, it becomes necessary to examine the process through which this may come about. Taking for granted that investment is a growth-producing variant which is dependent on changes in incomes and the propensity to save, one may begin an analysis at the saving ratio. Here it can be noted that in both the United States and in the United Kingdom the propensity to save has remained relatively constant during the last hundred years.[78] A comparison of rates of savings in different countries also shows a certain degree of similarity.[79] However, a word of warning is opportune here: we do not yet have sufficient accurate figures of net saving to make a really thorough analysis of its determinants. If all members of a community were to save only to provide for their retirements, then, in time, accumulation would be offset by decumulation. The rate of economic growth would be equal to the rate of growth experienced by the labour force. But if the latter is growing present savings must exceed past savings. If then this is followed by an acceleration of population growth due, say to a decline in infantile mortality, the first result must be a fall

[77] This view is far from being universally accepted. *Vide* Colin Clark on The Law of Increasing Returns, in 'Population Growth & Living Standards,' *op. cit.*

[78] *Vide* J. S. Duesenberry, *Income, Saving, and the Theory of Consumer Behaviour*, 1954, and W. Goldsmith, *A Study of Saving in the U.S.* 1956.

[79] Colin Clark, *The Conditions of Economic Progress*, Table XIV, (ed. 1960), p. 609.

in the labour force/population ratio and in *per capita* incomes. Consequently savings would accumulate at a reduced rate. However, after some time the children mature and swell the labour force. The savings/income ratio will increase once more, unless it is offset by the combination of retirement decumulation and the relatively high spending habits of young people. Colin Clark[80] stated this point in the following manner, '. . . Savings are generally accumulated by the young (workers) and decumulated by the old, so a rapidly growing population with a high proportion of young men should have a high rate of accumulation, an elderly population a low rate. It may well be that this factor plays a considerable part in determining the rate of saving. That the proportion of income saved should not change very much over a long period in which real income per head is increasing, is at any rate sufficient evidence to discount the crude "stagnationist" theory. That the proportion of income saved should not change very much over a long period in which real income per head is increasing, is at any rate sufficient evidence to discount the crude "stagnationist" theory. That the proportion of national income saved should remain constant, as real income rises, means that at any given level of real income for an individual the proportion saved must be falling through time (whether due to changing age composition of the population or for any other reason): for if this proportion remained constant in the long period, a general rise in real incomes would raise the proportion saved.' These conclusions are confirmed in a striking study by Dorothy Brady and Rose Friedman (*Studies in Income and Wealth*, Vol. 10), who show: (i) the shift of the curve with time; (ii) urban-rural differences; but also (iii) that the data are to a considerable extent brought together again when we consider the proportion of income saved as a function, not of the absolute level of real income, but of relative position in the income scale.

Hence the course of population growth may affect the rate of saving in the following manner. First growth is accompanied by a relative fall in savings; then for some time savings increase; and finally, with the rise in the number and life expectancy of retired workers, savings will once again decline.

[80] Colin Clark, *The Conditions of Economic Progress*, *op. cit.*, pp. 610-615.

In countries where development is accompanied by a shift of population from rural employment to industry in towns the analysis is further complicated. On the one hand townspeople are often less careful with their money and inclined to spend more freely than farmers; on the other the fear of hunger through unemployment is often more acute among town labourers than among farmers and therefore the former are more inclined to save than the latter.[81] Finally, the changes in the proportion of self-employed as compared to wage earners in a population may also affect savings. Social and cultural changes certainly do. Generally it appears obvious that as long as incomes are very low, i.e. on the subsistence level, there can be little saving. Similarly it is obvious that when incomes rise far above an outstandingly high consumption level additional income will almost entirely be saved. In between these two extremes savings usually increase proportionally to the height of incomes. This point is fairly well demonstrated by the available statistical evidence.

Whether savings depend upon the absolute or upon relative income levels however is not agreed. The former view seems to have been upheld by Keynes and was recently revived by Mr Tobin;[82] the latter is the view of Mr Duesenberry.[83] In any case the suggestion is there that a society with an unequal distribution of incomes is likely to accumulate more savings than an egalitarian society. In an extreme case a large proportion of the population is unable to save at all whereas a small group may have an income, or profits as Marx or Malthus would have called them, so high over and above what they are able or willing to consume that savings become very high. As the low level of incomes of the many must also restrict their consumption to a minimum, and as the consumption of the few is subject to diminishing marginal increments, the total amount of savings in an unequal society will be higher than in a more egalitarian one.[84] This idea may then lead to the con-

[81] This point is well illustrated by Table XVII, 'Percentage of Income Saved', in Colin Clark's *The Conditions of Economic Growth*, p. 612.

[82] *Money, Trade and Economic Growth.*

[83] *Income, Saving and the Theory of Consumer Behaviour.*

[84] The discussion here is concerned with free enterprise economies and obviously not with economies where the rate of incomes saved is done by a central planning committee.

clusion that since growth must depend on the rate of net investment and investment upon saving and as inequality is the distribution of incomes leads to a high rate of savings, inequality must be desirable in a developing economy.

However, as the rate of investment is also dependent on the rate of growth of incomes there is always the risk that the high savings of the few will not lead to a high rate of investment but rather to a high rate of hoarding, or to money exports.[85] Unless the bulk of the income saved falls into the hands of public authorities who may invest it with a view to raising the incomes of future generations, i.e. by long term capitalization,[86] it is unlikely that it will generate new investment in excess of the rate of population growth. Without a rise in the standard of living of the masses there will be no new demand, and in the absence of new demand there will be no incentive to convert savings into investment. Hence only a continuous improvement of the real income of the masses can assure a high rate of investment. In other words, as long as that level of incomes at which saving is zero continues to rise, the savings of the few will be converted into productive investment and the economy will develop. However, what is implied when we speak of that level of incomes at which saving is zero continues to rise? It can only mean that new needs are being born. The number of different products (as against the quantity of the existing ones) must increase; some products previously held to be luxuries must become common necessities; briefly, the whole structure of society must change. The requirements of equilibrium growth under these conditions were of course discussed long ago by Ricardo and Marx. More recently they have been re-examined by a great number of economists.[87] The modern statement of the problem is essentially this: Savings of both workers and profit earners are a function of income. However,

[85] The situation in South American and Middle Eastern oil producing countries.

[86] For example in the Soviet Union.

[87] K. Boulding, *A Reconstruction of Economics*, 1950; F. H. Hahn, 'The Share of Wages in the National Income,' *Oxford Economic Papers*, 1951; N. Kaldor, 'Alternative Theories of Distribution', *Review of Economic Studies*, 1956; J. Robinson, *The Accumulation of Capital*, 1956; E. Schneider, 'Income and Income Distribution in Macro-Economic Theory', *International Economic Papers*, No. 8 (1958); S. Weintraub, *Approach to the Theory of Income Distribution*, 1958.

profit earners' propensity to save is higher than wage earners'. If the level of income out of which no saving is possible is designated, m, than the income out of which savings are collected is Y – m and if it is assumed that all savings are invested then investment is equal to s'(Y – m).[88] In the extreme case where income distribution is such that workers cannot save at all and where the propensity to save out of profits is constant, the total propensity to save s is equal to the profit earners' propensity to save s multiplied by the ratio of profit to national income. If it is further assumed that profit earners save all their earnings, then the total propensity to save would be equal to the ratio of profit to national income, i.e. $s = \pi / Y$. If the capital/output co-efficient can also be assumed to be constant (for technological reasons for example) it appears that equilibrium growth may be controlled by deliberate adjustments of investment. This can be done through taxation on savings or alterations in the bank rate, etc. Better, however, is the situation where these adjustments come about through changes in the distribution of incomes. (Though there is the limitation that s must not fall below zero and not rise too close to unity.)

In the way it is presented here the model is of course over-simplified. None of its protagonists would really claim that the production function k can remain constant over a period of time. It becomes necessary, therefore, to modify the model so as to include the changes which are bound to alter the capital/output ratio. These are alterations in the availability of inputs, technological progress, and structural changes in the composition of production. Let us take alterations in the composition of inputs first; a situation may be envisaged where all labour is fully employed but capital still readily available. In time, and in the absence of technological progress, the combination of more and more capital with a relatively constant supply of labour must subject output to the law of diminishing marginal returns.[89] Obviously 'if the input of labour is fixed and the

[88] s'=propensity to save.

[89] George J. Stigler, *The Theory of Price*, 1952, defines this as follows: 'As equal increments of one input are added, the inputs of other productive services being held constant, beyond a certain point the resulting increments of product will decrease . . . (provided however, that) . . . the state of technology is given. The various rates of input of the productive services are simultaneously

state of technical knowledge is given, the increase in output due to the use of a more capital-intensive technique must always be less than in proportion to the increase involved in the stock of capital, because of the principle of diminishing returns. The principle of diminishing returns likewise entails that the rate of profit on capital will be lower the more capital-intensive is the technique of production, assuming demand is such as to lead to the same degree of utilization of capital. How steeply the rate of profit falls as the degree of capital-intensity rises depends on the slope of the production function'.[90] Hence if capital accumulation progresses at a quicker pace than the growth of the labour force, marginal and average returns on capital must decrease. We may, therefore, assume, taking the life cycle of population growth into consideration, that initially, until the children join the labour force, the rate of increments to capital will be higher than the rate of increase of the labour force – i.e. the capital/output ratio will increase, which means that the proportionate rate of growth of output (G) will be relatively slow, since it must be equal to the average saving income ratio (s) divided by the marginal capital-output ratio (v).[91] Eventually, when the young generation reaches working age the labour force may grow at a rate equal or similar to that of population growth as a whole, and the proportionate rate of increase of output will be higher. Finally, as the number of retired workers and their life-expectancy increase, the trend is once again reversed. In summary then, under full employment conditions[92] and without technological progress, a low rate of increase of the labour force will produce a high increase in the rate of growth of the capital/output ratio. Consequently *per capita* output will grow in an inverse relationship to population growth and at a rate not exceeding the rates of growth of capital and of population. However, this statement

available alternatives, and not a historical sequence . . .' Provided, moreover, that all inputs are not harmoniously varied, and that 'the proportions in which productive services combine generally be available.' (pp. 111-113).

[90] The *production function* is defined as the schedule relating output to the amount of capital employed per man. The quotation above is from R. C. O. Matthews, *The Trade Cycle*, 1959, p. 242. See also George J. Stigler, *The Theory of Price*, 1952, p. 106 for a simple and excellent explanation.

[91] $G=s/v=\triangle Y/Y=\triangle K/Y.\triangle Y/\triangle K=I/Y\cdot\triangle Y/\triangle K=s/Y\cdot\triangle K/\triangle Y=s/v$ (See Harrod-Domar).

[92] In the conventional meaning of the term.

should not be taken too literally. External economies, increasing returns to scale and changes in the structure of capital may completely reverse the situation even without technological improvements. Taking as an example the case for increasing returns to scale, Colin Clark pointed out that 'there are a great many industries – probably the majority of industries in modern community – which are quite specifically benefited by increasing population. These are the industries that work under the law of increasing returns rather than the law of diminishing returns.'[93] This is particularly true of the heavy overheads in underdeveloped countries. It is indeed the problem of under-employment which lurks behind so much of the capital investments in Africa today. In Ghana a good road running from Accra to Takoradi, some 140 miles, can carry a traffic four times the volume it takes now without extra expenditure. Hence any additional truck will reduce the gap between the expenditure and the 'output' of the investment on the road. Similarly, alterations in the capital structure can also prevent diminishing returns from setting in. The newly-created capital may not be used to extend existing assets, but it may flow into completely new industries, so that instead of over-capitalization in some it may lead to a spreading out of industries into new areas and products, resulting in a constant capital/output ratio. Eventually, it is true, the economy may not escape the penalty of 'too much capital with too little labour', but the time of this occurence must depend upon the specific conditions of the country.[94]

Another factor which affects the capital/output ratio is technology, i.e. anything that increases output per unit of input and makes possible an increase in total output and income.[95] For example any improvement in the quality of

[93] '. . . The law of increasing returns prevails in any industry where, as a consequence of an increased scale of output, we can expect to obtain increasing returns per unit of labour or other economic resources employed.' Colin Clark, 'Population Growth and Living Standards' *op. cit.*)

[94] This point can be equally extended to the supply of labour. *Vide* Arthur Lewis, 'Economic Development with Unlimited Supplies of Labour', *The Manchester School*, 1954, and Y. S. Brenner *African Quarterly*, 1965 Vol. V. No. 2.

[95] 'If this possibility of increased output is duly achieved, and if the normal capital-output ratio does not alter, a rise in the stock of capital will also be induced because of the capital stock adjustment principle. Technical progress will then have served to stimulate net investment. But it cannot simply be

labour will improve the output produced with a given quantity of inputs. The greatest technological progress of this kind will normally take place in the early stages of industrialization, when untrained labour acquires the new skills of production. Eventually, however, this particular aspect of capitalization will become less significant. If by that time the country abounds in natural resources the productivity of capital may continue to increase; if not, more capital will be required and its productivity will decrease. However, the process of capitalization and the raising of the skill of labour – i.e. by improved educational standards – do not go unaccompanied. One of their by-products is a rise in the minimum standard of living. Another is an increase in the degree of technological inventiveness. The latter is particularly important in this connection because it may transform hitherto 'useless' materials into economic assets. No more than a century ago oil swamps were considered useless lands; today they are the sources of great wealth: it was the progress of technology which brought about this alteration. Hence, a high state of technology will in itself be a source of structural changes. It will introduce into the economic structure new materials which under a poorer state of technology would be regarded as of no or little value, or their existence would be unknown. Thus far from becoming subject to the law of diminishing returns technological progress may well stimulate a simultaneous rise in the availability and the quantities of inputs.[88] It is worth noting that in recent years technological innovations have become less accidental than they used to be and more often they are these days the result of deliberate research and planned development. Many big businesses have their own research establishment or

assumed that total output will rise when technical progress occurs. Conceivably technical progress could result in the same output being produced with less input and an increase in the amount of unemployment. The same applies to the discovery of new natural resources or to an increase in the size of the labour-force due to population growth. These make possible an increase in output, and if an increase in output does come about, investment will be stimulated; but the result *could* merely be an increased amount of productive resources idle.' R. C. O. Matthews, *The Trade Cycle*, 1959, pp. 77-78.

[88] It may of course also have the opposite effect. H. J. Bruton points out (*Theories of Economic Growth*, p. 279) that 'objects of no economic value may become valuable because of new invention; similarly objects of great economic value at one point may be worthless at another time because of a change in technological knowledge.'

farm out research problems to universities or similar research institutions and include the expenses with good justification in their general production costs.

In underdeveloped countries the 'vitalization' of unused materials is of course a great source of possible expansion without the risk of diminishing returns, not only because of the quantity of untouched economic resources but also because it is possible to adopt more modern methods of exploitation which have already proved themselves elsewhere, and because the progress of education will progressively increase the *per capita* product of labour. The precise course of events must of course depend upon the specific conditions in each case, but it is worth keeping in mind that 'in any analysis of the growth process, natural resources are augmentable and must be so considered'.

If in an economy the rate of growth of capital exceeds the rate of growth of labour, stability can be maintained by innovations. The innovations may reduce the costs of production, i.e. produce more output with a given rate of inputs. As equilibrium growth requires a steady ratio between saving and the production function ($G = s/k$), k must be of decreasing ratio if additional capital is not to cause an increasingly negative capital/output ratio. Hence technological progress must cause any addition to capital to produce an equal or even higher addition to output. A great deal of research has gone into the micro-economic problem of the forces affecting the rate of technical progress[97] but not enough into the macro-economic aspects of the problem. The little there is was usually done on the assumption that technological progress is a function of scarcity of one of the factors of production, labour or land, relative to demand. This assumption is not very helpful when dealing with the problems of underdeveloped countries for example.[98]

No less important than innovations for the prevention of

[97] *Vide* C. F. Carter and B. R. Williams, *Industry and Technological Progress*, 1957, *Investment in Innovation*, 1958, and *Science in Industry*, 1959, and R. R. Nelson 'The Economics of Invention: A survey of the Literature', *Journal of Business*, Vol. 32 (1959).

[98] A summary of theories in this field is given in F. H. Hahn & R. C. O. Matthews, 'Survey of theories of economic growth', in *The Economic Journal*, Vol. LXXIV, 1964, pp. 850-853.

diminishing returns from capital is the composition of output. It is self-evident that innovations in one industry will have an effect on others. If a predominantly agricultural country, where little capital is in use, sets out on a programme of industrialization, the rapid diversification of capital requirements will not only prevent diminishing returns from investment but also create an increasing demand for additional capital. First the capital invested in agriculture will raise productivity and release the labour required for industry. Once the immediate capital requirements in this sector are saturated, i.e. once diminishing returns begin, the marginal efficiency of investments is likely to be higher in industry than in agriculture, and, helped by the increased industrial labour force, capital will find its way into new industries. As *per capita* incomes rise demand will move from quantity to variety. But variety of products means the establishment of a greater number of industries rather than the addition of capital to existing ones. The ill effects of diminishing returns may therefore be postponed for a very long time. However, once a country begins to industrialize, its capital requirements must rise, and unless this rise is accompanied by increased saving the economy's rate of growth will be reduced. If industrialization coincides with population growth, as indeed it often does, some shortages are bound to occur. If, as it is likely, social-overheads have to be constructed the shortages will be even worse. Yet the new capital requirements at the one end may well reduce capital requirements at the other. The construction of a good road or railway-line which requires a great deal of capital may at the same time reduce the demand for capital in the form of motor-car spare parts, trucks or buses. Experience shows, however, that the saving of capital in one sector due to its more economical expenditure in another suffers from an unfortunate time sequence. Education is an example. There can be little doubt concerning the importance of education in the process of raising productivity. There is hardly an observer who has not commented on the high cost of using mechanical agricultural equipment in an underdeveloped country, because of the poor quality of its maintenance and utilization. Hardly anybody will deny that the higher the standard of education in a developed country the higher will be the rate of

new technological progress. However it is a fact that education is first capital-consuming over many years before its capital-saving fruits become apparent. Not dissimilar is the problem of the time sequence in other heavy capital-consuming social overheads. The latter are in fact the major capital problem of the developing countries.[99] Once the first capital requirements of this kind are overcome things get easier. Firstly, the economy is able to produce more capital out of its own resources. Secondly, once the major overheads have come into being relatively less capital will be required for some time until they are used to full capacity. Thirdly, relative to demand for tangible goods a rise in demand for services will take place, and as the latter require less capital investment than the former this will also reduce to some extent the capital hunger.[100] Eventually, when the economy reaches a high state of development, the position will once again be reversed. Full employment of labour or resources or of both together will once more increase the demand for capital to replace (as a substitute for) the lacking manpower or materials. Full employment of labour will necessitate capital in the form of labour-saving equipment. Full employment of resources like land or minerals will require capital for land improvement schemes, irrigation and fertilizers, or for sinking deeper shafts in the mining industry. In addition to this the high incomes which will accompany this stage of development will lead to a great diversification of demand which will also cause the premature scrapping of machinery and its replacement by newer capital equipment to suit the widening of demand. Finally the whole process will normally be accompanied by population growth and urbanization which both require a high rate of investment in construction (housing), and this too is a very highly capital-consuming industry.

H. J. Bruton summarized the problem of the time-pattern of capital requirements in a growing economy as follows:[101] '. . . any such general hypothesis must itself rest on specific

[99] *Vide* Harvey Leibenstein, *A Theory of Economic Demographic Development* and *Economic Backwardness and Economic Growth*, 1957.

[100] This hypothesis is far from proven. In West Africa for example services are more common at the early stages of development and in the U.S. services are less common at the high stages of development.

[101] *Theories of Economic Growth*, ed. Bert F. Hoselitz, p. 284.

hypotheses regarding technology and demand, and it is difficult to muster much confidence with respect to any hypothesis concerning technology and demand. With the proper qualifications in mind . . . it is perhaps justifiable to suggest the following general argument: For several reasons . . . the output stream during the earliest stages of growth would appear demanding of capital to a greater extent than can be forecast for later stages. However, as population growth subsides, and the construction of social overhead capital is completed, it would seem that the output stream produced will decline in capital intensity. After this point, economies in capital use may be present, due to the existence of a base of capital (including knowledge), and will tend to reduce capital-output ratios throughout the system. Similarly, the quality of labour inputs may improve as the system continues to grow. Unless there are counteracting diminishing returns because of the failure of innovations to live up to expectations, these results will produce declining capital requirements, and, therefore, enable the rate of growth to rise if the saving-income ratio remains unchanged'. However Bruton suggests that economies of this kind are limited and will eventually be exhausted. 'If the arguments concerning tertiary industry are accepted, they may become applicable at approximately this point to contribute further to preventing most of the k's from rising. But, surely, beyond this point, the greatest burden rests on innovations.'

THE DEMAND-DOMINATED THEORIES

Population growth, invention and its application, and the rôle of enterprise

The demand side of the growth problem can conveniently be divided into two aspects: (a) demand for producers' goods (investment), and (b) demand for consumers' goods.

Demand for producers' goods depends on business expectations which themselves can only be based upon mere speculations about future events. The forecasts may be very reliable or less so but essentially they must remain what they really are, namely, guesswork, a psychological factor, based upon past and present experiences. If returns on investments, i.e. profits, were

good for some time in the past and there are no obvious reasons why this situation should not continue in the future, evident demand for savings will continue to be brisk and investment play its growth-producing rôle. It is therefore necessary to examine the factors which influence profit expectations as a condition for steady growth. The literature on this subject is vast and some of the articles and books concerned with this aspect of growth have already been mentioned in the introduction to this chapter,[102] but no truly safe theory has so far emerged. A prolonged period of population growth, rising *per capita* incomes, and a degree of redistribution of wealth in favour of the lower income groups appear normally to produce a stable rate of returns on capital and therefore stable business expectations and demand for investment funds. Population growth also increases consumers' demand and often facilitates economies of scale which *deepen* the capital requirements. The rise in *per capita* incomes will usually result in a diversification of consumers' demand and therefore cause the spreading of industry into new fields of production which *widen* the capital requirements. A mild redistribution of incomes will normally stimulate both the deepening and the widening process. This is almost all that can in fact be said about the population and income aspect of this problem.

Another no less elusive factor affecting steady demand for investment funds is technological progress and its application to industry. This is so because technological progress normally reduces production costs whereby real incomes, and consequently demand, are increased, while it also generates demand through replacement of outdated equipment. Obviously, this may also reduce the risk of losses from diminishing returns on capital if its rate of accumulation should exceed the rate of population accretion. However, the actual path the substitution of capital for labour will take, and whether the resultant unemployed labour force will find immediately alternative employment must always depend on the specific circumstances and upon the specific nature of the innovations.[103] What can be said here is that if the rate of profit on capital is to remain constant, i.e. if businessmen are to expect habitually determined returns from their investments, innovations must keep

[102] pp. 175-178. [103] *Vide* J. R. Hicks, *Theory of Wages*, 1932.

output growing at a rate equal or above the rate of capital accumulation. Briefly, innovations must be 'capital-using'.[104]

This poses the thorny problem of innovation. There are two aspects to innovation, invention and utilization. Inventions have lately become far less fortuitous than they used to be and they are gradually becoming an endogenous factor of the economic system. The State, industries and even individual firms employ scientists these days and set them specific problems for solution which arise out of the production processes. In fact invention has become an integral part of economic planning in many modern economies. And though we have still a long way to go before we shall have inventions at will and of a kind specifically required, say, labour, capital or raw material substituting, there appears to emerge a distinct trend in this direction. It is therefore well within the scope of present day development to suppose that the increase in scientific and technological knowledge may in the not too distant future reduce considerably the risks involved in capital investment from diminishing returns. Indeed a continuum of alternative techniques of production will contribute significantly to economic stability.[105] The problem of innovation, that is the application of new inventions to the productive processes, is far less complicated, provided of course the inventions required are at hand. Here the mechanism is fairly clear. Entrepreneurs will normally be inclined to introduce any invention which is likely to reduce their net costs of production. As Marx already pointed out, capitalist competition continually forces entrepreneurs to adjust their equipment, and as Marshall pointed out, these adjustments will take place at the margin by means of what he called the substitution principle. More costly methods of production are thus continually replaced by cheaper ones, and therefore inventions are almost automati-

[104] *Vide* W. Fellner, *Trends and Cycles in Economic Activity*.

[105] F. H. Hahn & R. C. O. Matthews write in the 'Survey' (*The Economic Journal* – LXXIV December 1964 p. 785) 'Instead of there being fixed coefficients in production, there may exist a production function offering a continuum of alternative techniques, each involving different capital-output ratios; or else there may not be a continuum of alternative techniques but a finite number of alternative techniques (linear programming approach). The consequence in either case is that the capital-output ratio v is adjustable, instead of being fixed and this provides a way in which s/v and n may be brought into equality.' (v in our terminology is k, and n the rate of population growth).

cally transformed into innovations. All this amounts to the supposition that in a free-enterprise competitive society economic requirements direct the rate of innovation (provided of course there is an unlimited stock of inventions available to the entrepreneur to draw from as the occasion may arise). This illusiary hypothesis treats inventions as a stand-by material which can be used to substitute for whatever other resources, labour, land, or raw materials, may happen to be in short supply. Though it is true that the number of interchangeable methods of production and the number of substitute materials has greatly increased it is still far from providing entrepreneurs with that kind of flexibility in their choice of methods of production. In fact neither diminishing returns nor sectoral shortages have so far been eliminated.

Moreover, the world is far from being in a state of free and equal competition. All economies are to a greater or smaller extent dominated by powerful monopolies and even the most competitive ones are never flexible enough to react automatically to changes in factor supplies. No community will without delay scrap old equipment because some new and cheaper way of production was discovered. Not only the reluctance to scrap old equipment prematurely, but often also the very great costs of introducing the new techniques prevent a smooth transition from one method to another. The delay may stretch over many years, and in the meanwhile investors will experience consistently diminishing returns from their investments. This need not mean that they will suffer losses in an absolute sense, but relatively their rates of profit will decline, and this may well influence their investment decisions. The substitution of one method by another is a prolonged process during which possible losses of the old are balanced by high initial costs of the new production methods. In addition to this, monopolies may further delay the innovations. By virtue of being monopolies such enterprises can adjust prices to rising production costs and in doing so retain a high rate of profit for themselves at the expense of other investments. The higher prices will reduce consumers' real incomes and thereby lessen the general volume of demand. However, the rôle of monopoly is not as clearly regressive as this may suggest. It is often argued that on the one hand large-scale monopolistic enterprises are best

suited to introduce innovations, while on the other they are equally best suited to prevent them. They are best suited for innovations because they can usually raise the money required for research and new equipment and have a greater degree of security than non-monopolistic enterprises. However on the debit side they frequently have no reason to innovate nor do they normally have the kind of staff which welcomes innovations. Indeed most of the mammoth monopolies are managed by bureaucracies which do not themselves directly suffer the losses of ill-management and are always highly suspicious of any kind of change. The most important factor then seems still to be the spirit of society. Alas, no one has so far shown as strong a social motive as private gain to stimulate incentives for economic progress, nor has any one been able to attribute the outstanding technological progress in the Soviet Union to pecuniary gains. The whole problem of economic incentives is still a dark corner of human behaviour.[106]

In as far as demand for consumers' goods is concerned the problem is complicated by the business cycle. In the more advanced capitalist countries the cycles during the last century have taken place about a rising trend of economic growth.[107] It is for this reason that most demand-dominated theories treat growth and cycle as one inseparable economic problem.[108] In its simplest form this sort of theory rests upon the assumption that Say's Law, (that supply creates its own demand and investment is always equal to saving), applies in effect only in the long run but does not necessarily hold good in the short run.[109] Thus Schumpeter, for example, held the view that investment is financed by money borrowed from the banks in times of

[106] An interesting study of this problem can be found in W. E. Moore, *Industrial Relations and the Social Order* 1951. Other discussions of monopoly can be found in E. D. Domar, 'Investment, Losses and Monopolies', in *Income, Employment and Public Policy* 1954.

[107] The interaction of the multiplier and the acceleration principle from this point of view takes the form

$$Y_t = \frac{v}{v - s} Y_{t-1} - \frac{D}{v - s} \qquad D = \text{Negative savings}$$

[108] See R. F. Harrod, *Towards a Dynamic Economics* (1948); R. R. Duesenberry, *Income Saving and the Theory of Consumer Behaviour* (1949), and *Business Cycles and Economic Growth* (1958); W. J. Fellner, *Trends and Cycles in Economic Activity* (1956).

[109] Schumpeter, *op. cit.*

prosperity, which is repaid throughout the whole cycle including the period of depression. Savings are then equal to investment if measured over a sufficiently long time interval, though they may not be equal at any given point in time. A more sophisticated approach involves the interaction of the multiplier and the acceleration principle in any particular case in which there is no time-lag. The assumption there is that the development of a sort of chain reaction of rising incomes generates a growing demand, and the growing demand causes increased investment, which in turn raises the level of incomes. The most obvious shortcoming of this scheme lies in the fact that it implies the existence of unlimited supplies of factors of production (labour, land, and other resources), while it excludes the influence of diminishing returns.[110] Growth then becomes an extraneous rather than an indigenous process. Another explanation which combines the cycles with the trend is the 'ratchet effect' model in the old Ricardian style, brought up-to-date. During the period of prosperity, ('upswing' and 'boom') people get used to a standard of living, i.e. a level of demand, which they will come to regard as normal rather than exceptional. Similarly investors set their profit targets in accordance with the 'good' rather than the 'slack' periods. Since most of the production equipment is normally served during depressions and scarcely any is ever deliberately destroyed each successive upswing will start from a higher level of existing equipment and consumers' demand. Consequently each successive trough of the cycle will be somewhat higher than the one before and will give the cycle an upward-inclined general trend as time goes on. As during the depressions interest rates and labour and material costs are low, and as entrepreneurs know from experience that eventually the depression must give way to a new upswing of the cycle, the best established of their number will single out this particular period for making their long-term investments in heavy capital-consuming development. Hoping to gain an advantage over their competitors when business picks up again, and interest rates and factor costs rise, they will add to their capital stock and by doing so lay the foundations for the higher rate of production *per capita* when the economy reaches once again its full employment.

[110] The theory may well be correct with regard to certain backward countries.

In this way the system is supposed to hoist itself upward in a continuing series of cycles. If technical innovations take place during the process, as they are bound to do, their accumulation will give the upward trend an extra stimulus. The shortcoming of this theory is that it relies strictly on demand and ignores the limitations imposed on the economy by supply factors like the rate of population growth etc.

Essentially then the theory that the 'floor under consumption tends to rise as income rises' means that it is consumption rather than investment which holds the economy on its upward path throughout the ups and downs of the business cycle. R. M. Goodwin[111] in his article 'Problems of Trend and Cycle' extended this 'consumers' behaviourism' of the individual to the firm and the industry. He argued that fixed expenditures of firms rise more during the upswing than they tend to fall during the depression. It appears, however, that even this theory cannot by itself entirely explain the whole growth process. The inclusion of the effect of structural changes which usually accompany growth may make the theory more realistic.

In summary it appears that progress in the examination of business fluctuations has been more successful in recent years than in the study of long-term trends of economic growth. In fact the study of growth has not far advanced beyond the generalizations which had already been made by Ricardo and Marx though, of course, the study has become considerably more detailed and methodical.

[111] The Multiplier as a Matrix. *The Economic Journal*, LIX (1949).

CHAPTER VII

The Soviet Theories

In discussing socialist theories of economic growth it is useful to distinguish between three terms: *growth*, *development* and *planning*. Each of these terms has a distinct meaning.

Growth is a term borrowed from biology and genetics implying an organic process of progressive change. In its economic context it has come to be understood as an endogenously-produced quantitative, rather than qualitative, increase in physical output, or *per capita* income, of a society.[1]

Development is consciously, deliberately, stimulated growth. It implies the introduction of exogenous directional decisions. However, there need be no contradiction between growth and development. The latter may accentuate or run parallel to the former in one or more sectors of the economy, though, of course, the one may also restrain the progress of the other.

Planning is 'an institutionalized, previously quantified, rationalized process of economic development, over a definite period of time'.[2]

Growth is spontaneous, development and planning organized progress. In most cases the purpose of development is to accelerate the pace of spontaneous economic growth, whereas the purpose of planning is the creation of a completely new social and economic structure. Development and planning in some sectors implies some strain on the economy as a whole. This is particularly the case when development and growth tend to move in different directions. Development is always undertaken as a means to an end. Therefore it is an indepen-

[1] This definition is not universally accepted. For full discussion of the issues involved see E. Perroux, *Cahiers de l'Institut de Science Economique Appliquée*, Série 1, No. 1.

[2] Rudolf Bicanič. Economic Growth, Development, and Planning in Socialist Countries. *Economic Growth*, ed. Eastin Nelson, 1960, p. 174.

dent variable affecting the economy from the outside. Growth must remain a dependent variable and part of the economic system. Planning implies not only the preparation of plans but also their execution. It is a conscious forward-looking effort for the achievement of preconceived quantified tasks. Without quantification, the conscious interference with the organic economic process will only be development and not planning. The limitations of planning are the boundaries of the possible[3] and the degree of suitability of given sectors for human interference.[4] All planning is therefore restricted by the contemporaneous reality and to the experience gained in the past. Yet planning, in the sense of setting quantified future tasks and targets, can be done on the basis of a high degree of statistical analysis of past events, which is then fed into high-powered computers to forecast the quantitative results of certain plans in the future, or on the basis of a less mathematical and more empirical method of trial and error.[5]

Another difference between development and planning which is important to note is the difference in attitude to time. Development is merely direction, whereas planning implies a specific time-element, a time limit within which some preconceived targets ought to be accomplished. Any development programme may therefore include several successive planning periods. The latter must be so short that revolutionary technological, social and structural changes can be excluded from the plan, but at the same time long enough to permit the planners to mobilize all the required resources.[6]

In an earlier chapter[7] Marx's economic theory was described as a theory of organic growth. In it all productive relations, i.e. the social structure, were a function of the productive infrastructure, and both super and infrastructure were subject to a dialectical growth process. In his own words 'In the social production of their life, men enter into definite relations that are indispensable and independent of their will, relations of

[3] For example, investment cannot exceed income.

[4] It is easier to plan and predict the output of a given piece of industrial equipment during a year than the output of a piece of agricultural land.

[5] S. G. Strumilin, *Planirovanie v SSSR*, p. 19.

[6] The problem of the lengths of planning periods is well discussed by C. Bobrowski, *Formation du Système Soviétique de Planification*, 1957.

[7] The Dialectical Materialists, pp. 76-106.

production which correspond to a definite stage of development of their material productive forces. The sum total of these relations of production constitutes the economic structure of society, the real foundation, on which rises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life conditions the social, political and intellectual life process in general. It is not the consciousness of men that determines their being, but, on the contrary, their social being that determines their consciousness . . . At a certain stage of their development, the material productive forces of society come into conflict with the existing relations of production, or – what is but a legal expression for the same thing – with the property relations within which they have been at work hitherto . . . With the change of the economic foundations the entire immense superstructure is more or less rapidly transformed."[8]

Lenin turned Marx's growth theory into a development theory. He accepted Marx's idea that 'With the change in the economic foundations, the entire immense superstructure is more or less rapidly transformed,' but he did to it what Marx had once done to Hegel's dialectics – he turned it upside down. The Soviet Revolution had helped Russia to catch up with the political system of the advanced countries within a few months. Therefore Russia was politically in advance of her economic infrastructure. Consequently Lenin saw the Soviet Union standing before 'a ruthlessly severe alternative: either to perish or to overtake and outstrip the advanced countries economically as well.'[9] To fill this gap between the infrastructure and the superstructure Lenin turned the State, which had been a dependent variable into an independent one. Marx had always looked upon the State as part of the social superstructure, as a dependent variable of growth: Lenin turned it into an independent development agent. He allocated to the State the function of autonomous investment. The State was to invest as large a part of income as possible – and then more – in productive capital assets, because 'only a large-scale machine industry capable also of re-organizing agriculture can be the

[8] Marx & Engels, *Selected Works* F. L. P. H., Vol. I, p. 362.
[9] Lenin, *Collected Works*, Vol. XXI, Book I, p. 216.

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[8] Marx & Engels, *Selected Works* F. L. P. H., Vol. I, p. 362.
[9] Lenin, *Collected Works*, Vol. XXI, Book I, p. 216.

material basis of socialism'.[10] The capacity of the basic industries was to be increased in order to raise the output of both producers' and consumers' goods industries. However, since the only source of funds for socialist industrialization at the time was the 'internal resources created by the labour of the workers, peasants and intellectuals', naturally certain sacrifices, difficulties and privations had to be expected, 'especially in the early stages of industrialization'.[11]

Basically, the production of consumers' goods and of producers' goods were treated as two distinct and separate sectors. The former was concerned with the satisfaction of consumers' requirements at the existing level of output, whereas the latter produced only for the augmentation of the capital stock and for the replacement of technologically outdated equipment.[12] The major controversy in the economic sphere, which arose in the early 1920's, was about the financing of the development plan. Economists like Lev Shanin, Bazarov and Groman, the spokesmen of what came to be called the 'Right Opposition', held the view that agriculture should receive priority in all development schemes. Their argument was that agriculture can absorb more labour per unit of capital in an overpopulated country, because of its low capital-output ratios, and that an agricultural population has a relatively low consumption rate. Therefore, they concluded, if priority were given to this sector net savings would be highest and could then be channelled towards industrial development investment. Factually their argument rested on rather good evidence from past experience. Firstly there was the experience of the prosperous pre-revolutionary Russian corn export trade. Secondly, the rate of profit in agriculture had for many years averaged about fifteen per cent, whereas profits in industry averaged only about six per cent. Shanin's idea was therefore to invest initially in agriculture where growth would yield the highest rate of savings and then transfer the accumulated capital to industry.[13] The process

[10] *Ibid.*, Vol. XXXII, p. 434, (Russian fourth edition).

[11] *Fundamentals of Marxism-Leninism*, ed. Clemens Dutt, Moscow, 1964 p. 559; Lenin, *The Development of Capitalism in Russia.*

[12] *Vide* 'A Soviet Model of Growth', in E. D. Domar, *Essays in the Theory of Economic Growth*, 1957, pp. 223-261. (The G. A. Feldman model).

[13] Industrial profits were taken as 100 → 106, 112.3, 119.
Agricultural profits as 100 → 115, 132.2, 152 etc.

of economic development as Shanin and his followers envisaged it was more or less the following. First high profits in agriculture from both domestic and export sales would create significant savings. Part of these would be spent on the importation of foreign machines for industry and the rest on local capital production. At the same time there would also be a rise in demand for industrial goods owing to agricultural prosperity. This would further stimulate local light industries. Eventually as savings grew over the years more and more capital would penetrate from the light industries upwards and expand the heavy industries. This last stage however would only become really significant after consumers' demand was fully satisfied at the level to which the peasant population was accustomed.

This theory was rejected by Bukharin, who recommended a different scale of priorities. He believed that investment should throughout be equally balanced between agriculture and industry. Industry, he maintained, depended on demand from the agricultural sector, while the agricultural sector depended on industry for its mechanical equipment. Some agricultural machinery could be imported in exchange for grain until it could be replaced by domestically produced machines. Fundamentally, however, agriculture was to remain the strategic sector, for sheer numbers of people involved in it dominated demand for industrial products, while it also provided the necessary supply of raw materials and human resources for the development of industry.

Trotzky and Preobrazhenskii,[14] speaking for the left wing of the party, maintained that the prime objective of development must be the rapid and complete modernization of industry, and this ought to be financed by the agricultural sector through taxation and price fixing. This they assumed was possible because it was rightly believed that farmers saved only a small fraction of what they could if forced. They thought that a rigorous price and taxation policy would make farmers produce more and consume less. They also rejected the idea that the peasantry could become the stimulant for industrial production without deliberate government direction. Because of the peasants' cultural structure, Preobrazhenskii believed

[14] Preobrazhenskii, *New Economics*.

these were unlikely to turn higher earnings rapidly into growth-producing industrial demand. In fact this last argument did not correctly represent the views against which it was directed. Shanin never suggested that agricultural demand for industrial products should be at the expense of savings. What he suggested was merely that large economies of scale in industry were to reduce the prices of industrial goods to such an extent that they would create their own demand. Falling costs rather than higher incomes were supposed to increase the demand for the products of industry.

For political rather than economic reasons[15] and because paradoxically agricultural productivity was too low to maintain sustained growth in industry,[16] and after some period of vacillation, Preobrazhenskii's 'super-industrialist' line was adopted by the Soviet leadership. Massive investment and all-out priority for industry became the accepted strategy of economic development. As Stalin formulated the policy, in 1928, 'a fast rate of development of industry and the production of the means of production in particular, is the basis and key to industrialization and to socialist development of the economy as a whole'. In the words of the textbook,[17] 'Socialist industrialization is the development of large-scale industry, and primarily heavy industry, to a level where it becomes the key to the reorganization of the entire national economy on the basis of advanced machine technology, ensures the victory of socialism, and strengthens the country's technical and economic independence and defence capacity in face of the capitalist world.' However 'the creation of modern industry requires huge material and financial outlays' and as these cannot be obtained through capitalist exploitation, the share of the national income previously devoted to the parasitical consumption of the exploiting classes is used for socialist accumulation. The peasantry is released from paying mortgage debts and land rents. That enhances the possibility of enlisting the financial assistance of the countryside for industrial development. The revenue of state enterprises, foreign and

[15] The isolation of the Soviet Union in the face of the hostile coalition of capitalist countries which surround her played here the major role.

[16] The farmers could not be persuaded to produce more.

[17] *Fundamentals of Marxism-Leninism*, p. 559.

domestic trade, and banks is also used for industrialization'. And so, as development involves 'the maximum capital investment in industry', Stalin prescribed maximum taxation and price-fixing to get at the difference between 'potential and actual savings' in agriculture, and the economies of scale to be achieved by the substitution of large-scale farming for small.[18] In line with these principles the division of the economy into two distinct sectors was deepened. Industrial investment was made to increase with the progress of technology and with little regard for actual market demand. Agriculture took second place and was expected to progress eventually through the application of technologically-improved equipment and the lower prices of industrial products.

The general strategy then was the separation of agriculture from industry, and direct consumers' demand from investment decisions, and preference for industrial development. To this several other scales of priorities were added. Defined relationships were required in the development of heavy and light, extractive and manufacturing industries, because a faster rate of development of heavy industry ensured the advance of all branches of the economy. Consequently, first priority was allocated to heavy industry.[19] Similarly, it was decided that 'the raw-material and power industries must expand faster than the manufacturing industries, and create the necessary reserves for their advance'. Finally, it was stated that 'proper proportions have to be maintained with regard to the distribution of industry among separate economic districts, and specialization and co-operation of production', and that the 'economy will not work smoothly, either, unless a correct ratio is established between the number of skilled personnel required in the national economy and the country's training facilities'. In summary, the maintenance of a wide range of proportions in the national economy was regarded as an important task of socialist society. 'Accounting and control – that is the main thing required for arranging the smooth working, the correct functioning of the first phase of communist society,' wrote

[18] It may be noted that this was in effect the policy of 'primitive socialist accumulation' which had earlier been rejected by the Party as 'sowing discent between the farmers and the workers', and was indeed never accepted under that name.

[19] *Fundamentals of Marxism-Leninism*, p. 571-572.

Lenin in *The State and Revolution*.[20] Thus electricity, steel and machines received first production priority, not only for purely economic reasons – because they were 'the basis and key to industrialization and to socialist development' – but also because they were considered to have high defence potentialities.[21]

We may now summarize the 'development controversy' which took place in the Soviet Union during the early 'twenties. Initially Soviet planning vacillated between two strategies which were based on two basically different lines of approach. One was the 'genetic-growth' approach and the other the 'teleological-development' approach. The 'geneticists' placed stress on the analysis of the economic conditions prevalent in Russia and on the acceleration of existing growth trends by deliberate development, while the 'teleologists'[22] stressed the view that planning is not a matter of accelerating existing trends but of deliberate autonomous action with a view to the alteration of existing structures. The only restrictions on planning which the 'teleologists' recognized were in the short run the existing socio-economic relations in the Soviet Union, and in the long run opportunity costs. The 'geneticists' believed in the inevitability of historical growth processes and the teleologists in man's ability to overcome the forces of nature and to forge his destiny in accordance with what the policy-makers believe to be historically inevitable.[23] The teleologists' method of raising the national product (which eventually prevailed) was to accelerate the progress of a number of key industries, followed by the adjustment of the pace of development of other dependent industries to suit the rising requirements of the former. Thus the leading industries were the determinants of the rate of growth for all other industries. Consequently, investment in agriculture too was solely a function of industrial planning. Only the excess of

[20] F.L.P.H., Moscow, 1961, p. 161.

[21] Though today other forms of power have become more efficient and economical than hydro-electric it still holds the summit priority in all communist state planning. Probably because of the frequently quoted slogan of Lenin 'Communism is the power of the soviets plus electricity'.

[22] The 'teleologists' were led by S. Strumilin.

[23] The peculiar thing about the teleological approach is that it assumes the possibility of creating an infrastructure to suit the ideology of a dominant group.

savings from the agricultural sector over the requirements of the industrial plans was re-invested in agriculture. In fact until very recently Soviet agriculture was virtually starved of capital.[24] However, even the teleologists could not plan investment in excess of maximum savings. In 1926 P. Popov published an attempt to quantify 'the volume and structure of the output which flows into the national economy of the Soviet Union from its individual branches and is distributed among the separate branches and classes of society'.[25] Unfortunately Popov's work was not taken seriously until many years later and Strumilin's contention prevailed, that 'the accuracy upon which strict science insists is by no means necessary for practical purposes'.[26] It was this kind of Strumilin-pragmatism which under Stalin came to be known as 'scientific planning'.

According to Soviet theory the demands of the law of planned development found their expression in the economic plans drawn up by the state planning bodies in accordance with directives issued by the Communist Party and the Government. In the early 'thirties Stalin put the state at the summit of all economic activities and relations and the Soviet economy was no longer supposed to react to the economic laws of capitalism but only to the new laws of socialist development. However, the 'economic laws of socialist development' were not taken to operate automatically but through active planning by the Soviet State and the working population led by the Communist Party.[27] In the words of the textbook[28] 'It would . . . be wrong to assume that the great advantages inherent in socialist, planned economy automatically ensure its success. The *law* of planned development of the national economy must not be confused with the actual *planning* itself. Though the economic law unfailingly operates – in the sense that its effect will be felt inevitably – planning may be correct or

[24] Report by L. I. Brezhnev on *Urgent Measures for Further Development of Soviet Agriculture* at the plenary meeting of the Central Committee of the CPSU on 24 March, 1965. Reported in *Pravda*, March 26.

[25] P. Popov, *The Balance of the National Economy of the U.S.S.R. for 1923/24.*

[26] Quoted from Spulber *op. cit.* p. 222. 'It was "pragmatism" more than anything else which made for good planning.'

[27] *Bolshaya Sovyetskaya Ensiklopedia*, 1932, Vol. II USSR, p. 769.

[28] *Fundamentals of Marxism-Leninism*, p. 574. (I call it 'textbook' because it is used as a textbook for the subject in most Soviet Universities in the first and second year courses).

incorrect, precise or very approximate. Hence the method and system of planning must be continuously improved, the scientific, technical and economic basis of the plans strengthened, and the plans constantly checked and corrected in the light of experience, of the most advanced practice.'

In 1928 Soviet economic planning took the form of a series of five-year plans devised to overtake the United States of America in *per capita* production. In 1936 Stalin proclaimed that Socialism had been achieved in the Soviet Union, and with the adoption of the new constitution he laid down the rule that economic growth could henceforth only result from policy directives and their execution. Organic growth was no longer relevant, being part of the capitalist structure. In the future output targets were no longer to be regarded as technological predictions but as government instructions to be carried out.

This idea was put into even more extreme terminology in the ideological guidance which was given to the new socialist countries which came into existence in Eastern Europe after the second world war. 'The basic law of socialist production,' wrote Stalin in *Economic Problems of Socialism in the U.S.S.R.*[29] means the 'maximum satisfaction of the continually rising material and cultural requirements of society through continuous expansion and perfection of socialist production by the highest techniques'. This implied, in the words of the *Textbook of Political Economy*,[30] that 'socialist forms of economy cannot emerge and develop spontaneously', but only 'as the result of planned activity of the proletarian state and the creative activity of the working masses'. Consequently all other, non-planned, forms of growth were labelled reactionary and prohibited because they diverted resources from where these should have been employed in a socialist production. The state, and the state alone, through its planning organs, can be the agent of economic progress. To assure growth in this fashion a long list of disciplines were introduced and given a rigid order of priorities. At the top of this pyramid-shaped structure was the Party discipline, followed by socialist, state, planning, production, labour, technological, financial and other disciplines.

[29] Moscow, F. L. P. H., 1952, p. 45. [30] Moscow, 1957, p. 419.

In fact economics was turned into a procedural administrative matter centrally controlled like a single big firm with little regard for the limitations of centralized management.[31] This led to maximum rather than optimum planning. Ignoring costs as the 'affair of small shopkeepers' mentality'[32] Stalin regulated the economy regardless of any profit and loss accounts for the various sectors and the individual enterprises. 'The losses were hidden in the lump sums of centralized averages'[33] and justified by the simplification that the general social utility cannot be measured by gains or losses in individual sectors. Strumilin alone,[34] and he too only as late as 1957, raised the question of optimum versus maximum planning. In his book *Planirovannie v USSR* he wrote[35] that planning should ensure the 'optimum utilization of the productive forces of the country, without causing crises, and stimulate the most rapid expansion of socialist production in order to achieve the maximum satisfaction of the needs of the people with a minimum of cost'. Though theoretically it appears of course common sense to sacrifice investments in some limited sectors in order to achieve higher overall gains, in practice, however, it must be done on the basis of careful examination of cost and gain accounts and in a well integrated, highly organized, economy where plans are strictly adhered to. This was not the case in Stalin's Russia. Not only were plans too frequently changed, but there appears to have been an endless sequence of revisions to eliminate disproportions, and this led to the introduction of ever higher priorities, until by the end plans lost all consistency. In the words of a Polish planning specialist, Bobrowski,[36] 'One of the most fundamental characteristics of the Soviet system of planning is not to treat the official plans as a supreme law setting up intransgressible principles (except for explicit modifications) of the allocation of factors of production and of distribution of the national income, but as an approximation susceptible to changes at any moment if the non-written plan requires so. This is particularly confusing to those who wish the planned economy to be

[31] This was until N. S. Khrushchov's rise to power.
[32] Quoted from R. Bicanič, *op. cit.*, p. 180.
[33] R. Bicanič, *op. cit.*, p. 180. [34] This is to the best of my knowledge.
[35] p. 18.
[36] Bobrowski, *op. cit.*, p. 91. Quoted here from R. Bicanič, *op. cit.*, p. 181.

an organized system, free from oscillations. Finally as the non-written plan is reduced to a certain number of macro-economic choices, its supremacy means a defeat of all attempts at giving importance to economic calculations.' Briefly, centralized planning without detailed profit and loss accounts for each sector and sub-sector may cause the economy to fall between two stools. Central optimum planning may become impossible without modifications and modifications may distort the overall plan.

There was yet another hindrance to development in the policy of maximum rather than optimum planning, namely the continuous utilization of production units of only marginal value. To a certain degree this difficulty should have been overcome by the planning of the producers' goods industry, sector I, which according to Lenin's principles should have been greatly concerned with technological progress and its application, but obviously this can only be a partial solution to the problem and cannot altogether eliminate the use of marginal units of production. Finally, the system of priorities itself was not used in accordance with the principles of the basic laws of socialism, concerning economic progress,[87] but according to political and administrative needs which in time almost assumed the form of ideological credos. The scale of priorities was as follows: At the head the Communist Party which has priority over state and collectives' decisions. Then, central government decisions had priority over the decisions of the various governments of the autonomous republics and the local organizations. Finally the requirements of the machine-building industry had priority over those of the basic goods and consumers' goods industries, and the latter had priority over agricultural and consumers' goods production. Thus local requirements and the satisfaction of consumers' demand came at the bottom of the scale of priorities and consumption there-

[87] These basic laws are: Firstly, 'those which refer to the optimum balance in the satisfaction of the rising needs of the society through constant expansion of production' (to achieve this is one of the main tasks of the planners, whose choice is limited by the requirements of this basic law. Expressed in a different way, their activity is preponderantly negative: to eliminate disproportions in economic growth.) Secondly: 'A particular law of planned (proportional) development' (Which is considered to be the 'regulator of socialist industry and the distributor of means of production and labour among the various branches of the economy'). R. Bicanič.

fore determined by the residual magnitude from compulsory savings.

From a purely economic point of view the main deficiency of Stalin's over-centralized system was the absence of a method by which the profitability of any specific investment could be judged. The lack of this kind of supervision too often invites excessive overhead costs, 'empire-building', nepotism and general inefficiency and maladministration. All these were doubtlessly evident in the Soviet economy as can be seen from statements made by Mr N. Khrushchev[38] and by his follower in the office of first secretary of the Communist Party of the Soviet Union, Mr L. I. Brezhnev.[39] The same was also discussed, in the post-Stalin era, by economists like Braginski and Koval,[40] M. B. Breev,[41] and I. A. Gladkov[42] in the Soviet Union, by C. Bobrowski,[43] E. Lipinski and Fabierkiewicz in Poland, and by Juri Rezníček[44] in Czechoslovakia and Rudolf Bicanič in Yugoslavia. However, none of the critics has yet given a really satisfactory explanation of how it happened after all that the Soviet economy achieved the phenomenal rate of growth which it experienced. The answers, for what they are worth, can be divided into three categories. Firstly, those that claim that such progress as there was did only take place in a limited number of sectors of the economy and that in fact Soviet statistics are misleading. (This argument will be discussed in more detail later in this chapter.) Secondly, those who claim that with all its efforts the government did not succeed in eliminating unplanned autonomous 'genetic' growth and that this must be held responsible for the progress. The argument is that 'had it not been for Soviet planning, genetic growth would have made Russia progress even more'. The adherents of this argument speak of two economies which existed side by side in the Soviet Union, the successful autonomous one and the far less successful planned one. As evidence they point to

[38] *Pravda*, Nov. 14, 1958. [39] *Pravda*, March 26, 1965.

[40] *Organizacia Planirova nia Narodnogo Hozyaystva SSSR*, Moscow, 1954, pp. 77-92.

[41] *Obshchie Voprosi Teoriji Narodnohozjajstvennogo Planirovania*, Moscow, 1957, pp. 96-104.

[42] *Ot Plana GOELRO k Planu Shestoy Pyatiletki*, Moscow, 1956.

[43] C. Bobrowski, *op. cit.*, & *Dyskusya o Polskim Modelu Gospodarczm*, Warszawa, 1957.

[44] *Organizace Planirovani v ČSR*, Prague, 1956.

an organized system, free from oscillations. Finally as the non-written plan is reduced to a certain number of macro-economic choices, its supremacy means a defeat of all attempts at giving importance to economic calculations.' Briefly, centralized planning without detailed profit and loss accounts for each sector and sub-sector may cause the economy to fall between two stools. Central optimum planning may become impossible without modifications and modifications may distort the overall plan.

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[87] These basic laws are: Firstly, 'those which refer to the optimum balance in the satisfaction of the rising needs of the society through constant expansion of production' (to achieve this is one of the main tasks of the planners, whose choice is limited by the requirements of this basic law. Expressed in a different way, their activity is preponderantly negative: to eliminate disproportions in economic growth.) Secondly: 'A particular law of planned (proportional) development' (Which is considered to be the 'regulator of socialist industry and the distributor of means of production and labour among the various branches of the economy'). R. Bicanič.

fore determined by the residual magnitude from compulsory savings.

From a purely economic point of view the main deficiency of Stalin's over-centralized system was the absence of a method by which the profitability of any specific investment could be judged. The lack of this kind of supervision too often invites excessive overhead costs, 'empire-building', nepotism and general inefficiency and maladministration. All these were doubtlessly evident in the Soviet economy as can be seen from statements made by Mr N. Khrushchev[38] and by his follower in the office of first secretary of the Communist Party of the Soviet Union, Mr L. I. Brezhnev.[39] The same was also discussed, in the post-Stalin era, by economists like Braginski and Koval,[40] M. B. Breev,[41] and I. A. Gladkov[42] in the Soviet Union, by C. Bobrowski,[43] E. Lipinski and Fabierkiewicz in Poland, and by Juri Rezníček[44] in Czechoslovakia and Rudolf Bicanič in Yugoslavia. However, none of the critics has yet given a really satisfactory explanation of how it happened after all that the Soviet economy achieved the phenomenal rate of growth which it experienced. The answers, for what they are worth, can be divided into three categories. Firstly, those that claim that such progress as there was did only take place in a limited number of sectors of the economy and that in fact Soviet statistics are misleading. (This argument will be discussed in more detail later in this chapter.) Secondly, those who claim that with all its efforts the government did not succeed in eliminating unplanned autonomous 'genetic' growth and that this must be held responsible for the progress. The argument is that 'had it not been for Soviet planning, genetic growth would have made Russia progress even more'. The adherents of this argument speak of two economies which existed side by side in the Soviet Union, the successful autonomous one and the far less successful planned one. As evidence they point to

[38] *Pravda*, Nov. 14, 1958. [39] *Pravda*, March 26, 1965.

[40] *Organizacia Planirova nia Narodnogo Hozyaystva SSSR*, Moscow, 1954, pp. 77-92.

[41] *Obshchie Voprosi Teoriji Narodnohozjajstvennogo Planirovania*, Moscow, 1957, pp. 96-104.

[42] *Ot Plana GOELRO k Planu Shestoy Pyatiletki*, Moscow, 1956.

[43] C. Bobrowski, *op. cit.*, & *Dyskusya o Polskim Modelu Gospodarczm*, Warszawa, 1957.

[44] *Organizace Planirovani v ČSR*, Prague, 1956.

what appear to be common practices in the Soviet Union, the hiding of accumulated reserves and equipment from the authorities by enterprises and their utilization outside the plan. Likewise they stress the discrepancies between production figures collected, by the Soviet Statistics Office, from managing directors and from government ministries[45] and the frequent complaints about spontaneous activities and lack of planning discipline which appear in Soviet publications. Finally they cite the example of the practice of Ministries of drawing up plans 'without taking into consideration what is being done by other Ministries',[46] and, naturally, the Kolkhoz markets which were legalized and produce even by official accounts some twenty per cent of the country's farm product, to which they add the yield of the 1.6 million hectares' product of the Workers' Allotments. Thirdly, and here all critics of 'super-planning' are in agreement, the great improvements which followed the removal of some of the restrictions on the spontaneous growth must be attributed to decentralization. The extremists among the critics, who usually write in the capitalist countries, claim of course that had it not been for Soviet planning, and had the Russian economy been left to genetic growth with as little state interference as possible, the rate of growth would have been far more outstanding than it actually was.[47] In the words of Professor Rudolf Bicanič, of the University of Zagreb, Yugoslavia,[48] 'The inefficiency of centralized, normative, authoritarian planning methods has manifested itself in more advanced as well as in less technically developed economic activities. A situation developed in which the rate of growth of agriculture, using most primitive means on very limited kolkhozniks' plots and peasant-family holdings happened to be greater than on collective and State-farm fields, armed with the most advanced machines.' And as for the assumptions under which the Soviet system operated, Rudolf Bicanič claims that they were oversimplified, including such as 'an unlimited demand for capital goods, in a definite order of priorities; an unlimited demand for consumer goods, in a

[45] *Pravda*, July 4, 1957.
[46] Nikita Khrushchev, speech of April 8, 1957 and Theses of March 30, 1957.
[47] This of course is an argument but no proof.
[48] Conference on Economic Development at the University of Texas in 1958. Published in *Economic Growth*, edited by Eastin Nelson, 1960.

population purposely kept at low levels of consumption; unlimited efficiency of administrative incentives; and unlimited rôle of State power in economic planning', which in his view were the main causes for the prevention of a higher rate of growth.

In 1959 a new Seven-Year Plan was proclaimed. Its aim: 'The establishment of the material and technical foundation of communism and the further strengthening of the economic and defensive might of the U.S.S.R. and the full satisfaction of the increasing material and spiritual requirements of the Soviet people.'[49] The target figures and plans were published in November 1958 so that the Soviet people could examine and discuss them before the meeting of the 21st Congress of the C.P.S.U. in January 1959. The stress in the plan was on peaceful competition with the capitalist countries. A new era of planning had begun. The *Draft Program of the Communist Party of the Soviet Union* for 1960-1980 again forcefully asserts that industrialization and the progress of heavy industry in particular must be the prime objects of planning, but the tone is very different from that of the years of the 'war economy', the N.E.P. and the old 'Five Year' plans. While Mr Brezhnev talks of unprecedented investments in agriculture the Soviet Government approved the conversion of almost 400 consumer goods factories to a system of production based on the system of supply and demand as from April 1965.[50]

In order to assess the Soviet system and its relevance to economic growth in developing countries it is useful to examine its actual performance. To do this is far more difficult than it appears to be. *Firstly* because it is difficult to determine the position of growth at the starting point of the system: as W. W. Rostow would perhaps put it, it is difficult to say whether Russia was before, in the middle, or at the end of the 'take off' period in the year 1917. *Secondly*, Soviet growth was disturbed by the appalling destructions caused by the first and second world wars and by the civil war which raged until the early 'twenties. *Thirdly*, because it is difficult to assess what damage

[49] *Pravda*, November 14, 1958. N. Khrushchev, Theses for the 21st Congress of the C.P.S.I.

[50] *The Times* (London) Special Correspondent's Report from Moscow (January 13, 1965).

was done to the economy by mere fear of foreign military attacks, intervention, and by the distortions of socialist development by Stalinism. And *fourthly*, because Soviet statistics are not readily available and if available are even less reliable than the economic statistics of many other countries. For example, all actual data concerning the performance of the Soviet economy are taken from the official Soviet press and come from only one source, namely the state. They are, therefore, open to criticism on two grounds: one, the crusading nature of Soviet Communism, and two, that the suppliers of data to the state authorities themselves have a direct interest in presenting their performance in the best possible light. In addition to this there is no good information incorporated in the statistics about the qualitative changes of output, but only the quantitative ones. Finally, reports deliberately hide part of the production figures, particularly those which are concerned with the military industries. These deficiencies can be illustrated by the following example. In accordance with Soviet official indexes industrial production grew between 1913 and 1955 twenty-seven times. American indexes rate the growth of output in the United States over the same period at only 4.7 times the initial quantity. If both indexes were strictly comparable then Soviet growth must have been six times as much as United States growth.[51] However, taking into account that in 1913 the performance of the Russian economy was reckoned at about 14 per cent of that of the United States at that time, then the Soviet economy in 1955 would have needed to rate at approximately 80 per cent of the output of the United States, Yet according to Soviet calculations it rated at only 36 per cent[52] (and according to Western calculations at only 23 per cent).

According to Western estimates Soviet industrial output multiplied more than six times during the period 1913-1955. Obviously growth varied considerably between different

[51] Data taken from G. Warren Nutter, *The Growth of Industrial Production in the Soviet Union*, 1962, p. 27.

[52] Ia. Joffe, ed. *Strany sotsializma i kapitalizma v tsifrakh* Moscow 1957, p. 8; *Ekonomika sotsialisticheskikh promyshlennykh predpriyantii* Moscow 1956, p. 7; *Ekonomika promyshlennosti SSSR.* Moscow 1956, p. 21; *Spravochnik komsol'skogo propagandista i agitatora* Moscow, 1957, p. 126 and N. Khrushchev in *Vestnik statistiki* 1959, No. 11 p. 17 ff.

sectors. The output of machinery and equipment increased about fifty-eight times[83] of intermediate industrial goods about nine times, and of consumers' goods about three times. Per annum this means an average rate of growth of approximately ten per cent for machines, five and a half per cent for intermediate industrial products and two and a half per cent for consumers' goods.

Naturally growth did not proceed at an even pace throughout the whole period. Taking the last pre-war year, 1913, as a base the fluctuations were as follows: in 1917, the year of the revolution, industrial output was reduced to approximately eighty-three per cent of the pre-war level; in 1918 and 1919, the years of the civil war, to approximately fifty to sixty per cent, and in 1920 to a mere twenty per cent. In the following year, 1921, the downward trend of industrial production came to an end but recovery was as yet very slow.[84] With the introduction of the New Economic Policy and the restoration of peace a reversal of the trend took place. In 1922 production figures rose again to about thirty-five per cent of the pre-war (1913) level, in 1923 to about forty-three per cent, in 1924 to over fifty per cent, in 1925 to seventy-three, in 1926 to ninety-one, and in 1927 and 1928 the eve of the First Five Year Plan the pre-war level of industrial production was once more restored and even slightly improved upon. It had taken the Soviet Union just under seven years to repair the destruction caused by six years of international and civil war. At its lowest ebb during these six years output had shrunk to no more than one fifth of the pre-war level. Both the decline and the recovery of industry was matched during this period by the performance of the economy as a whole.[85] During the era of the first and second Five Year Plans, that is between 1928 and 1937, the Soviet economy gained momentum and grew at an accelerated pace. It gained by about nine per cent annually

[83] This includes military products.

[84] *Vide* Table D-1 p. 522-523 and Table 47 p. 185 in G. Warren Nutter, *The Growth of Industrial Production in the Soviet Union*. A study by the National Bureau of Economic Research, 1962.

[85] *Vide* Table B-2 p. 420 G. Warren Nutter *op. cit.* Most capitalist critics of the Soviet economy claim that the growth relatives given above exagerate the actual performance of the Soviet economy because they make no allowance for the decline in quality of the output.

during the first Five Year Plan (1928-1932) and by about fifteen per cent annually during the second Five Year Plan (1932-1937).[16] Throughout the first Five Year Plan growth was primarily due to a rising rate of employment. Throughout the second Five Year Plan it has to be attributed to a sharp increase in productivity of labour. Output per person employed rose approximately five times more during the second Five Year Plan than during the first. Also during the same decade the production of machines and equipment rose more steeply than the production of intermediate goods and the latter more than consumers' goods.

In 1929 industrial production rose to sixteen per cent above the pre-war level; in 1930 to thirty-four per cent; in 1931 to forty-three, in 1932 to forty-four, in 1933 to fifty-two, in 1935 to one hundred and sixteen, in 1936 to one hundred and fifty-two and in 1937 to one hundred and sixty-eight per cent.

The course of industrial progress was once again reversed during the third Five Year Plan (1937-1940). In fact overall growth continued at a rate of approximately four per cent per annum. However, in the preceding years it had risen to almost fifteen per cent a year. If it is borne in mind that there were some territorial accretions to the Soviet Union during these later years the relative fall in the rate of economic growth becomes even more puzzling. Partly it must have been due to Stalin's 1937 and 1938 purges, because it was at that time that 'having wormed their way into J. V. Stalin's confidence, the sworn enemies of the Party and the people Ezhov and Beria – hiding under Stalin's incorrect belief that, as the Soviet Union moved closer to socialism the class struggle would become more and more intense – started purges of Party and government personnel, slandering and annihilating many honest and devoted Party people. Among those purged were many industrial executives . . . The new people put into executive position in industry often did not yet have sufficient experience. In 1937-1938, more than 5,000 new executives were in charge of enterprises . . . Of the 4,000 young specialists who finished technical Colleges in the second quarter of 1938, 816 (or more

[16] *Vide* Table 53, pp. 196-197, G. Warren Nutter, *op. cit.* Again Western commentators depreciate the rise by making allowance for a deterioration in the quality of the products.

than 20 per cent) were sent directly from College to executive positions in industry . . . Many workers with no theoretical training were promoted to executive positions.'[57] However, the purges were not the only cause of the economic retardation. The renewed danger of war forced the Soviet government to divert a greater share than before to military production.[58] Yet the real impact of this is not quite clear. A careful examination of man-hour productivity seems to indicate a fall which may have been more serious than the decline in output due to the redirection of resources for war purposes.[59]

In 1938 production was still rising and reached a level of approximately 175 per cent above that of the last pre-war year 1913. In 1939 it continued to rise to 182 per cent – but the rate of growth from one year to another had already declined considerably. In 1940 the fall was no longer merely relative but absolute. Total output receded below the 1938 level, though it remained above that of 1913. It was in fact 174 per cent above the latter.

There is little statistical information for the war years. Such evidence which is available suggests that the combined military and civilian production fell a little below the level of the civilian production of the last five pre-war years. However, the evidence is too thin for one to be confident about this impression.[60]

Measuring the rate of growth of the Soviet civilian industry between 1929 and 1940 in percentage change from one year to the next the following pattern seems to emerge. 1929 fourteen per cent, 1930 fifteen per cent, 1931 seven per cent, 1932 nil per cent, 1933 six, 1934 twenty, 1935 eighteen, 1936 seventeen, 1937 six, 1938 three, 1939 two and 1940 minus three per cent.

[57] A. F. Khavin, 'Razvitie tyazheloi promyshlennosti v tretei piatiletke' *Istoriia SSSR* (History of the USSR) No. 1, 1959, p. 25-26.

[58] For example, the number of military personnel grew from 1.5 millions in 1937 to over 4 millions just before the invasion of Russia in 1941.

[59] There appears to be some evidence that just before the invasion of the Soviet Union in 1941 Stalin relaxed the military effort. See A. F. Khavin *op. cit.*, p. 22, and the secret speech of Nikita Khrushchev concerning the 'Cult of the Individual' at the 20th Congress of the C.P.S.U. on February 25, 1956, published by the Russian Institute of Columbia University, N.Y. 1956.

[60] *Vide* N. A. Voznesensky, *The Economy of the USSR during World War II.* English translation, Washington, 1948. p. 46.

During the Second World War the Soviet Union suffered incredible losses and devastation. 24 million of her citizens died as a result of the war and in 1943 industrial production also fell to an unknown low while a large part of the industrial area was occupied by the Nazi armies. In 1945 both civilian and military production was down to approximately ten per cent below the 1913 level. In the following year, 1946, when the civilian industry was being reorganized for peace time production output fell even lower to about sixty per cent of the 1913 level. The grim situation was only slightly relieved by the American Lend-Lease aid shipments during, and the 'reparations' after, the war. Then, during the fourth Five Year Plan, and particularly in the later part of it, the Soviet economy recovered from the material losses of the war. Not only did it surpass the 1939 level of production but improved on it considerably. By 1948 all but eleven per cent of the war industry was reconverted for peaceful purposes.[61]

In 1946 output was approximately sixty per cent above the 1913 level and forty-three per cent below that of 1939. In 1947 it was 119 per cent above the 1913 level and only twenty-seven below that of 1939. In 1948 it was about 170 per cent higher than in 1913 and almost reaching the level of 1939. In the following years, 1949 and 1950, it rose to the hitherto unprecedented height of 240 and almost 300 per cent above the 1913 level, improving thereby upon that of 1939 by 122 and 142 per cent respectively.

During the fifth Five Year Plan (1951-1955) industrial production alone continued to rise more sharply than in any previous time with the exception of the second Five Year Plan years. However, the production of consumers' goods increased so rapidly during this period so that taken as a whole the rise in output throughout the fifth Five Year Plan must have been higher than in the second. In fact production of consumers' goods outpaced industrial production by a considerable margin between 1951 and 1955 and indeed the total increase must have been even more pronounced than the data suggest if the military production figures, which were particularly high during the Korean war, were known and could have been

[61] The trend was reversed in 1950 as a result of the Korean war.

included in the calculations.[62] The sharp rise in the production of consumers' goods was particularly pronounced in 1954, after the death of J. V. Stalin, but receded somewhat in 1955. *Per capita* output must also have risen considerably – by about seven per cent as compared with less than two per cent in earlier periods – which should be attributed to high technological progress.

The percentage rise in production in comparison with the base year 1913, and in brackets with the base year 1939, during the fifth Five Year Plan was approximately as follows: In 1951 326 (152), in 1952 339 (157), in 1953 373 (169), in 1954 430 (189), and in 1955 480 (206).

The sixth Five Year Plan which began in 1956 was abandoned in 1957 and replaced by the first Seven Year Plan[63] which came into operation in 1959. On December 25, 1956, *Pravda* and *Izvestia* published articles complaining that in drafting national economic plans not sufficient account of practical possibilities for supplying materials and funds was taken, and this created unnecessary strain. This may well have been the reason for the abandonment of the sixth Five Year Plan which was duly announced in September 1957.[64] According to official Soviet figures the rate of growth had slowed down between 1956 and 1958 and fell from 13.1 per cent to 10.1 per cent annually. The planned rate of growth for the first Seven Year Development Plan (1959-1965) was set lower again, at 8.6 per cent annually. According to the Western-adjusted index the output of the Soviet Union grew in comparison with the 1913 base and the 1939 base (in brackets) as follows: in 1956 to 525 per cent (233), in 1957 to 586 per cent (2.45) and in 1958 to 615 per cent (255).

So over the last decade the pace of industrial growth was slowing down. Soviet experts do not deny this. Experts even begin to talk of diminishing returns and of the wearing off of the advantages of being a late comer to industrialization. More and more voices are also being heard who challenge the wis-

[62] The rise in military production slowed down in 1953 and ceased altogether in 1954 (the year Stalin died), which are also the years in which consumers' goods production increased most rapidly.

[63] *Vide* A. W. Haslett, Todd Reference Books, *Soviet Seven-Year Plan*, 1959-1965 U.K., 1959.

[64] *Pravda*, 26 September, 1957.

dom of the continuation of 'command planning',[65] as conditions have changed and the economy has become much more diversified. The 'material balances' of the 'twenties have become too simple to embrace the whole complex modern structure of the Soviet industry. One Soviet economist worked out that with the methods employed by the planners today it would require the whole adult population of the Soviet Union to do the calculations necessary to achieve the 'material balances' in 1980. The recognition of this fact restored the study of mathematical economics to which Stalin had referred as 'playing with funny figures' when he struck it off the studies to be pursued in Soviet Universities. It reappeared under the name of Planometrics with great force during 1964. According to an article in *The Times*[66] a distinguished Soviet academician, referring to this 'invasion' of planning by mathematics and electronics, said 'Doubtless enormous advance must still be made in the mathematical apparatus if it is to be relied upon for handling the astronomical numbers of extremely complicated relationships and phenomena of economic life: Soviet sources estimate that continuous "optimal" planning of the U.S.S.R. economy involves the systematic solving of a "programming" problem with something like 50 million unknowns and five million constants. Equally great progress is still needed in computational machines, though the speeds and memories of present-day computers are already fabulous . . . An impressive blue-print adopted for an initial automation of national planning envisages covering the whole of the country with a network for channelling information . . . The blue-print mentioned comes from the "Ts.E.M.I.", the Central Economic-Mathematical Institute, a newly created body which is henceforth to stimulate and concentrate the country's work on this solution. It is staffed with first-class mathematicians as well as with economists and technologists (Russia has a tradition of brilliant mathematicians); one may expect that it will be provided with adequate resources. The order is that implementation of the

[65] Professor Yevsei Liberman of Kharkov University for example in 1963. See also report of London *Times* Moscow special correspondent (January 13, 1965) on 400 factories to be freed experimentally from planning.

[66] *The Times* (London, February 2, 1965) 'New Phase Opens in Soviet Planning' by A. Zauberman. Lecturer in Soviet Economics at the London School of Economics.

new methods it designs should start this year.' Another question mentioned by Alfred Zauberman in his article in *The Times* is that 'of building into the Soviet economy an effective market system'. The idea here is that 'firms would operate within the market and rely on the provided efficiency prices. The decision of January 13, 1965 to convert almost 400 consumer goods factories to a system which will make production more responsive to the supply and demand mechanism rather than to central planning is the first example of this new Soviet effort. Although initially limited to consumer goods production, the new system, if proved to be successful, is then to be extended gradually to a large sector of the economy, including heavy industry. The new system is usually called 'Libermanism' after Professor Yevsei Liberman of Kharkov University who had suggested it in 1963. Similar changes were also decided upon with regard to the agricultural sector of the Soviet economy. Among the measures for the further development of Soviet Agriculture L. I. Brezhnev suggested and the Central Committee of the C.P.S.U. adopted the following improvements:[67] first to 'switch over to stable procurement plans covering a period of several years. These plans must harmoniously combine national interests with those of the farms concerned . . . grain purchases (by the State) in 1965 should be reduced from 4,000 million poods to 3,400 million poods; and that the said 3,400 million poods should remain fixed and stable for the entire period of the coming Five-Year Plan, including 1970'. Secondly, 'The state will encourage free purchases of farming products and will stimulate them by means of stable prices, doing everything to promote the development of commodity relations in the agricultural sphere. To stimulate the sale by collective and state farms of agricultural produce over and above their targets it is proposed to establish a 50 per cent increase over the basic purchasing price for wheat and rye . . . These measures of economic stimulation will therefore serve as a most important instrument for raising labour productivity and overcoming, within the next few years, the lag in this leading branch of farm production.

[67] *Vide* Report at the Plenary Meeting of the Central Committee of the CPSU on March 24, 1965. English translation in Supplement to Issue No. 13 (744), March 27, 1965. *Moscow News*, pp. 6-9.

Naturally, the implementation of these measures will involve additional expenditure for the state, and the state is prepared to meet the expense by redistributing the state budgetary allocations. We are convinced that as a result of this help collective and state farms will start producing much more grain and the state will be able to purchase it in greater quantities than today At the same time, the farms will have more grain to meet their own requirements. This, essentially speaking, is the main idea of the new system of grain procurements.'

To conclude this discussion it may be interesting to compare the post-war recovery of industrial output in the Soviet Union with that of other countries which suffered considerable damage during the war. The following table is reproduced here from G. Warren Nutter's book *The Growth of Industrial Production in the Soviet Union*[68] and the material for it was selected from the United Nations *Statistical Yearbook*, 1959 (N.Y. 1959) and *Statistical Yearbook* 1956 and 1957 indexes.

Industrial Production in France, Japan, West Germany, and the Soviet Union 1938-1958.

(1953 — 100)

				Soviet Union	
Year	*France*	*Japan*	*West Germany*	*Industrial Materials*	*All Products*
1938	75	79	77	56	58
1940	n.a.	83	n.a.	60	62
1945	32	37	n.a.	37	51
1946	58	23	n.a.	41	35
1947	67	28	n.a.	49	42
1948	76	36	39	59	53
1949	87	47	56	70	66
1950	87	56	71	77	76
1951	100	77	85	87	87
1952	99	83	91	92	95
1953	100	100	100	100	100
1954	110	108	112	108	109
1955	118	116	128	119	120
1956	130	144	138	127	n.a.
1957	140	167	147	136	n.a.
1958	146	168	151	146	n.a.

[68] G. Warren Nutter, *op. cit.*, p. 220. Table 58.

A comparison between the growth of output in the U.S. and in the Soviet Union since 1917[69] is of even greater interest. Until 1928 Soviet output grew by about 0.1 per cent annually whereas that of the U.S. grew by 3.7 per cent. Between 1928 and 1955 average growth per year in the Soviet Union was 6.5 per cent and in the United States only 3.8 per cent. This annual average was particularly weighted in favour of the Soviet Union in the years 1950 to 1955 when the Soviet rate of growth was 9.6 per annum and that of the U.S. 5.3 per cent. Between 1955 and 1960 Soviet growth was about 7.1 per cent annually and that of the U.S. only 2.2 per cent. Since then growth has somewhat slowed down in the Soviet Union and slightly risen again in the U.S.

[69] G. Warren Nutter, *op. cit.*, pp. 288-292.

Note.

Since this Chapter was written the following very interesting articles and statements on the reorganization of the Soviet economy were published in the Soviet Union.

1) Yuri Oleinik-Ovid, Assistant Director of Central Institute of Mathematical Economics, USSR Academy of Sciences. Profits under Socialism. *Novosti Press Agency*. January 1966.
2) Speech by L. Brezhnev on Industry. *Pravda*. 30 September, 1965.
3) The Results of the Fulfilment of the State Plan by Industry of the USSR in the First Nine Months of 1965 (Statistics). *Pravda*. 17 October, 1965.

CHAPTER VIII

The Theory of Growth and the Underdeveloped Countries Today

'Capitalism is using its money; we socialists throw it away.'
Dr Fidel Castro

'For unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away that which he hath.'
St Matthew, xxv, 29

The great interest in the economic development of backward countries is a fairly recent phenomenon. Poverty has been with mankind for a long time but the awareness that something can be done about it on a national level is relatively new. This awareness is greatly due to the 'exposure of the underdeveloped countries to the economic achievements of the industrialized world'. The rapid development of some countries and their high standard of living proved that poverty was not the unavoidable and normal condition of mankind. The contrast between the standard of living in the economically advanced and the backward countries led to a growing demand for rapid development by the latter and to a growing interest in the way it can be done. The pioneers in this field were economists like P. N. Rosenstein-Rodan, A. J. Brown and K. Mandelbaum in the 'forties and Regnar Nurske and W. Arthur Lewis in the 'fifties.

What is an underdeveloped country? What is underdevelopment? What are the features shared by underdeveloped economies which distinguish them from the developed ones? An answer to these questions often quoted is that 'every-

one knows an underdeveloped country when he sees one'.[1] In more detail 'It is a country characterized by poverty, with beggars in the cities, and villagers eking out a bare subsistence in the rural areas. It is a country lacking in factories of its own, usually with inadequate supplies of power and light. It usually has insufficient roads and railroads, insufficient government services, poor communications. It has few hospitals, and few institutions of higher learning. Most of its people cannot read or write. In spite of the generally prevailing poverty of the people, it may have isolated islands of wealth, with a few persons living in luxury. Its banking system is poor; small loans have to be obtained through money lenders who are often little better than extortionists. Another striking characteristic of an underdeveloped country is that its exports to other countries usually consist almost entirely of raw materials, ores or fruits or some staple product with possibly a small admixture of luxury handicrafts. Often the extraction or cultivation of these raw material exports is in the hands of foreign companies.'[2] Even this impressionistic picture brings to light the extreme diversity of conditions in underdeveloped countries. There is however one uniting aspect, namely that none of the backward countries has experienced a period of rapid economic growth comparable with that of any of the developed countries like the U.K., Belgium, France, etc. in the nineteenth century, or Russia and Japan in the first half of the twentieth. Other similarities common to most or all backward countries are low *per capita* incomes, inefficient agriculture occupying a large fraction of the population, a large subsistence sector, high birth and death rates, and uneconomical patterns of culture.

Statisticians find it very difficult to find comparable quantitative relationships to measure the degree of richness or poverty. This is so not only because data are rarely available but also because the nature and composition of income and expenditure in developed and in underdeveloped countries is not really comparable. The whole structure of production and

[1] Paul G. Hoffman, 'One Hundred Countries – One and One Quarter Billion People,' (Washington, D.C.: Committee for International Economic Growth, 1960) p. 14.

[2] Paul G. Hoffman, *op. cit.*, p. 14.

consumption in poor countries is often so very different from that of richer countries that they cannot be compared. As most of the produce in poor countries is consumed locally on the farm and never enters the cash economy it is futile to try to compare standards of living by money criteria. In practice, however, comparisons are made and the criterion adopted is the estimated level of *per capita* output.[2] The United Nations agencies consider any country with a *per capita* income of less than 300 dollars per annum, 'poor', 'backward', or underdeveloped.

This means that at least two thirds of the world's population is living in poverty. In 1959 only the following countries enjoyed an annual *per capita* output of over 300 dollars. Bulgaria, The German Democratic Republic, Greece, Hungary, Iceland, Ireland, Italy, Malta, Poland, Rumania, The Soviet Union, The Union of South Africa, Argentina, Chile, Costa Rica, Cuba, Federation of the West Indies, Panama, Puerto Rico, Uruguay, Japan, Malaya, Lebanon and Cyprus had incomes between $300 and $600 per head. Belgium, Czechoslovakia, Denmark, Finland, France, West Germany, Lichtenstein, The Netherlands, Norway, the United Kingdom, Austria, Venezuela and Israel enjoyed a *per capita* output of between 600 and 1,200 dollars, and only Luxembourg, Sweden, Switzerland, Australia, New Zealand, Canada and the United States an output of over 1,200 dollars per annum.[3] According to the United Nations Demographic Year Book of 1959, 71 per cent of the world population in 46 territories had a *per capita* income of less than 100 dollars annually, 18 per cent in 19 territories had a *per capita* income of between 100 and 200 dollars annually, 7 per cent in 16 territories of 200 to 300 dollars and 4 per cent in 9 territories of 300 to 700 dollars.[4]

Poverty is not a new phenomenon in human history. It has plagued mankind for so long that it had almost been accepted as a law of nature. The new phenomenon of our time is the incredible rise of the living standards in the developed countries. This rise dispelled the idea that conditions in the poorer

[2] Paul G. Hoffman, *op. cit.* p. 14.

[3] Everett E. Hagen, 'Some Facts about Income Levels and Economic Growth', *Review of Economics and Statistics*, Vol. XLII, February, 1960.

[4] Quoted from table 2-1 Stephen Enke, *Economics for Development*, 1963, p. 18.

countries were normal and raised the hopes of mankind of a richer and better life. The improvements in world communications helped to spread the news about the practical possibilities of economic progress. World War II created political conditions in the backward countries which changed ideas into a politically-backed demand for economic development.

The Nazi occupation of most of the Continent of Europe and the submarine warfare against England put an end to prewar colonialism. The trade routes were closed and Europe was unable to supply the colonies with the required industrial products. Nor were the Europeans able to draw their raw materials and luxury goods from their colonies. In some cases the war had to be carried on from the colonies. At the same time some of the colonial trade was thrown open to the Americans and a number of industries, which until then had been purely European, were established in Asia and Africa to enable the allies to carry on with their war. In addition to this the Soviet Union emerged from the war as a major power with an economic system which appeared extremely attractive to a great many people in the poorer countries. All this not only transformed the economic structure and political constellations in the colonies but changed the position in the colonizing countries themselves. Before the war colonies were looked upon as part of the organic whole, part of the economic structure which united them with each other and with the mother country. Colonial progress was not studied as a separate and special problem, but as part of the organic whole. Obviously, if one country was particularly suited because of its natural resources and environment to produce raw materials and was at the same time short of skilled industrial labour, and another country in the same 'family of nations' poor in the former and rich in the latter, the specialization of the first in the supply of raw materials and of the second in industrial production was a logical conclusion. Exchange was to the best advantage of both countries. This had already been shown to be true by Adam Smith and by John Stewart Mill and there appeared to be no need to examine the validity of so obvious a fact any further. Therefore it appeared reasonable that development policies in the colonies were primarily, and often exclusively, directed towards the stimulation of those industries for which the

countries seemed best suited. At the same time all unsuitable industries were discouraged. There was no reason to permit the diversion of resources to the manufacture of products which could be produced under much better conditions and at lower cost elsewhere.[5] Since the system was part of an open-door policy of trade within the family of nations an almost free movement of funds helped most investible profits to be exported from the colonies to the highly industrialized countries, leaving behind only those which were invested in short-term enterprises which yielded quick profits.

Thus while they were unable to protect their infant industries against competition from the mother country and to prevent capital from escaping, the colonies were left with no chance to change their relative economic position from that prevailing. The circle was closed. As long as no industry developed in the colony costs of production had to remain higher there than in the industrialized mother country and the colony remained best suited to specialize in the supply of natural products and raw materials. At the same time, however, as long as the costs of industrial production in the colonies remained higher than in the mother country no investment was profitable for the development in the colony of such an industry as might possibly become competitive only at some time in the future. Consequently each stage of further industrial progress in Europe widened the gap. Such progress as did take place in the colonies was confined to the sectors which were regarded as most suitable for development under the natural environmental conditions of the area. For example, some of the colonial and semi-colonial countries in the Middle-East received high incomes from oil or similar natural products,[6] but nowhere did these profits lead to the genuine development of the area. Nor did they lead to a significant rise in the standard of living of the native population. Thus even in countries where local capitalists had a good share of the profits, these were seldom re-invested locally in developmental projects. Moreover, even the favoured export industries could rarely play a progressive role by stimulating local market

[5] In the Gold Coast loans for cocoa planters were given at 2.5 per cent. whereas all other loans 'not backed by land' cost 33 per cent.

[6] Palestine produced oranges, for example.

demand. The labour employed in these industries could not generate the demand which might have stimulated growth of a locally-based industry. Employment in most colonial export industries could not take the place of real cash-demand-forming engagement. In West Africa, for example, all major exports were divided into two categories: agricultural – say, cocoa, which is reasonably labour-intensive – and mineral – say, gold and diamonds, with which a relatively small number of workers is engaged and which requires, besides, little by way of local supplementary processing units. If, first, one considers cocoa farming, one may be inclined to think that it has all the necessary attributes for stimulating market-demand and thereby the re-investment of profits in local industries: it is fairly labour-intensive; a cash crop; defies the notions of risk avoidance and lack of long-term foresight in investment decisions, and yet it does not really stimulate demand. The cause appears to be twofold; firstly most of the staple foodstuffs can be grown near to or in between the cocoa trees, and secondly it does not break up the social 'family' system which makes subsistence farming possible and providential savings not obviously necessary. The combination of these two not only narrows the scope of the food market, but indirectly, by keeping down wage-rates, reduces the market for manufactured goods as well. Thus with the exception of a small number of foodstuffs, like fish for example, and some 'semi-luxury' goods which are mostly foreign-made, the export sector which employs most labour contributes but little to that demand which might have stimulated the development of production for the local market. The role of mineral-extracting industry is in this respect equally discouraging. Though employment there is demand-forming and wages relatively high, the number of consumers involved is usually not big enough to have a significant impact on production. This is particularly true where lack of skill and the very nature of the minerals extracted are severe handicaps to the development of secondary processing industries capable of increasing the number of wage-workers.

Thus an unwritten bond, a communion of interest, existed between the local land or oil baron and the makers of European colonial policy. The interests of the local capitalist

were identical with those of the colonialist, namely to keep costs of production as low as possible. Therefore each national movement in the colonies brought with it its specific social content, while each social demand automatically assumed a nationalist form. This is the reason for the great success of the Communists in underdeveloped countries: they presented a combination of social and national aspirations. But not all the underdeveloped countries and colonies had the same fate during the war. In those regions where the Allies had to permit the development of some local industries to supply their forces a new kind of capitalist came into existence, and with him a new kind of worker. The new capitalists invested in local industries and the new class of workers was employed in them.[7] Therefore, after the war, when the old land or oil aristocracy wanted to restore the pre-war situation with the help of the colonial government, they needed to destroy the whole new economic sector. Theoretically this appeared to be an easy task. With the revival of European industrial potential and the decline of the specifically war-orientated industries and markets it seemed as if the new sector would disintegrate by itself: unprotected and starved of capital, there was little chance for its survival. However, in many countries the position was more complicated. During the war American capital had begun to infiltrate into some of the colonies and had allied itself with the new forces there. Parallel to the bond between the landed capital and the old colonial interest, a link forged between the new industrial capital, fighting for survival, and American interests. This combination became a powerful force in the anti-colonial struggle and succeeded in many parts of the world in preventing a return to the pre-war economic relationships. The great wave of good will which swept the world after the war also contributed tremendously to the change of attitude towards the economic progress of the backward countries. Thus a concatenation of circumstances in the colonies and in the rest of the world bred conditions which required the study of the ways by which economic progress could be promoted in the underdeveloped countries. Hence

[7] There were of course also the nationalist movements with their socio-economic contents which arose in South East Asia in opposition to the Japanese during the war.

the specialization in the economics of backward countries. In summary the new discipline arose for the following reasons: firstly because in many of the underdeveloped areas people became aware of their poverty and of the possibility that something could be done to change this; secondly, because the Soviet Union exploited the partial responsibility of the western world for the economic backwardness of the colonies and the United States wished to counteract the Soviet propaganda by promoting progress; thirdly, because real new economic interests had developed.

The demand for quick economic progress also gave rise to a number of immediate difficulties. For example, the rejection of colonialism too often led to the wholesale repudiation of all the economic sectors which had hitherto been favoured by the colonial administrations. This was done regardless of their real significance and developmental importance. In the fifties in particular, after gaining their independence, many African ex-colonies did little or nothing to promote agriculture because it was considered a colonial occupation. So, while desperately trying to industrialize and encouraging people to seek industrial employment in towns, nothing was done to raise the productivity on the land in order to support the rising numbers of townspeople. Thus a combination of a relatively smaller population engaged in agriculture and a sharply rising population growth often caused severe food shortages. The urgency of this problem becomes most obvious if it is remembered that in 1960 a worker employed in agriculture in Ghana, for example, produced only enough to feed an additional one-and-a-half consumers, whereas a land worker in the United States in comparison produced enough food to feed twelve extra people.[8]

Similarly, efforts by the new governments to introduce European welfare measures before their countries could afford them also led to more difficulties. One of the worst impediments to progress in Africa is the traditional 'social security' system of the extended family. This is the social structure,

[8] *Vide* Ghana *Seven-Year Development Plan* (1963/4 to 1969/70), Accra 1964 p. 57. In addition, the fact that the prices of primary products and especially those of cocoa fell considerably during the late 'fifties and early sixties' made the exchange of colonial goods for foodstuffs also rather difficult.

akin to the clan or tribe, which claims the individual member's loyalty and in exchange affords him some degree of social standing and economic security. Members claim, and normally receive, support from other members of the 'extended family', and are expected in return to work for and contribute to their advancement. In agriculture this breeds inefficiency, in industry and public administration, nepotism and backwardness.

No one can doubt the merits of the quasi-social security service awarded by the extended family to its members in an economically backward world where no other adequate, or even half-way adequate, means of hunger relief are available. Yet precisely in this lies the main difficulty. The dissolution of the 'family' is a prerequisite for the termination of the old order with its inbuilt conditions of economic backwardness. It is only after the abolition of this system that labour will be compelled to seek more productive employment and old safeguards be replaced by new ones of a higher order. But the transition from the old to the modern system leaves a vacuum – a period during which the individual is deprived of the old means of protection before new ones become available. Without this kind of transition period with its attendant hardships it is difficult to see how a new tradition of labour discipline can evolve in backward countries. But how can a free newly-independent government subject its people voluntarily to this kind of insecurity?

By way of illustration let us assume that a 'family' cultivating an area of land grows or is joined by members who had so far lived in another region or were differently employed. The 'new' people will be expected to work for their upkeep. Where the available land was already supplied with adequate labour it will be over-manned. Not the optimum combination of land and labour but the moral obligation of the unemployed to work will be the guiding factor in their employment. Naturally the result must be diminishing productivity. Similarly, the member of the family who goes into public administration or starts some enterprise in town will hardly find it possible to recruit labour by the criterium of maximum efficiency. In most cases he only arrived at his position as 'employer' through the combined efforts of his 'tribe-family' and he is therefore

morally obliged to look after 'his own' and use his position for their betterment.

In addition to all this the same international 'demonstration effect' which had encouraged the people of the poorer countries to seek the improvement of their economic conditions on a national level has also produced a sad hindrance through its operation on individuals.[9] In this respect the mental legacy of the colonial rule with regard to consumption habits and behavioural patterns should not be underestimated. In the colonial era for the enterprising African who had no hope of inheriting the leadership and assets of his tribe-family there was only one way open to advancement, namely to seek his social and economic improvement through education and in the civil service. This provided the newly-independent-country with a civil service which had inherited a mentality reflecting strongly the worst side of the colonial branch of this organization. By way of this 'demonstration effect' the new social group which came into prominence imitated the habits of particular and too often rather unsavoury types of overpaid Europeans. Add to this the burden of the extended family, and you have an educated administrative class of young Africans not well adapted to bring about the economic revolution which was and still is necessary. This new class, brought up on the colonial 'demonstration effect', is administratively inefficient, lacks industrial experience and tries to imitate the economically useless old colonial habits of consumption and spending, mistaking them for real values of civilization. But these are the leaders of the country.

In summary then, 'a country is poor because it is poor', and though, as Ragnar Nurkse wrote,[10] 'This seems a trite proposition . . . it does express the circular relationships that afflict both the demand and the supply side of the problem of capital formation in economically backward areas . . . the size of the

[9] All too often the outward signs of advanced civilisations are adopted without their content. A good example for this is my University where progress is too often measured by the money spent on new buildings and by the number of students in the institution and the size of the administration (not its efficiency of course) rather than by the quality of its teaching staff and the educational standards of the graduates.

[10] *The American Economic Review*, May, 1952, 'Some International Aspects of the Problem of Economic Development'.

market, determined by the general level of productivity, depends – not entirely by any means, but largely – on the use of capital in production. But the use of capital is inhibited, to start with, by the small size of the market.'

The main problem then appears to be how to get the underdeveloped country once started on the road to progress. There was a time when economists emphasized the role of modern technology as an almost independent growth producing factor. The argument was that for example in the United States since the last quarter of the nineteenth century the national product has increased twelvefold,[11] capital accumulated only tenfold, and the labour force increased no more than threefold. This was meant to show that the productivity of each worker increased about fourfold and that the amount of capital employed with each worker increased only threefold. Consequently it was concluded that improved technology more than anything else raised *per capita* output. Moses Abramovitz formulated this idea as follows:[12] 'Suppose we combine our indexes of labour input *per capita* and of capital supply *per capita* with weights proportionate to the . . . incomes going to labour and property, respectively. If we may equate productivity with earnings, we obtain a combined index of resources which has a particular meaning. It tells us how net national product *per capita* would have grown had the productivity of resources remained constant at base levels while only the supplies of resources per head increased. Such an index, based on the 'twenties, rises only some 14 per cent between the 'seventies and the last decade. To account for the quadrupling of net national product *per capita*, the productivity of a representative unit of all resources must have increased some 250 per cent. This seems to imply that almost the entire increase in net product *per capita* is associated with the rise in productivity.' There are, however, a number of reservations which have to be made regarding the validity of Abramovitz's statistical comparisons. An important one is that his capital assessments do not include expenditures on education, health and training which, if they were included, would greatly mitigate

[11] Measured in constant prices.

[12] *Resources and Output Trends in the United States Since 1870*, National Bureau of Economic Research, 1957, Occasional Paper 53.

his conclusions. Yet more important is the fact that the whole case for the progress of underdeveloped countries through technological advances is irrelevant. Modern technology is by its very nature not suitable to serve by itself as a lever to raise *per capita* output in most underdeveloped countries. This is so because modern technology is generally *labour-saving*, highly *capital-consuming* and *requires a great deal of educated and skilled labour*. However, most underdeveloped countries suffer from a surplus of labour, a shortage of capital and from a lack of an educated and skilled working class. Yet, while in Europe and in the United States the acquisition of capital and skills could grow in pace with progress in technology this cannot happen in the backward countries today. There is no room for an intermediate technology. In the world of industrial competition all but those who can produce by the latest methods must go under. What had been intermediate from today's point of view was the most advanced in the past and therefore competitive in its time. But what could be competitive then and permitted labour to adapt itself stage by stage to new and slightly more advanced methods of production is no longer economical today. Therefore if technology is to be the developmental agent a direct leap to the most advanced methods is undoubtedly the only way this can be done.

Even if it were possible, through foreign aid for example, to introduce modern technical equipment and train its operators, the most crucial problem would still be without a solution. The individuals which are able to perceive opportunities for profit and are willing to exploit them may not be there. And if they are 'the climate of our day' as Arthur Lewis calls it[18] may be unfavourable to them, because it is 'hostile to income differentials in general, to foreign differentials in particular, and to handsome profits in the extreme. These, however, are part of the cost of development.' In addition to this in rural areas, in particular in South East Asia, poverty is still taken to be as the normal way of life, indeed as fate ordained, against which it is not only futile but even sinful to rebel. The beggar is more often looked upon as a holy-man than as an idler in many backward societies. At the same time, as Arthur Lewis also

[18] *The Theory of Economic Growth*, 1955, p. 182.

observed,[14] there is the great attraction of conspicuous consumption, particularly in Africa and in areas with populations which do not have as long a cultural heritage as the Hindu and Buddhists. 'Many men acquire objects which they are not able to enjoy, solely to emphasize their status – the literature is full of pianos in houses where no one plays them, of private picture galleries owned by insensitive millionaires, of cattle kept to show tribal status instead of for meat or milk,[15] of goods acquired for conspicuous waste or destruction, and of similar examples of goods desired for show rather than for personal enjoyment. These displays are practised particularly by persons who are moving from a lower to a higher social class, and who are anxious to be recognized in their superior status. In the industrial countries they are much indulged in by the nouveaux riches. In the colonial countries, where the ruling classes differ in race from the ruled, it will also often be found that the middle and upper classes indulge excessively in conspicuous consumption. This is because one form which their nationalist self-assertiveness takes is to show that they are "as good" as their rulers, at least in being able to build as big houses, or to drive in as big cars, or to throw as expensive parties.[16] This excessive consumption often weakens the subject people, by throwing them into debt, and by reducing the amount which they might save and invest in accumulating wealth.' Worse in many ways than the evils brought upon the prospects of the economies by conspicuous consumption is the attitude to manual work in most backward countries. While manual labour is usually despised, clerical work is highly valued. This economically disastrous scale of values is also reflected in the prevailing salary scales. In Ghana, for example, a country which claims to be socialist and is by far the most advanced in West Africa, a messenger-boy in any office earns more than a labourer, and often more than a tractor driver or

[14] *Ibid.*, p. 26.

[15] One could add to Lewis's examples the golden bed bought by the wife of a Ghanean Cabinet Minister, or the Russian Kulaks who burned money at parties but were not willing to contribute any to the building of a school house in their village.

[16] Dr Eric Clavering has recently given me an interesting alternative explanation for the widespread of expensive parties in West African traditional society. He related this to the difficulties in storing foodstuffs in the region because of weevils and fungal infestations.

winchman.[17] Arthur Lewis commented on this attitude to labour, saying that '. . . men imitate their social betters, and if these find it degrading to work, others also will work as little as they can . . . The distinction we are making is not between equalitarian and inequalitarian societies, but between those where the rich work and those where they live in idleness. Thus in the United States the rich usually work, if only from force of habit, whereas in England there is a long tradition, now almost dead, that the ideal life for the rich is one of hunting and shooting and fishing. It is not the case that the American workman works longer hours than the British workman – actually he works shorter hours – but there is some evidence that he works more intensively while he is working. Some people attribute this difference to different attitudes to work, and trace these differences back to different ideals as to how successful men should spend their time.'[18] Economic growth requires that people should be willing to work and to work conscientiously. But how can a man be expected to do so if the whole social structure is working against him? On the one hand society looks down upon him for being productively engaged when it is paying a bonus for all unproductive employment, while on the other hand he cannot hope to improve himself materially because any extra income will be taken away from him by the members of his extended family, or because he is expected to waste his earnings upon lavish entertainments for his friends. Truly 'the ruling classes in any country are anxious that the people should be willing to work steadily and persistently'.[19] Capitalists because it increases their profits, governments, 'whether they be democratic or authoritarian, conservative or radical', because it yields taxation. All 'governments need large revenues whatever their purposes may be, whether they be the "democratic" purpose of improving education, public health, communications and other public services, or the "imperialistic" or "anti-imperialistic" purpose of creating large military forces, or merely the "corrupt" purpose of lining the politicians pockets'. However,

[17] Information based on Schedule of Daily Rates of Pay in Accordance with Article 10 of the Collective Agreement Dated 20.10.60 (Ghana) still in effect.
[18] Arthur Lewis, *op. cit.*, pp. 37-38.
[19] *Ibid.*, p. 39.

for whatever purpose it may be it is seldom directly related to the improvement of the conditions of the people who are asked to work harder. Thus in effect the enterprising person in most underdeveloped countries would be acting illogically if he engaged in any kind of productive labour; he would be reduced in status socially and he would not be better off financially because between them his family, friends and government would make sure that none of his extra income was left for him. This is also the reason why so many of the more enterprising young Africans leave their homes and make use of their talents for the benefit of other nations rather than for their own.

Another factor affecting *per capita* output is the rate of population growth. It is obvious that in a country in which population is increasing at a rate which is higher than the increase in production *per capita* output must decline. Thus, in order to have capital formation it is always necessary that production increases at a higher rate of growth than population. If it is now borne in mind that population accretion in India and China during the last decade rated at about two per cent and in Latin America at between two and a half and three per cent per annum it is clear that a rise of only one per cent per annum in *per capita* output requires, at least until the children grow up, no less than a three or four per cent increase in total output. This relationship is particularly dangerous where food production is concerned. A shift of population from rural to urban employment will put an even heavier strain on agricultural production than on the economy as a whole. Some economists try to find a solution to the problem in contraception. They believe 'that if they can have the latest European and American contraceptives sufficiently advertized and cheaply distributed . . . the number of children born in the Orient would immediately and permanently fall. Nothing seems more improbable'.[20] Children are both a status symbol and an insurance policy in many underdeveloped countries. They are born because they are wanted by their parents and not because of a shortage of contraceptives. To change this would require a cultural revolution. Other economists, Colin

[20] Colin Clark, 'Population Growth and Living Standards,' *International Labour Review*, August, 1953.

Clark to name one, claim that population growth creates no retarding effect on *per capita* growth of output. He writes in the *International Labour Review*,[21] 'It seems to come as a surprise to many people to learn that there are a great many industries – probably the majority of industries in the modern community – which are quite specifically benefited by increasing population.' Theoretically both the Malthusian and the Economics of Scale approach present a good solution. The former raises *per capita* output by reducing the '*capita*' by which the total output is divided. The latter raises the output itself. In practice, however, the former requires a cultural revolution and the latter a high rate of capital accumulation: both of these are normally the result of the higher *per capita* output rather than its causes. But if cultural patterns could be changed and if the required capital were made available even then it is not at all clear if the great number of underemployed workers and resources could be used in the way foreseen by Colin Clark. Alfredo Navarrete Jr and Ifigenia M. de Navarrete in their short paper 'Underemployment in Underdeveloped Economies', make the following point:[22] 'If we take the size of the labour force as given, underemployment may be described as a situation in which the withdrawal of a certain quantity of the factor labour to other uses, will not appreciably diminish the total output of the sector from which it is withdrawn. This is as much as to say that the marginal productivity of these units of the factor labour in their original employment is zero . . . ,' and the Navarretes believe that 'it is characteristic of backward economies in process of development that a more or less considerable part of their labour force is always ready to increase its productive activity, at existing nominal wage rates (though at decreasing real wages), if jobs are available'. At first sight this argument suggests that total output and thereby *per capita* output could easily be raised by merely giving some outside assistance leading to expansion which would cause the more productive employment of the surplus (underemployed) labour. This, however, is not the case. There is a kind of underemployment which is directly brought about

[21] Colin Clark, *Ibid.*

[22] *International Economic Papers*, No. 3, 1953, Translated by Elizabeth Henderson.

by expansion and which occurs in primary economies in process of development in addition to the more chronic underemployment discussed before. 'It is due to the failure of capital and of most complementary means of production to increase at the same rate as the supply of labour in secondary and tertiary activities. This type of underemployment is accentuated by deficit financing of development programmes and the resulting inflation, which intensifies the cityward migration of agricultural workers and thereby unduly swells the supply of labour in face of a limited supply of other complementary means of production. These workers then find themselves under the necessity to engage in activities of very low productivity. They become, for instance, pedlars of all kinds of goods and services requiring little or no capital outfit, such as vendors of fruit, *chickle* and cigars, lottery tickets, newspapers, or else car washers, bootblacks, porters, waiters, and shop assistants. The remarkable feature of this type of underemployment is that it is continuously nourished by the vast reserves of hidden underemployment in rural areas.'[28] The conclusion from this is 'that a positive policy to combat underemployment . . . requires a stream of investment expenditure at a rate and of a composition adequate for the absorption of the net annual underemployment which arises at the very time when the average productivity of the factor labour increases through greater supplies of capital goods, raw materials and complementary resources (including training and technical education)'. This brings the argument back to the key problems, namely how to raise the rate of capital formation, how to achieve a balance between agriculture and industry and how to maintain it and how to adjust investment to shifts and growth of population.

Let us take the accumulation of capital first. Four different methods seem to have been employed in recent years in various underdeveloped countries to increase investments. Firstly, the mobilizing of unemployed and underemployed resources and labour in particular; secondly, forced saving through taxation and the turning of the net product into government enterprises; thirdly, government investment through a fall in real incomes, i.e. inflation; fourthly, foreign aid and foreign loans.

[28] Alfredo and Ifigenia Navarrete, *op. cit.*, 1953.

Each of these methods has its advantages and disadvantages and each may be suitable in one place and unsuitable in another.[24] The *first method*, that of utilizing unemployed or underemployed resources (labour in particular) without extraneous help, is extremely difficult. In a country where the majority of the population is living at the margin of subsistence, where in the best of times crops are just sufficiently abundant to keep the farmer and his family alive, where in most years even this very survival is threatened, there can be little left over from current production for saving and capital formation. In fact the people in such countries appear to be caught up in a vicious circle of poverty. However, it may also be the case that this picture is far too gloomy to be entirely true. There are few communities which do not have some unused potential resources. For example in India it is reckoned that about seven per cent of all rural incomes are spent on ceremonies; in pre-war China a year's output of rice on bride price; in West Africa many months' earnings on funeral ceremonies. In addition to this wars are fought everywhere at great cost even between the poorest of tribes and nations, and hoards of gold, silver and diamonds are frequently amassed in the economically most backward regions by 'the few'. Therefore, and from the purely material point of view, the problem of raising the *per capita* output is less insoluble than the picture of the vicious circle of poverty seems to imply. Under certain conditions over-population may become an asset rather than a drag on the economy. For example, in an over-populated country the accumulation of capital, and social capital in particular, could be greatly increased without any extra cost. If the country subject to over-population and underemployment is primarily agricultural then workers may be withdrawn from agriculture and employed in the construction of dams, roads, canals, etc. This would not diminish the total output of the first sector but would increase the value of the second. This is so because by definition of underemployment the marginal

[24] Capital here is ment to include education, etc. John Kenneth Galbraith once wrote (*Economic Development in Perspective*—Cambridge, Mass., 1962.) 'Literate people will see the need for getting machines. It is not so clear that machines will see the need for literate people. So under some circumstances at least popular education will have a priority over dams, factories and other furniture of capital development.'

productivity of labour in agriculture is close to zero or is zero.[25] Thus if the same labour is employed in building dams the advantage of the shift is obvious. In the first instance the workers would be fed and produce nothing; in the second they would be fed but add something to the national wealth. After some time the social capital would pay its economic dividends – the dam may help to store water for the irrigation of new land – and the total output would increase. The real problem then, which arises at this early stage of development, is not how to produce more capital but how to make use of the surplus labour and how to get at the wealth unproductively spent or hoarded. One way of doing this is by 'press-gang' techniques. That is, the government forces people to do certain tasks and penalizes those who refuse. Another way is by appealing to nationalistic or tribal sentiments. Both methods have been tried in various places and under different circumstances and on some occasions met with a degree of success. In China an attempt was made in recent years to raise the rate of capital accumulation by establishing a strong organization in the rural areas for harnessing the underemployed labour force to increase production. This was the policy of the 'Communes' and the 'Back-yard Blast Furnaces'. The retreat from this policy in 1961 indicates that it had not been as successful as it was expected to be. At least not in this stage of the development of China.[26] All the same China's overall rate of capital formation during these years was very impressive indeed.[27] The appeal to patriotic sentiments was also tried out in several countries. Soon after the revolution and during the second world war it met with very good results in the Soviet Union. Similarly it was very successful during the 'forties and 'fifties in Palestine and later Israel. Unfortunately, however, it is precisely in the backward countries where nationalism might play this laudable rôle that it is most unlikely to do so. The reason for this is simple. The gap between rich and poor is too big and the national institutions, the government, etc., are too often merely used as an instrument in the hands of the powerful and

[25] *Vide* Alfredo and Ifigenia Navarette, *op. cit.*, 1953.

[26] Ta-Chung Liu and King-Chia Yeh, *Papers and Proceedings of the American Economic Association*, May, 1961; W. W. Hollister, *China's Gross National Product and Social Accounts 1950-1957*, III, 1958.

[27] Wilfred Malenbaum, *American Economic Review*, XLIX, June, 1959.

rich for the further exploitation of the poor. Indeed it is a common aspect of underdevelopment that the ruling class uses the political machinery of the country to enrich itself and then whisk the money abroad. In many instances this sort of ruling class finds its 'mass support' in a class of literate quasi 'lumpen proletariat' of civil servants and administrators who depend upon the government as their sole means of livelihood. The link between this kind of 'educated' class and the ruling class is particularly strong, because if any of the educated turned to productive employment he would not only lose in status but also in income, owing to the peculiar wage structure in most underdeveloped countries.[28] The working people upon whose exploitation live the classes mentioned above receive very little for the money or product taken away from them by direct exploitation or taxation by way of government services. Therefore it is hardly surprising that the kind of propaganda which for example helped the war effort in Britain in 1940-1945, will have little influence in, say, West Africa today. In fact it is hard to see how short of a real social revolution the waste potential hidden in many underdeveloped countries can be put to use. Arthur Lewis in his modified classical model[29] makes the following suggestion. In an economy in which the marginal product of labour is zero and where due to, say, population growth income remains constant throughout expansion, and labour can be yielded up to the expanding capitalist sector[30] without reducing subsistence output, the capitalist surplus and the income of capitalist employees, taken together, can be increased as a proportion of the national income. This model assumes that 'practically the whole benefit of capital accumulation and of technical progress goes into the surplus; because real wages are constant, all that the workers get out of the expansion is that more of them are employed at wages above the subsistence earnings. The model says, in effect, that if unlimited supplies of labour are available at a constant real wage, and if any part of profits is re-invested in productive capacity, profits will grow continuously relatively to the national in-

[28] *Vide* 'Schedule of Daily Rates . . .' Footnote 17, p. 261.

[29] 'Economic Development with Unlimited Supplies of Labour', *The Manchester School*, May, 1954.

[30] 'Capitalist sector' is here defined in such a way as to include the government as a capitalist employer.

come, and capital formation will also grow relatively to the national income.' From this Professor Lewis concludes that underdeveloped countries do not save so little 'because they are poor' as Colin Clark suggested, but 'because their capitalist sector is so small' (remembering that 'capitalist' here does not mean private capitalist, but would apply equally to state capitalist). Accepting the idea that all but the capitalists save very little at all times he continues that 'if they (meaning the underdeveloped countries) had a larger capitalist sector, profits would be a greater part of their national income, and saving and investment would also be relatively larger. (The state capitalist can accumulate capital even faster than the private capitalist, since he can use for the purpose not only the profits of the capitalist sector, but also what he can force or tax out of the subsistence sector.)' Again, all hinges upon the nature of the ruling class, i.e. if it is ready to invest its profits productively or not. If it does, then too the process must stop 'when capital accumulation has caught up with population, so that there is no longer surplus labour. But it may stop before that. It may stop of course for a number of reasons which are outside our system of analysis . . . But it may also stop for the economic reason that, although there is a labour surplus, real wages may nevertheless rise so high as to reduce capitalists' profits to the level at which profits are all consumed and there is no net investment. This may happen for one of four reasons. First, if capital accumulation is proceeding faster than population growth, and is therefore reducing absolutely the number of people in the subsistence sector, the average product per man in that sector rises automatically, not because production alters, but because there are fewer mouths to share the product. After a while the change actually becomes noticeable, and the capitalist wage begins to be forced up. Secondly, the increase in the size of the capitalist sector relatively to the subsistence sector may turn the terms of trade against the capitalist sector (if they are producing different things) and so force the capitalists to pay workers a higher percentage of their product, in order to keep their real income constant. Thirdly, the subsistence sector may also become more productive in the technical sense . . . Anything which raises the productivity of the subsistence sector (average person) will raise real wages in the

capitalist sector, and will therefore reduce the capitalist surplus and the rate of capital accumulation, unless it at the same time more than correspondingly moves the terms of trade against the subsistence sector. Alternatively, even if the productivity of the capitalist sector is unchanged, the workers in the capitalist sector may imitate the capitalist way of life, and may thus need more to live on. The subsistence level is only a conventional idea, and conventions change. The effect of this would be to widen the gap between earnings in the subsistence sector, and wages in the capitalist sector . . . If it is achieved, it will reduce the capitalist surplus, and also the rate of capital accumulation.'[31]

So much for the first method of mobilizing underemployed resources for capital formation. Now for the *second method*, namely forced saving and taxation. Here the government takes away part of the people's income and makes it available for investment. In some countries this may be done through private investors, in others by the government itself. The two best known examples of this kind are the Soviet turn-over tax and the Japanese land-tax. The main merit of the turn-over tax is that it is the simplest tax to levy on any business that sells its output for money (and it is therefore almost useless in the most backward subsistence economies). It requires almost no knowledge of book-keeping beyond the simple recording of sales. Indeed this sort of tax was the main source of revenue until the second world war in the Soviet Union and is still an important source of revenue in some parts of Brazil today. In addition to the advantage the turn-over tax has in permitting even the least educated retailer to keep an account, it also does not require a close examination of the stage of production in which a good is sold, for this becomes irrelevant if taxes are paid on all receipts. The main merit of the land-tax is that it cannot be shifted because the supply of arable and grazing land is inelastic. Moreover a failure to tax farmers raises their real incomes and may make it necessary to raise real wages in the cities in order to attract labour for industrial development, and this in turn must reduce profits and capital-formation. 'Hence in a number of cases an increase in the productivity of farming

[31] 'Economic Development with Unlimited Supplies of Labour', *The Manchester School*, May, 1954.

has been accompanied by heavy taxation of farmers, which has been used to finance capital-formation in other sectors, and it has been true to say in these cases that, far from agriculture absorbing capital from other sectors, it has been the farmers who have been forced to finance the industrial revolution. Japan is a case in point. In that country productivity per person engaged in agriculture doubled between 1885 and 1915, but much of the increase was taken from the farmers in higher rents or taxes, and used to finance the rest of the economy . . . The Soviet Union is another case where farm incomes per head were kept down . . . in spite of farm mechanization and a considerable release of labour to the towns.'[32] An advantage which the land tax has in the backward countries over the turnover tax is that it is less influenced by the fact that a large part of the output is not traded at all and therefore not taxable. However, there is no reason why both kinds of taxes cannot be used to supplement each other. As the collection of taxes itself poses a particularly thorny problem in many underdeveloped countries the direct taxation is sometimes substituted by export and import duties. An excellent example for the financing of a country's development in this manner comes from Ghana. The Seven Year Development Plan puts it in the following way;[33] 'In the period since the last war agriculture has made a very special contribution to Ghana's development over and above its role as principal supplier of exports. The money to finance all the revolutionary advances that have been made in the modernization of Ghana has come almost exclusively from agriculture. Within agriculture the cocoa farmers have been the real heroes of this achievement. Of the total income of £G.700 million earned from the export of cocoa in the period 1951 to 1961 the cocoa farmers have received £G.420 million while the remaining £G.280 million has gone to maintain the public services, to finance development and to build up the external reserves of Ghana.' The method by which this money was collected from the cocoa farmer was by paying them a set price per bag of cocoa in Ghana and then selling it on the world market for whatever price it could fetch. The difference

[32] W. Arthur Lewis, *The Theory of Economic Growth*, 1955, pp. 230-231. See also my own chapter on Soviet Economic Growth.

[33] *Ghana Seven Year Development Plan 1963/64 to 1969/70*, 1964, pp. 53-54.

between the two prices then made up the government revenue which was used for development purposes. 'In addition to providing funds for almost all the developmental expenditures and savings of Government, agriculture has also supplied most of the money that has gone into local and private investment in Ghana in recent years. The rapid growth of urban population stems from the prosperity of the cocoa industry. Agricultural money has financed much of the education of the youth and the development of transport. Local initiatives in the improvement of water supplies and roads, and in the construction of schools and clinics, have contributed significantly to the social and economic development achieved in recent years . . . It is a remarkable fact that with the exception of the roads and railways contributed by Government, and the scientific advances in cocoa farming introduced in the last six years, the achievements of Ghana's agricultural industry have had practically no technical or financial assistance from anybody outside agriculture. The small scale farmer with his hoe and cutlass has virtually created Ghana as she is today.'

However, any kind of taxation has its limits. The taxation of the poor may make their poverty even worse and may limit even further demand, the stimulant for industrial production. The taxation of the rich may decrease incentives, penalize success, and more often in underdeveloped countries be practically impossible because the rich are usually themselves the law makers. In summary then a 'good' tax system for a growing economy in its early stages should meet the following tests. It should not discourage production; it should reduce the less essential rather than the more important forms of consumption; it should not distort the structure of the economy; it should have a degree of income elasticity; and it should be collectable and at not too high a cost.[34]

The *third method* of capital accumulation is by inflation. Faced with the difficulties of taxation a government may decide to increase investment expenditure without raising taxes. 'A government that is eager to force the pace of investment in the private sector can often arrange an expansion of credit.' It can

[34] For a more detailed examination of the problems involved in taxation in underdeveloped countries see Stephen Enke, *Economics for Development*, 1963, pp. 246-260.

do the same in its own sector by merely printing more money. 'If the banking system is under government regulation, the minimum reserve requirements of individual banks may be increased by the amount of loans they have outstanding to specifically approved borrowers for approved projects.' Or, Enke continues,[35] 'the government, through its central bank, may lower minimum reserve requirements and purchase securities on the open market while simultaneously restricting loans for consumption and other disapproved purposes. Thus more credit may be made available for extra investment in favoured industries or localities'. All this is very true; however it assumes the existence of a potential borrower who only too often just cannot be found in a really backward country. The Government, however, can inflate credit and divert resources more directly and certainly if, when it needs more money than it has, it borrows for its own account and from the banking system to make capital and current disbursements. 'The central bank merely credits the treasury's account, subsequently government writes cheques on this account which are deposited in commercial banks by payees, and the banking system thereby increases both its holdings with the central bank and its demand deposit liabilities. These demand deposits, so far as the firms and households are concerned, are money. In this way, the stock of money in public hands is increased when government spends more than it is borrowing and taxing from private sources. The practical effect would be the same if the government were printing money instead.' This method normally leads to rising prices, i.e. falling real incomes, and consequently lower household consumption, and to rising private investment incentives. In fact it leads to a redistribution of incomes in favour of the rich. If these can be made to invest their profits constructively 'a little inflation' may not be a bad thing to stimulate the growth of an economy. But again if growth depends on local demand the fall in real wages may prevent the expected rise in profits. No one will invest unless he can expect a market for his product. Falling wage rates do not raise the level of demand. Also, 'a little inflation' has often been compared to 'a little pregnancy' – it normally continues to grow. In the early 'fifties prices rose per

[35] Stephen Enke, *op. cit.*, p. 233.

annum in Chile by about 60 per cent, and in Bolivia by about 50 per cent, and there are many more examples of this kind. This kind of inflation not only results in speculation and an often disastrous redistribution of wealth, but also in severe international balance-of-payments problems.

The *fourth method* of capital accumulation is through foreign aid. For some time after the war and under the influence of the real success of the Marshall Plan in Western Europe many international development agencies believed that the combination of the 'demonstration effect' and 'foreign aid' could transform the situation in the poorer countries. Today the approach has become a little more sober. As Richard T. Gill[36] elegantly puts it: 'If the provision of capital from abroad simply becomes a substitute for domestic effort, then no net gain will have been achieved.' In fact it is now finally understood that it is less the provision of capital than who gets it and how he uses it which determines its contribution to growth.' Theoretically the annual *per capita* output in Kuwait and Qatar is about the same as that of the United States and Canada. In fact it is slightly higher.[37] Yet there is scarcely any other country in the world which is more backward and where poverty is more blatant than in these two. Although the question has no clear answer it is still useful to ask why the Marshall Plan for Europe has been rated a great success and why the capital aid to underdeveloped countries has met with so little. Partially the question can be answered on a cultural level. 'Europeans are not only accustomed to most kinds of equipment, they also invented much of modern technology. They did not have to learn how to operate public power grids: they only needed help in rebuilding them faster. The European nations did not have to be taught about central banking and limited liability corporations, for the truth is that these lessons were mostly taught the New World by the Old.'[38] Above all, however, the people of Europe had the will to progress, had the social organization which was conducive to progress, and had the political organization which prevented the ruling classes

[36] Richard T. Gill, *Economic Development Past and Present*, 1963.

[37] Average *per capita* output in 1957 in the U.S. and Canada was about 2500 dollars and in Kuwait and Qatar 2700 dollars.

[38] Stephen Enke, *op. cit.*, p. 506.

from overstepping certain limits of exploitation. One or the other or all three of these factors together are absent in most underdeveloped countries today.

A second key problem next to capital formation is that of the balance between industry and agriculture. There are two schools of thought on this. One stresses the need for balanced growth in both sectors and the other the need for emphasis on industry. The former cites examples from the United Kingdom and the United States in support of its view: the latter cites the example of the Soviet Union. The argument of the 'industrial' school was briefly set out as follows in a recent book by Richard T. Gill:[89] 'An underdeveloped country has only limited resources to give to investment and growth . . . it must choose those areas which promise the greatest development . . . Clearly not agriculture, but industry. Indeed, modern growth and industrialization are really synonymous phenomena. Even in countries like New Zealand and Denmark, which have made a speciality of agricultural exports, the percentage of the labour force in industry is much higher than in most underdeveloped countries. Furthermore, the notion that an underdeveloped country should develop its agricultural sector and then export primary products in exchange is a specious one. There is a long-run trend for the prices of primary products to fall relative to the prices of industrial and manufactured goods . . . much better to develop a strong industrial sector *within* the country instead of spreading her efforts thin . . . The country must concentrate her all on this critical task. In time, these efforts will produce a nucleus of skilled, energetic, growth-minded people and, through them, a spark will be kindled which will ignite the rest of the population.' The argument of the 'balanced growth' school runs something like this: 'It is useless to talk about developing industry and not agriculture because it will not work. Industry is dependent on agriculture for the raw materials and other inputs which make production possible. Moreover, as the economy develops, the population will demand more food. If you try rapid industrialization without adequate attention to agriculture, you will find yourself in a situation . . . where industrial capacity is standing idle because of the lack of the

[89] Richard T. Gill, *op. cit.*, p. 94

necessary inputs . . . In general, the expansion of industry will call for an increase in the production of agricultural products, and if these demands are not met, there will be rising agricultural prices, heavy imports and – very probably – a real crisis in the country's international balance of payments. Furthermore, agriculture has a positive *advantage* as against industry in that small doses of scarce capital often bring far greater returns in agriculture than they do in the more capital-intensive industrial sector. Finally, don't worry about the problem of the prices of industrial imports rising relative to the prices of primary product exports. There is no evidence of a clear long-run trend in this direction, and in the case of some primary products the future prospects look very rosy.' In this form the argument between the two schools of thought, 'industrial' and 'balanced' growth, seems greatly to hinge upon the interpretation of the long-term trend of primary product prices.

In fact both arguments are irrelevant. For as long as production in agriculture remains as appallingly low as it is in most underdeveloped countries today there can be little hope for progress in any other sector. Before the structure of employment can be changed productivity in farming must be high enough to release workers to seek other occupation without the whole country starving. In Ghana in 1960 a farmer was producing enough food to feed one-and-a-half working people. At the same time population growth proceeded by between 1.7 and 2.7 per cent annually.[40] If agricultural production should increase enough to keep up with the rise in demand it would have to increase within seven years by no less than twenty per cent. However, if the farming population is to expand rather more slowly than the population of the country as a whole (because of the shift towards industry) and in addition to food the farmer is to produce agricultural raw materials for industry the increase in production will have to be not twenty per cent but thirty-three per cent within seven years. In other words, annual growth in agricultural production must rise to four per cent if any kind of growth is to be expected in the indus-

[40] The figure mentioned in the *Ghana Seven Year Development Plan* is 2.7 (p. 9), but according to other calculations the rate of growth is more likely to be between 1.7 (minimum) and 2.3 per cent annually.

trial sector.[41] But to achieve an annual growth of four per cent in agriculture in an underdeveloped country is a rather big order. It implies an extremely great educational and organizational effort in addition to a great deal of capital. Yet capital thus spent on agriculture will no longer be available for industry.[42] The Soviet example of the concentrated effort to promote industry at the expense of agriculture is completely irrelevant to the condition in the underdeveloped countries today. Productivity in agriculture was much higher in pre-revolutionary Russia than it is in any ex-colonial country today. In fact before the Revolution Russia supplied many of the industrial centres of Western Europe with corn. There were agricultural surpluses which could be utilized to feed the growth of industry. This is not the case of the underdeveloped countries in our time. Far from having any surpluses of the staple foodstuffs they are desperately short of grains and almost starved of proteins.[43] In summary it can be said that both the 'balanced' and the 'industrial' growth point of view are in agreement that some degree of government intervention

[41] The idea that cheap food may be imported is not really applicable in most underdeveloped countries because they have nothing with which to pay for the food imports except agricultural products. The idea may have a point where the region has some minerals to exchange for food. This may be the case in the oil-producing areas in the Middle East, e.g.

[42] Calculations made by Mr. Yair Roth, the manager of the Israeli Technical Assistance team of the State Farm Corporation in Akatsi, Ghana, and by myself, and which were essentially substantiated by other examinations, show that production cannot be increased by more than about twenty per cent through improved organisation and better methods of husbandry without some capital investments. (This does not exclude the possibility of raising output by more than twenty per cent with methods like those employed in modern China of *Levee en masse* to build water storage dams etc.). Some capital investment, however, can go a long way in reducing losses from storage pests (often up to 40 per cent of the crop) as Mr. W. V. Baker and myself have shown in our report on the losses of corn through weevils. The same is also true of capital investments in bush clearing by 'dozing'. If the farmers in bush country can be dissuaded from the traditional clearing method of burning and the bush were cleared by mechanical means, shifting cultivation could be very much reduced and the input 'land' increased about five times.

[43] As I pointed out at the United Nations Seminar of the African Institute for Economic Development and Planning in Dakar in 1964 (IDEP/ET/SUT/226) in underdeveloped countries it is necessary to terminate the reluctance to discuss agriculture which comes from a feeling that agriculture is associated with colonialism. In Denmark, a country with a national average *per capita* income equal to that of West Germany and UK (£.370), 23 per cent of the working population are employed in agriculture.

is necessary. Balanced growth in the sense of deliberate simultaneous investment according to a central plan has so far only been attempted in the Socialist countries under specific conditions. The other method was that by which the capitalist countries have achieved their progress in the past. The rising gap between developed and underdeveloped countries during the last five decades makes this kind of progress much more difficult. Still, within a favourable environment and with some government intervention, the profit motive of individuals may yet produce a path of growth whose direction we can foresee.

The third key problem is that of population. This problem has already been discussed at some length in an earlier chapter,[44] and was referred to over and over again in connection with *per capita* incomes. Colin Clark was quoted as writing that 'The law of increasing returns prevails in any industry where, as a consequence of an increased scale of output, we can expect to obtain increasing returns per unit of labour or other economic resources employed' and that 'probably the majority of industries in the modern community . . . are quite specifically benefited by increasing population.'[45] Against this J. J. Spengler can be quoted writing that 'population growth operates in four ways to retard the betterment of man's material condition. First, it increases the pressure of numbers upon a nation's land and resource equipment as of any given time. Second, it tends to accentuate this pressure through time by accelerating the rate at which the store of exhaustible and non-replaceable natural resources is used up and the costs of their use are increased. Third, it diminishes the rate at which capital can be accumulated, and this diminution is greatly accentuated when, as is the case in most overpopulated countries, much potential capital is utilized in maintaining for a few years children who eventually die before they reach a productive age. Fourth, given the rate of capital formation, the rate at which the equipment of the labour force can be increased is reduced.[46] Both Colin Clark's and J. J. Spengler's views may be correct, but they refer to different stages of

[44] 'The Classical Economists', Section on Robert Malthus.

[45] Population Growth and Living Standards. *International Labour Review*. August, 1953.

[46] J. J. Spengler, 'The Population Obstacle to Economic Betterment,' *American Economic Review, Papers and Proceedings*, May, 1951, pp. 350-351.

development and environments. In the poorer countries the Spengler view seems to be more prevalent; in the more advanced ones, that of Colin Clark. However, in any case there is little the economist can do about population trends, since they are part of a cultural pattern which is probably far more difficult to change than the rate of capital accumulation.

Finally the question of the prospects of economic growth in underdeveloped countries must be raised. How far can the wish for progress really be met? What is a realistic assessment of its limits within three, four or five decades? The Gross National Product of Thailand grew between the years 1947 and 1953 by close to 7.2 per cent per annum; that of Brazil and Mexico between 1945 and 1953 by 6.7 per cent and 4.9 per cent respectively; that of Colombia between 1945 and 1953 by 4.7 per cent. These are the outstanding examples of growth. The rates of growth in other developing countries were, for example, Malaya 3.9, Ceylon 3.3 and Pakistan 2.2 per cent. At this rate, it is sad to realize, it will take a very long time before any of the underdeveloped countries will reach a standard of living similar to that of the developed countries. According to one assessment[47] it would take forty-two years for the countries of Latin America to reach a *per capita* output of one-third of that of the United States today. However, the people of the Soviet Union in their heroic epoch of post-war construction, the people of England during the war, and the people of Israel in the last decade of the Mandate and first decade of their independent government, have shown that with the right attitude and determination the simple logic of the mathematical growth calculations is sometimes thrown overboard. Unfortunately however, there are some worrying trends discernible which cast a shadow on the prospects for development in many underdeveloped areas and particularly in Africa. On the one hand, there is a great deal of despondency among many Africans themselves. On the other, there is a distinct waning of the urge to help Africa in the developed countries. The progressives who felt that Europe ought to help the underdeveloped countries because European colonialism must at least partially be held responsible for the backwardness of that continent

[47] *Analyses and projections of Economic Development.* A study prepared by the economic commission for Latin America by the United Nations (New York, 1955).

have become disheartened in many cases. The neocolonialists who are looking for sources of raw materials and for markets in the poorer countries are losing interest because so many synthetic materials now replace the traditional natural ones and because African markets have become too poor relative to those of the affluent societies. The politicians and militarists have also lost much of their interest in the underdeveloped countries because the 'balance of fear' which is maintained by nuclear weapons nowadays makes the political and military orientation of the various countries in Africa far less relevant than it was thought to be a few years ago. Finally, the importance of all underdeveloped countries as an outlet for surplus capital to prevent a 'Ricardian' stagnation in the capitalist world has also disappeared, since boundless amounts of capital can be happily rocketed into space.

Only the hard work and the determination of the peoples of the underdeveloped countries themselves can produce the solution to their problem. God helps best those who help themselves.

FURTHER READING

Suggestions for further reading will be found in Arthur Hazlewood's two bibliographies *Economics of 'Underdeveloped' Areas in an annotated reading list of books, articles and official publications* (Oxford University Press, 1959) and
The Economics of Development: an annotated list of books and articles, 1959-1962 (Oxford University Press, 1964)

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