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FOREWORD

The first part of this volume follows the same pattern as Volumes II and III in this series, that is to say, it reprints a selection from among articles and reviews published over the last six or seven years. Some of these continue the debate about so-called capital theory; Professor Ferguson has kindly allowed a *Comment* of his to be included, so that the reader can observe his style of argument. The debate is wound up by a paper entitled *The End of the Controversy*. Other papers develop some special points in theoretical analysis or open up large and important questions such as *The Need for a Reconsideration of the Theory of International Trade*.

The second section of this volume reprints some papers from *Essays in the Theory of Employment*, which was published in 1936. These were written in the first flush of the Keynesian revolution. Keynes himself approved them and accepted amendments that they suggest in some formulations in the *General Theory*. They thus have some interest from the point of view of the history of ideas, but their main interest lies in the unfortunately topical nature of the subjects discussed, such as wage inflation and beggar-my-neighbour remedies for unemployment.

The third section reprints a little known pamphlet published by the Students Bookshop, Cambridge, in 1953.

The author thanks the Cambridge University Press for permission to republish 'The New Mercantilism', and 'Socialist Affluence'; the Editor of *The Indian Economic Review* for 'Economics versus Political Economy' and 'Marginal Productivity'; the Editor of *Australian Economic Papers* for 'Value and Price' and 'The Theory of Value Reconsidered'; the Editor of *Economic Journal* for 'Harrod after Twenty-one Years', 'Continuity and the Rate of Return' and 'The Measure of Capital: The End of the Controversy'; the Editor of the *Quarterly Journal of Economics* for 'The Badly Behaved Production Function' and the Editor of the *Cambridge Review* for 'Michal Kalecki'; the Editor of the *Cambridge Quarterly* for 'The Poverty of Nations'; the Editor of the *Monthly Review* for 'The Revelance of Economic Theory'; the Editor of *Kyklos* for 'Solow Once More'; the Editor of the *Canadian Journal of Economics—Revue canadienne d'Economique* for 'Capital Theory Up-to-Date', essays 16 and 16a.

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ESSAYS 1965–72

1

THE NEW MERCANTILISM[1]

I BEGAN to read for the Tripos in the last decade in which the doctrine of the universal benefits of free trade was still dominant. It was imposed upon our young minds as a dogma. We were being received into the fraternity of economists, who knew that free trade is right, unlike the silly plain man who supposed that protection might do his country good, and the misguided politician who supported the vested interests of particular industries. In the dark age before the light of Adam Smith dawned, there had been mercantilists who were both misguided, because they thought it proper for a government to operate in favour of the economic interests of its own country, though at the expense of others, and silly because they thought that it *was* in a country's interest to build up a trade surplus by restricting imports. When Keynes attacked the dominant orthodoxy, one of the things that grieved my teachers most was that he should try to rehabilitate the mercantilists, thus damaging the claim of the free-traders to superior benevolence and wisdom.

1

The economist's case for free trade is deployed by means of a model from which all relevant considerations are eliminated by the assumptions. Each country enjoys full employment. There is no migration of labour and no international investment, however great the differences in the level of profits in different countries may be. At the same time there is perfect mobility and adaptability of factors of production within each country. Perfect competition prevails. Fixed exchange rates are taken for granted. Equality between the values of imports and exports of each country is quickly established, in the face even of large disturbances, by movements of relative prices

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[1] *An Inaugural Lecture*, Cambridge University Press, 1966.

brought about through the international monetary mechanism. All this has to be granted before the argument begins. Yet prescriptions for policy were drawn from it, with great confidence, to apply to a world which by no means conformed to the assumptions.

In practice the policy seemed to work, in the era that ended in 1914, just because the assumptions of the model were not fulfilled. There was enough unemployment to keep money-wage rates in check. There were massive migrations reallocating the supply of labour between countries of low and high economic opportunity; and there was a continuous, though fluctuating, flow of international investment.

Investment was typically made by the enterprise of developed industrial countries looking out (under the guidance of prospective profit) for supplies of primary products. The finance and the imports required in the developing country came in the main from the same source, so that surpluses of exports offset the capital outflow. By the time that loan charges and remittances of profits in the developing countries began to outweigh new borrowing, a sufficient flow of exports to provide for them would be built up (barring errors and accidents) for the object of the investment in the first place was precisely to develop the production of commodities for export to the ever expanding market of the industrial metropolis.

In this way a broad general tendency prevailed to harmony between flows of trade and capital movements.

When perfect harmony did not prevail, discrepancies were not difficult to eliminate. London was the money market of the world; the income account for sterling, taking trade and interest payments together, was always in surplus. When a deficit appeared in the overall balance of payments, causing a loss of gold, it was only necessary to raise the bank rate and cut down lending from London to fit the surplus. There was no need for heavy pressure operating through prices on the balance of trade, in the manner postulated for the economists' model.

On the other hand a borrowing country, when it found capital inflow falling short of its import surplus, was automatically obliged to curtail expenditure until unemployment and falling incomes cut down its imports to what it could pay for. For these countries, eliminating discrepancies was very disagreeable but they were not yet provided with economists to make their complaints articulate.

For England, the general system of free trade, fixed exchange

rates, and uninhibited play of market forces was highly satisfactory as long as her economy held the dominant place in the expanding capitalist world. I say England deliberately for Ireland and Scotland suffered in the process.

We ought not to be surprised that what now seems such a flimsy construction as the economists' model should have appeared to hold so much weight and authority, for it did not really have to stand on its own logical base. It was the façade of a dogma with solid interests behind it.

In the 1920s, at the time when I was being brainwashed, the solid interests had already crumbled, for, in the immortal words of *1066 and All That*, after 1918 America became Top Nation, and that was a Bad Thing.

But the façade still stood. It was an eminent economist who persuaded the authorities that restoring the mere mechanism of the gold standard would restore the harmonious international financial relations in which it had been able to operate.

In the 1930s, the façade, along with the whole structure, was thoroughly pulverised in the great slump.

Each country, finding profits falling and unemployment growing, tried to save for itself a larger share in the shrunken total of world activity, by one means or another—tariffs, import quotas, subsidies, exchange depreciation and counter-depreciation—each exporting its own unemployment, as the phrase was, to the rest of the world. International trade was cut down all round relatively to home production, which itself had been drastically reduced. Over three years the total output of manufacturing industry in the capitalist countries fell by 40 per cent while international trade fell by 60 per cent.[1]

Certainly the free play of market forces was not operating, as in the model, to secure full employment and balanced trade for each country.

It was now seen that any one country that could succeed in cutting its imports (relatively to its exports) and substituting home production was so much the less badly off. Since all were trying to do it, none could gain much for long, but any that had refrained from joining the scramble would have found the world's unemployment being dumped upon it.

[1] See U.S.A. Department of Commerce, *The United States in the World Economy*, p. 170.

These considerations caused Keynes to repudiate the free-trade doctrine, which he had once preached as fervently as any. We know now that free trade is not an equilibrium state that would be reached if each country individually followed its own enlightened self-interest. It could be achieved only by mutually accepted self-denying ordinances, establishing a code of behaviour that would be good for all if each observed it.

It was found possible to show, even within the terms of the economists' model, that, when each country individually pursues its own individual interests, they will pile up tariffs against each other. In the final position, with trade restricted all round, no one, considered separately, is likely to be better off than they would have been if they had all agreed not to begin, and certainly, taken together, they are much worse off. It follows, within the terms of the model, where full employment is always guaranteed, that they should enter into a treaty which would impose free trade under the sanction of a mutually accepted rule.

But in reality, since full employment is not guaranteed, merely to agree to prohibit beggar-my-neighbour devices for checking imports and pushing exports would not be to the good of all. The same rule would inhibit also constructive remedies for unemployment from being undertaken by individual countries. When one country gives a boost to the world as a whole by increasing its home activity, its imports are liable to rise, while, until the rest of the world follows suit, the market for its exports is no better than before. In short it tends to develop a trade deficit, which it may not be able to finance. To be able to benefit the world by increasing employment at home, it must be free to reduce its *propensity* to import, so that its total *amount* of imports does not rise too fast. Of all bad-neighbourly conduct among trading nations, the worst is to go into a slump, and expedients necessary to prevent it have to be excused.

When the trading system for the capitalist world was being reconstructed after the last war, many agreements, such as GATT and IMF, were based upon the philosophy of mutual undertakings to avoid bad-neighbourly conduct of one kind or another, but it proved impossible to frame rules that would permit the right exceptions while ruling out the wrong ones.

The great slump is now a half-forgotten nightmare. Ever since the war, partly by good luck, partly by good management and partly by the arms race, overall effective demand has been kept from serious

relapses. Nowadays governments are concerned not just to maintain employment, but to make national income grow. Nevertheless, the capitalist world is still always somewhat of a buyer's market, in the sense that capacity to produce exceeds what can be sold at a profitable price. Some countries have experienced spells of excessive demand, but this corrects itself only too soon. The chronic condition for industrial enterprise is to be looking round anxiously for prospects of sales. Since the total market does not grow fast enough to make room for all, each government feels it a worthy and commendable aim to increase its own share in world activity for the benefit of its own people.

This is the new mercantilism.

The fact that a section of the world economy has contracted out of the market system and is growing up beside it, is helpful to it to some extent, for the socialist countries believe in the old free-trade doctrine that the purpose of exports is to pay for imports, and they are always willing to buy as much as they can sell. But political hostility and particular vested interests limit the amount of trade that they are allowed with the capitalist world, and so limit the amount of relief that they give.

For the rest, everyone is keen to sell and wary of buying. Every nation wants to have a surplus in its balance of trade. This is a game where the total scores add up to zero. Some can win only if others lose. The beautiful harmony of the free-trade model is far indeed to seek.

It is sometimes argued that the fact that common markets and free-trade areas are now in fashion proves that this is not an age of economic nationalism but just the reverse.

Adam Smith triumphed over the old mercantilists by observing that the division of labour depends upon the extent of the market. This principle has been vindicated beyond his wildest dreams by the economies of specialisation introduced by modern technology and the innumerable animal, vegetable and mineral products unknown in his day. For any group of producers, provided that they can be sure of adequate demand, the greatest possible specialisation is highly advantageous. And a large nation, with a large internal market within the orbit of its political control, has important economic advantages over a small one. The small nation has to weigh the prospects of gain from specialisation against the security of home production for home consumption, while the large nation can enjoy a great deal of both.

A group of nations that can succeed in agreeing to behave as if, for certain purposes, they were one, thus scores a benefit for all of them in competition with the outside world.

The larger and more various the free-trade area in which an economy grows up the more efficient it will be, but it is not at all easy for national economies, once grown, to make the mutual sacrifices required to create a common market. The experiences of EEC illustrate the fallacy of the doctrine that free trade comes about of itself through the operation of enlightened self-interest. Even the East European socialist countries, who accept planning for specialisation in principle, having been started off by Stalin on a false track of autarky, are finding it very difficult to move out of it into a rational system of trade.

2

The characteristic feature of the new mercantilism is that every nation wants to earn a surplus from the rest. I have already referred to the distinction between a country's income account and its overall balance of payments. Precise definitions are very tricky; rough and ready categories will serve for now. Expenditure on income account includes payments for imports, visible and invisible, interest and profits due to creditors overseas, and recurrent government outlay abroad on military installations, etc. Receipts are the corresponding items on the other side of the account. Capital outflow comprises loans of all kinds from home citizens and institutions to foreign, government grants, purchases of foreign securities, and finance for direct investment carried out overseas by home companies. These are all included in the general category of foreign lending. The corresponding items on the other side of the account are the capital inflow, or foreign borrowing for short.

When, over any period of time, net lending, in this wide sense, falls short of a surplus on income account, or borrowing exceeds a deficit, the overall balance of payments is in surplus and there is an inflow into the monetary system of the country concerned of internationally liquid means of payment, such as gold or dollar balances. When net lending exceeds the surplus on income account, or net borrowing falls short of the deficit, the country is losing monetary reserves.

Now one of the reasons why countries want to have a surplus on income account is that it makes it possible to have an overall surplus

so as to gain reserves. This is partly because an exact balance is not possible, and a surplus is a fault on the right side, and partly because it is highly desirable to have a good stock of reserves available to be paid out in an emergency, especially in these uncertain times when even the most respectable currencies are liable to sudden attacks of adverse speculation.

The free-traders used to mock at the old mercantilists for thinking that a country could grow rich by amassing treasure. The new mercantilists believe that it is not necessarily foolish to prefer to acquire sterile money rather than useful goods or profitable assets.

Apart from new mining, some countries can gain reserves only if others are losing them. (What is in effect a loss of reserves may take the form of accepting short-term liabilities, equivalent, as we used to put it, to an inflow of negative gold.)

At one time the United States was losing reserves quite cheerfully. Having an enormous surplus on income account after the war, American business got into the habit of financing investment abroad and American governments got into commitments of all kinds. The surplus failed to grow as fast as the outflow, till one fine day the United States found itself with an overall deficit and reserves flowing out. The stock of gold acquired from the overall surpluses of more than twenty years was grotesquely huge, and the American authorities did not object to letting it begin to go. This was the correct, good-neighbourly policy. It was a very great benefit to the surplus countries who wanted to acquire reserves. For some time they have been battening upon it. But no stock is inexhaustible to a one-way flow, even the American stock of gold. Over the last few years the authorities have begun to worry, and to cut down overseas payments, and call in receipts. The surplus countries that had become accustomed to an inflow of reserves are worried when it threatens to dry up, and curtail their outgoings in turn, so that a spasm of contraction runs through the world financial system.

There is a lot of talk nowadays about international liquidity; the total stock of the net reserves of all countries taken together has failed to grow with the money value of the total trade that it has to serve. This is certainly a serious problem and it should be solved. But to solve it will not cure us of mercantilism. However great the total supply of liquidity, there will still be a deflationary kink in a financial system in which every country likes to gain reserves and hates to lose them. This complaint used to be made against the old-fashioned gold

standard. Our modern sophisticated arrangements are haunted by it still.

The story of the American gold hoard is an illustration of how wrong Marshall was to choose as his motto *Natura non facit saltum*—nature does not proceed by sudden leaps. Economic history creeps in this petty pace from day to day, but over decades it can swing round sharp corners that leave equilibrium analysis gaping.

In the system of the new mercantilism, an inflow of reserves is a rather superficial aim. There are more solid reasons why a surplus on income account is advantageous. For one thing, it permits the home country's financiers to acquire foreign assets. Provided there is no fear of default, foreign assets are eligible from a purely financial point of view, simply because the world is larger and more varied than the home country. Finance can pick out the plums from a bigger pie. Even when default or confiscation sometime is vaguely feared, a profit rate which may be, say, 30 per cent per annum meanwhile, offers a good gamble.

The kind of capital outflow now in vogue is much unlike nineteenth-century colonial investment to supply exotic commodities for which there was a market already in view. Modern lending is largely mere placement—buying up assets that already exist. And when it is implementing real investment it is often investment to supply the recipient's home market, protected by tariffs or monopolistic conditions. For the receiving country this kind of investment may be an embarrassment. The remission of profits will put a burden upon its future balance of payments; and in this age of economic nationalism it is dangerous and disagreeable to be bought up by foreign interests. By the same token, the lending country is gaining something over and above a high return on its money.

The high return goes primarily to the financiers. The most important benefit from a surplus on income account, which affects the whole economy, is that, provided that there are energetic enterprises and thrifty capitalists to take advantage of it, it permits home investment to go full steam ahead, while a deficit country is nervously pulling on the brake for fear of excessive imports. Investment in the strong country brings technical progress which improves its competitive position and makes its balance of trade all the stronger, while the weak country slips into stagnation or suffers distressing spasms of stop and go.

There is another hazard that has been introduced into the game

in the post-war period. Partly because of long spells of near-full employment and partly because of a change in the internal balance of political forces, industrial countries have been experiencing a continuous process of rising money-wage rates. In the stagnant country, costs are pushed up, making its competitive position all the weaker, while the strong country can afford a greater rise, because output per head is increasing faster, and yet is subject to less pressure, because its workers' real earnings are visibly growing.

A strong country may find itself only too strong when the energy and competitive advantages of its industrialists give it such a large surplus that, from the point of view of the economy as a whole, home investment would offer a better use for its resources. An excessive surplus could be reduced, by appreciating the currency or allowing money-wage rates to rise faster, thus cutting down the competitive advantage that causes the excess. But this remedy cannot easily be applied in a measured dose. Industrial supply curves are usually horizontal, and the world demand curve at any moment strongly kinked. It is impossible to cut exports a little, by raising relative costs, without cutting them much too much. Even when its surplus is more than the country has a good use for, it would rather keep it than risk losing it.

Thus the authorities in each country, requiring to maintain employment for their own people and growth in their own national income, in the general environment of a buyer's market, have good reason to strive to gain a surplus in their trade and a rising share in world markets. In so far as some succeed, others fail.

Great Britain has been a notorious failure. I am not thinking of the sterling crisis and our troubles with the gnomes of Zurich, but of our continuous, obstinate, unmanageable tendency to run into a deficit on income account. This is not only due to the complacency of our businessmen and the touchiness of our trade unions, which put us into a weak competitive position. It is due to the corner in economic history that we have to go round. The rapid descent from the position of Top Nation, and the pyrrhic victories of two wars, have left us with a propensity to import greater than we can any longer provide for.

From our own point of view, the indicated remedy is to cut inessential imports, and to restrict consumption for a time while devoting research and investment to import substitution, as well as to modernising industry and education to improve our general efficiency.

For us this would not be too uncomfortable and might even be turned to good account. But for the other mercantilist nations it would be a sad blow. Their full employment and their growth depend upon surpluses that, directly or indirectly, depend upon our deficit. Our deficit and our falling share in world markets have been going on long enough for the economies of the rest to become adapted to them. A kind of quasi-equilibrium has been built round them, which will be violently upset when they are reversed. And there is bound to be a formidable back-wash upon our own position, partly from retaliation and partly from the automatic chain reaction throughout the rest of the world of a fall in demand following a fall in sales.

This does not depend on which particular remedies we apply. To cut imports is an immediate blow to the exporters concerned. Exchange depreciation is considered a breach of faith. Various methods of pushing exports were ruled out by mutual agreements to avoid beggar-my-neighbour policies. But suppose that we suddenly became very efficient and began to recapture our market by offering excellently designed goods at eligible prices. Our competitors would suffer just as much from a loss of sales and would be obliged to react just as sharply as if we balanced our own trade by any other means.

The remedy favoured by the monetary authorities of the world, including the gnomes, is the old-fashioned one of a credit squeeze, inducing a sufficient slump to cut down imports and enough unemployment to check the rise in wages. This method maintains the authority of finance over industry. Moreover, we were used, in the old days of free trade, to make deficit nations swallow this bitter medicine, and there is some *schadenfreude* in seeing us drink it now.

But this remedy is not only the most intolerable for us; it is the most dangerous for the others, especially now, when several countries for various reasons have had to slacken their rate of growth, so that an actual recession in any one might threaten the whole régime of near-full employment for all.

The actual sums involved in the British deficit, though serious for us, are not large in relation to the volume of world trade. With common sense and goodwill, it would be possible to limit the damage or even turn it to advantage. But there is no tradition to help us. The free-trade doctrine, ignoring the leaps and twists of economic history, simply denied that such a problem could occur. In the era of the new mercantilism the problem is recognised so well that all the world stands around shouting at us that whatever we do is bound to be wrong.

3

All this concerns the relations between the industrial capitalist nations. The greatest change that has come over the world since the war is the emergence of many new nations, existing at a low economic level, determined to begin to share in the benefits of modern technology. The most striking thing that modern technology has done for them so far is to reduce death rates, while leaving their primitive birth rates unchecked. A terrifying growth of population is making it all the more necessary for them to increase production.

Most were provided by colonial investment with one or two export commodities. This gives them something to start on. All but the most besottedly fanatical free-traders would concede their right to cut down inessential imports and use their export earnings to import know-how and investment goods to lay a basis for development.

Such earnings, however, are far from adequate. Technological developments have limited demand for the ex-colonial products, relatively to supplies available, partly because of the growth of synthetic substitutes and partly because the wealthy mercantilist countries foster their own agriculture, and keep as much of the market as they can to themselves. Commerce in commodities is conducted on competitive principles, while the prices of industrial products are administered on a cost-plus basis, so that they have been drifting upwards with the continuous rise of money-wage rates. The result has been sluggish growth in the sales of the ex-colonial commodities and a downward trend in their purchasing power over manufactures. Moreover, the free play of market forces, which in the economists' model produces an equilibrium beneficial to all, in reality generates unpredictable fluctuations in export earnings, that make consistent planning impossible and turn the choice of investment projects into a gamble.

Export earnings from commodities provide limited ammunition for growth, also, just because they were the product of colonial investment and are still earmarked to pay for it. This is markedly the case in the Latin-American economies, which came into a colonial relationship to the United States after they had won national independence from Spain and Portugal. Nowadays many of these countries are paying back 30 or 40 per cent of all their export earnings as profits and interest to foreign capitalists.[1] These payments are

[1] See United Nations, *Proceedings of UNCTAD*, v. 87–8.

being made, in the main, not for sophisticated know-how and up-to-date equipment supplied by the metropolitan industry, but merely for extracting their own natural wealth from their own soil.

Another legacy from colonialism which impedes development is the tastes and habits of the middle class that grew up within it. Having become accustomed to an imported style of life, these people find it very hard to give up imported consumption goods, so that such export earnings as do come in are not easy to mobilise for investment.

In spite of these limitations, considerable development has gone on and many amongst the new nations are beginning to export industrial products. Now they come hard up against the mercantilism of the wealthy countries, who hate cheap imports.

When England was the leading exporter of manufactures, India, for instance, in the sacred name of free trade, was forbidden to protect her handicraft workers or foster her infant capitalist industry (though protection for infant industries was admitted as an exception in the economists' doctrine). When a duty on imported cloth was imposed for revenue purposes it had to be offset by a corresponding excise to prevent local production from enjoying a competitive advantage.

The free-traders argued that the manufactures from Lancashire were far and away cheaper and better than homespun so that it was a clear benefit to the Indian consumer to allow imports to undercut and wipe out handicraft production. They failed to notice that, while the Indian economy had to bear the whole cost of the imports, the consumer gained only the difference; at the same time the handicraftsman was thrown into agriculture, already over-supplied with labour, and lost his earnings to his rival in Lancashire.

Now the boot is on the other foot, and Lancashire is being undercut by cheap imports. Free trade is no longer in fashion and Lancashire has to be protected. To do ourselves justice, we have gone much further than other well-to-do nations in permitting manufactured imports from developing countries, though by no means going to the whole length of free trade. In general the new mercantilist system is brutally obstructive to them.

It seems after all that the free-trade doctrine is just a more subtle form of mercantilism. It is believed only by those who will gain an advantage from it.

Nowadays the wealthy capitalist nations make a great thing of the aid that they are giving to the new nations. Military aid, intended to

steel them against Communism, actually encourages them to go in for cold or hot wars against each other, which is most inimical to economic growth. Much of the civilian so-called aid is made on financial terms which are building up a Latin-American situation for the future in Asia and Africa, though here, once more, we can take credit for starting a line in interest-free loans. Even aid which is really a gift is not unambiguous. Individuals who advocate and administer aid to the developing countries are sincerely concerned to help them to overcome poverty and to establish their independence, but the programme as a whole is based upon a contradiction. Its underlying purpose is to prop up a number of conservative, feudal and fascist governments, which can be relied upon in return to respect foreign property. In short the aim of aid is to perpetuate the system that makes aid necessary.

If the wealthy countries were genuinely anxious to put the new nations on their feet they would use their funds to compensate the capitalists at home, and present the developing countries with the equity in their own resources; and to find alternative employment for the workers at home so as to be able to permit and encourage imports.

But this would be a complete reversal of the new mercantilist system. In each era the rules for international economic relations are moulded to suit the views of the country that is then the most powerful. Therefore it is generally impossible to get the rules altered.

The Russian people have a way of expressing their view about the Soviet régime by passing around extremely acid jokes. There was one after the first manned sputnik. A journalist comes to interview Gagarin's wife: 'And how did you feel when your husband went up into space?' 'I was not there. I was out queueing for milk.' 'Well, how did you feel when he came down?' 'I had not got back yet.' The joke is not really against the Soviets but against the modern world. Considering the fantastic technical mastery and lavish expenditure shown by investment in horror weapons, and supersonic flight, and the moon race, surely with a little common sense and goodwill we could relieve all the housewives of want and discomfort. But it would have to be genuine common sense and genuine goodwill, not a disguise for national interests.

This inaugural lecture was delivered in the University of Cambridge on 15 October 1965

2

THE NEED FOR A RECONSIDERATION OF THE THEORY OF INTERNATIONAL TRADE

THERE is no branch of economics in which there is a wider gap between orthodox doctrine and actual problems than in the theory of international trade.

1

The argument is usually conducted in terms of static comparisons of equilibrium positions of a model which has the following characteristics. There are two countries which represent the whole trading world. Each country is in stationary equilibrium with given 'resources' fully employed. There is perfect mobility of labour between occupations within each country and no mobility between countries. The value of imports is equal to the value of exports.

These characteristics of the model exclude discussion of any question which is interesting in reality.

Even within the terms of static comparisons, it is necessary to consider at least three countries before any general conclusions can be drawn. Propositions intended to show that some change is inevitably beneficial to all concerned cannot be demonstrated for more than two partners. For instance, an increase in efficiency in producing an export commodity in country A, within the conditions of the model, benefits B and C taken together, but if C was exporting the same commodity it is likely to be injured. Furthermore, the model applies only to trade between countries at the same level of industrial development; it was ill-suited to dealing with the importation into an industrial metropolis of primary products from colonial and quasi-colonial dependencies, though this in fact formed the great bulk of trade at the very time when teaching derived for the model was in its greatest ascendancy. (Nowadays the traditional arguments are being used to indoctrinate the intellectuals of the ex-colonial nations.)

The analysis conducted in terms of stationary states leaves out development, accumulation and technical change. It leaves out the

shock effect of change and the process of readjustment. However drastic the change in the pattern of trade, equilibrium has always been restored before the discussion begins.

The assumption of full employment rules out the problems of effective demand. The capitalist world (except in rare moments of strong boom) is a buyer's market. Normally every industry has productive capacity for more output than it can sell. From the point of view of a national economy, exports promote employment and profits; imports reduce them. The comforting doctrines that a country 'cannot be undersold all round' was derived from the postulate of universal full employment. The argument consists merely in assuming what it hopes to prove.

Finally, the assumption that, for each country, the value of imports is necessarily equal to the value of exports rules out the problem of maintaining the national balance of payments which has been the great preoccupation of economic policy from the earliest times.

The aim of the traditional theory was to establish the beneficial effects of free trade. This was eagerly accepted by orthodox opinion in the country which had the most to gain from open markets for its exports. But in fact the case was made out by assuming away all the difficulties and all the aims which in reality give rise to protectionist policies.[1]

The model is usually operated in terms of a comparison between a situation in which each country is isolated, consuming only its own products, with a situation in which trade is taking place, in equilibrium without any difference in the 'resources' or the 'tastes' of the two communities. Since the model was constructed for the purpose of a polemic against protection, the argument focuses on the case where the same commodities are produced in both countries. Protection would not arise unless a country could produce at home goods which others export. The import of exotic commodities did not need to be defended, and in any case, economic geography does not lend itself to the high abstractions of pure theory. Professor Samuelson's remark, that the production of tropical fruit in the tropics is due to the prevalence of tropical conditions there, was not intended to draw

[1] Even within the terms of the orthodox model, they could not succeed even in proving that free trade is necessarily best for *each* country, because of Bickerdike's objection. Cf. Joan Robinson, 'The Pure Theory of International Trade', *Collected Economic Papers*, vol. 1, p. 197.

the reader's attention to a major aspect of world trade, but rather to dismiss it as uninteresting.[1]

2

Ricardo set out the case against protection in terms of two countries, England and Portugal, each capable of producing both wine and cloth. The argument implies that there is a constant amount of labour in each country which can be shifted from one line of production to the other without difficulty or loss. (Even when he takes the example of wine, there is no problem of specliaised land. Constant returns prevail for each commodity up to full employment of the whole labour force.) There are different production functions (in modern jargon) in the two countries. Output per head of wine in Portugal relatively to output per head of cloth is greater than in England. Thus total output is increased when trade permits labour to be moved into production of wine in Portugal and cloth in England.

The relative prices of the commodities in each country are proportional to labour cost. (The rate of profit and the value of capital per man, in each country, are the same for both commodities.) Since the relative prices are different, it is impossible for both to rule in a free market. To work out the equilibrium position that the assumptions entail, we have to introduce the conditions of demand. If England consumes more wine than Portugal can export, she must produce some wine herself. The world price of wine in terms of cloth, in the final position, is then set by conditions of production in England. Portugal becomes specialised, exporting wine and importing cloth. She gains on the terms of trade in respect of all her imports. (Portuguese wine sells at the same price as English, which is dearer in terms of cloth.) England gains in respect of the part of her requirements of wine which she can get by exporting cloth, since this uses less labour per unit than wine produced at home.

Contrariwise when Portugal is the country producing both commodities. In the borderline case where each country produces only one commodity, the division of the benefit between them depends solely on the conditions of demand, and relative prices are no longer governed by costs of production.

For Ricardo, the rate of profit on capital depends upon the labour-cost of producing the necessary real wage. Where the

[1] 'International Trade and the Equalisation of Factor Prices,' *Economic Journal*, June 1948, p. 182.

imported commodity is a wage good, trade tends to raise the rate of profit. (This was a point of great importance in his campaign against the corn laws.)

He provides a mechanism to ensure balanced trade. In his scheme the rate of profit, in general, will be different in the two countries; if this occurred between districts within one nation, there would be a movement to invest where the rate of profit was higher.

'Experience, however, shews that the fancied or real insecurity of capital, when not under the immediate control of its owner, together with the natural disinclination which every man has to quit the country of his birth and connexions, and intrust himself with all his habits fixed, to a strange government and new laws, check the emigration of capital. These feelings, which I should be sorry to see weakened, induce most men of property to be satisfied with a low rate of profits in their own country, rather than seek a more advantageous employment for their wealth in foreign nations.'[1] It follows that an excess of imports has to be paid for in gold. The surplus country, receiving gold, experiences a rise of prices and the deficit country, losing gold, experiences a fall, until the value of goods traded between them is brought into balance.

Whether convincing or not, Ricardo's analysis is perfectly clear. The model in Marshall's *Pure Theory of Foreign Trade*, expressed in terms of 'offer curves', is not so easy to grasp. He refers to the *Pure Theory of Domestic Values* for the analysis of costs and prices in each country, but this theory is an inextricable mixture of static and dynamic elements. 'Increasing returns' is the result of investment and technical progress going on through time as the output of a particular commodity is growing. How can this be fitted in to the comparisons of static equilibrium. He was aware of the contradiction but did not feel able to deal with it.[2]

To make sense of his system, it seems to be necessary to confine the argument to the case in which each particular commodity is produced 'under conditions of diminishing returns', that is, where labour cost per unit is an increasing function of the level of output, presumably because each requires some specialised ingredient which is in limited supply. (A footnote[3] promises an appendix which will explain the meaning of 'cost of production' but it is nowhere to be

[1] *Principles*, p. 136–137 (Sraffa's edition).
[2] *Pure Theory of Foreign Trade*, p. 27.
[3] *Ibid*, p. 2.

found.) On this basis, the analysis can be explained as follows. Two countries (which comprise the world) have different production functions for the various commodities. Each country has at least one commodity for which its productive capacity is limited relative to demand at home and at least one for which productive capacity exceeds demand. In a position of equilibrium with balanced trade, world prices (and the national incomes of the countries) are such that the cost at the margin of a unit of each commodity in each country is equal to its price in the world market (allowing for transport costs). Each country supplies part of its consumption of its high-cost commodity, importing the rest, and consumes part of its low-cost commodity, exporting the rest. The position of equilibrium is such that if either country were to export a little less, the cost at home of its commodity would be lower and the demand price abroad would be higher. Similarly, if it were to export a little more, its costs would be higher and its demand price lower; the equilibrium volume of trade is determined by the rule that supply price is equal to demand price for each commodity on the world market.

But this argument is completely hollow. There is no mechanism to make trade balance; it is merely assumed that the value of exports is equal to value of imports. Marshall refers to the fact that the rate of profit obtainable in one country must be the same for each commodity, but he says nothing about the rate of profit in the other. He does not discuss what would happen if the rates of profit were different. (Writing in the great age of British overseas investment, he could not very well use Ricardo's argument as an excuse for not discussing the subject.) In his monetary writings Marshall relied on the argument about flows of gold, but in his *Pure Theory* he merely postulates that trade is always balanced. The apparatus of offer curves was intended to elaborate and refine upon the simple system of labour-value prices but Marshall only succeeded in producing a degenerate version of Ricardo's model.

Samuelson's version of the Hecksher-Ohlin theory is still more degenerate.[1] In this model the production functions are everywhere the same; countries differ only in respect to their 'factor endowments'.

It was on this basis that Samuelson produced the theorem that, in equilibrium, with two factors, two countries and two commodities, either at least one country must be specialised, or, if both commodities

[1] *Op. cit.*

are produced in both countries, the 'factor prices' must be the same in both countries. (Harrod pointed out that this depends on one more assumption than Samuelson had slipped in—that the production functions are such that the commodity which is more labour intensive at one level of 'factor prices' is so at all levels).[1]

Samuelson called the factors of production labour and land but the argument is usually developed in terms of labour and 'capital'. Each country is endowed with a lump of 'malleable capital' which can be used in various proportions with labour and the 'factor prices' which are equalised, or not equalised, are the wage rate and the rate of interest. This was the neo-neoclassical system in its hey-day. Recently, this conception of capital has retreated from criticism into a 'one-commodity world'[2] which presumably would not allow any scope for trade, though it has been argued that there might be a one-way movement of savings of the commodity from the country where its 'marginal productivity' was lower to be invested in the other where it was higher.[3]

3

Ricardo relied upon adjustments of price levels to keep trade in balance. We can make some sense of this without resorting to the Quantity Theory of Money if we substitute money-wage rates for gold flows as the equilibrating mechanism. If there is near-full employment when trade is balanced, a surplus of exports generates an excess demand for labour which drives up money costs and (with fixed exchange rates) reduces the competitive advantage of the country. In a very broad, long-run historical sweep, this tendency evidently works—high output per head, comparing one region with another, goes with high money-wage rates and therefore high real wages in terms of tradable goods. But the tendency is weak, sluggish and irregular. At any moment there is certainly not balanced trade between the various areas of the habitable globe that happen to be under separate national governments—there is an ever-changing pattern of deficits and surpluses.

Moreover, Ricardo's doctrine that gold flows in when there is a surplus of exports and out when there is surplus imports, which may have been not far wrong in his day, was quite false when it was

[1] 'Factor-Price relations under free trade,' *Economic Journal*, June 1958.
[2] Cf. R. M. Solow, *Growth Theory* (Oxford 1970).
[3] See below, p. 22.

repeated by Marshall and Pigou. An inflow of gold (or gain of reserves) occurs when the outflow of finance is less than the surplus in the balance on income account (including interest and dividends as well as visible and invisible trade), or when the inflow of finance is greater than the deficit on income account. The operation of the gold standard mechanism was to keep flows of lending in line with income balances. A centre that was lending too much or borrowing too little raised its interest rate. Since there was perfect confidence in exchange rates, small differences in interest rates were sufficient to redirect the flow of finance. But this mechanism would not have been strong enough to do its work if there had not been harmony in the main between flows of trade and flows of finance.

In the latter part of the nineteenth century, the appearance of equilibrium was maintained just because trade was not balanced. The British economy had a continuous surplus on income account which was matched by an outflow of finance. The borrowing countries enjoyed a surplus of imports while investment was being carried out within their frontiers and since the main aim of investment was to open up sources of primary products for which there was a profitable market at home, the subsequent development of an export surplus permitted the service of loans to be financed.

Since 1914 the kaleidoscope of economic history has been continually shaken; the pattern today is greatly changed.

We are now in the era of modern capitalism when every industrial country has a national economic policy of near-full employment and growth of GNP. Every industrial country wants a surplus on income account. 'Export lead growth' is the most convenient way of running modern capitalism. Who succeeds at any moment is accidental, largely depending upon historical circumstances and political and psychological influences. Success leads to success and failure engenders failure.

There is no longer any underlying harmony between the flows of finance and the pattern of surpluses and deficits on income account. For instance, sterling is weakened by institutions and habits geared to overseas investment while the British economy suffers from a chronic tendency to run into a deficit, and Germany fails to develop a sufficient outflow of finance to prevent her surplus from making the mark exchange rate uncomfortably strong. The British economy goes through agonies to get rid of an unwanted deficit while fear of inflation prevents the German authorities from playing the old rules

of the game, that is, to lower interest rates when reserves are accumulating. The new rules of the game—changing exchange rates—are slow, clumsy, and uncertain. The international monetary mechanism is being set problems too hard for it to solve.

There is a further source of discrepancy in balances of payments. Just as the issue of currency notes represents an interest-free loan from the citizens of a country to their government, so the reserves and working balances of foreign and colonial institutions and businesses, held in a metropolitan financial centre, represent loans to that economy. The country whose currency is used as a world medium of exchange is able to support an outflow of finance in excess of its surplus on income account as long as the world's requirement for balances is growing.

The prestige of sterling survived the strength of the British economy; for long periods her deficits were partly covered by loans from her dependencies, and, after 1947, from the so-called developing nations which succeeded.[1] The role of sterling as a reserve currency came to a final end with the devaluation of 1967. Now sterling balances have to be guaranteed in terms of dollars. The American dollar is effectively the only world curency.

The appetite of the great American corporations for overseas investment is strong; the American economy can support an outflow of finance greatly in excess of its surplus on income account, the difference being offset by an accumulation of foreign-owned dollar balances. This system is known as 'borrowing short and lending long'. It undermines confidence and threatens the stability of the currency so long as there is something to fly into; for the time being the demand for dollars has been propped up by effectively demonetising gold, but this system somehow lacks the appearance of the solid respectability of the old gold standard managed from London before 1914, and doubts are expressed from time to time as to how long it will continue.

The greatest obfuscation of the orthodox theory was in its treatment of foreign investment. The concept of 'capital' as a factor of production implied that when one country lends to another it is transferring real resources to it.

In the neo-neoclassical revival of pre-Keynesian theory, invest-

[1] However, the great bulk of war time borrowing in the form of accumulated balances was paid off in 'unrequited exports' which made a contribution to the development of the countries concerned.

ment is determined by the desire of society to save, under the influence of time preference. Capital consists of lumps of putty and the rate of interest is determined by the ratio of putty-capital to labour, being equal to the marginal productivity of putty.

In this scheme of ideas, international capital flows consist of exports of putty from one country to another.[1] A rich, high-wage country had a high putty-labour ratio and a low rate of interest. Therefore it exports its putty-savings to a country with a higher rate of interest. Savings of putty, it seems, are put onto a boat and sent to be used as putty-capital in the low-wage country.

Now, it is true that 'capital', in the sense of capital goods, say steel ingots or machine-tools, may be put onto a ship and sent from one country to another, but this is not necessarily associated with a movement of 'capital' in the sense of finance, for the goods may be paid for by visible or invisible exports going in the opposite direction. On the other hand, finance may pass from one country to another to be expended exclusively in employing labour and buying property on the spot, so that there is no movement of capital goods.

A country which receives an inflow of finance is not receiving a supply of a factor of production called 'capital', it is enjoying the possibility of running a surplus of imports or amassing monetary reserves.

The latter case has been much discussed in recent times. Under the old gold standard, net lending for any country was restricted to equality with its surplus on income account. Nowadays the operation of the international monetary system permits an outflow of long-term lending from the United States in excess of its surplus; it follows that other countries are receiving loans in excess of their deficits. Thus the French complain that the American corporations take over businesses in France or instal branches to compete in their market, while all that the French economy gets in exchange is dollar balances of which they have too much already. Their proper reply, of course, within the rules of the game, would be to set about buying up American industry in return; or like Japan, they might excuse themselves from the rules and keep foreign capital out; since the French do not feel able to do either the one or the other, they complain that the game is unfair.

In the case where borrowing is covering a deficit on income

[1] Cf. N. C. Miller, 'A General Equilibrium Theory of International Capital Flows', *Economic Journal*, June 1968.

account, there is a certain sense in which savings are being exported from one country to another. The deficit country is absorbing more, taking consumption and investment together, than its own production; in this sense its economy is drawing upon savings made for it abroad. In return it has a permanent obligation to pay interest or profits to the lender. Whether this is a good bargain or not depends upon the nature of the use to which the funds are put. If they merely permit an excess of consumption over production, the economy is on the road to ruin. If they permit an excess of investment over home savings, the result depends upon the nature of the investment. The colonial type of investment, developing animal, mineral and vegetable products to supply the metropolitan market, and transport to move them, was, of course, made in search of profits and was generally handsomely rewarded, but it could, in a certain sense, be said to 'create wealth' which would not otherwise have come into existence. When the colonial regions became independent 'developing countries', the consequent export earnings, minus the profits being remitted, provide ammunition for their development plans; some make bold to keep the profits as well.

The colonial type of investment is still going on (notably from Japan in Australia)—but nowadays (apart from oil) the greater part of overseas investment is looking for markets rather than supplies of materials.

When an American corporation sets up a subsidiary to sell consumer goods say, in Mexico, what does the local economy gain? There is an inflow of finance, which will have to be paid for later by remission of profits. This is a very expensive form of borrowing. The inflow of finance is generally only a small part of the capital acquired, for it is supplemented by borrowing locally. Part of profits may be reinvested on the spot. This may be a benefit to the local economy as far as it goes, but the new capital so created belongs to the parent corporation; it will give rise to additional profits which will increase the amounts to be remitted in the future. Perhaps the corporation supplies know-how and efficient management, so that, while paying the same wages, it can make a higher rate of profit than local industry. This is the point claimed in its favour. But the local economy is charged with the whole profit on the investment, not only with the extra bit due to its embodying foreign methods of production. Legally the local government is free to tax profits accruing within its borders but, for obvious reasons, this power is sparingly used. More-

over, the remission of profits is likely to involve a 'transfer burden', since investments of this type are not directly building up future export earnings to implement the remission of profits. There is a strong presumption that the so-called developing countries would be better off if they financed their investments themselves, even though at a slower rate and with less advanced technology than the foreign firms provide. The doctrine of the advantages of free trade favoured the country which was first in the field with manufacturing industry; the doctrine of the advantage of free capital movements favours the country whose firms command the greatest fund of finance.

Once we have seen through the neo-neoclassical fallacy that 'capital' is a factor of production there is a great deal of rethinking to be done.

3

ECONOMICS VERSUS POLITICAL ECONOMY

WHY are the academic economists always nagging away at Marx's system of analysis? If, as they maintain, it is all a tissue of fallacies, why do they not leave it to moulder away with other antiquated doctrines instead of feeling obliged to combat it as though it were a modern heresy, freshly produced by some young contemporary?

No doubt, they intend, by presenting Marx's thought as erroneous, to neutralise its appeal to generous youth; and by picking holes in Marx's logic to satisfy their pupils (a grand *non sequitur*) that therefore the orthodox neoclassical scheme must be correct.

Professor Gottheil takes great pains to set out, clearly and drily, the outlines of Marx's economic analysis. He lists the predictions that Marx made from time to time about the development and collapse of capitalism and traces their connection with the theoretical scheme. For instance:

> Marx forecasts the worker's fate under capitalism. . . . He predicts that their standard of living will decline and that this decline will create, then intensify, the class struggle. These predictions, like the other major forecasts he set down, are presented to the reader as logical derivatives of his theory of wages and employment; they are constructs from his theories of price, profit, and capital accumulation.

This suggests that Marx, like any modern neoclassical economist, sets up a 'model' on arbitrarily constructed assumptions, and then applies 'results' from it to current affairs, without even trying to pretend that the assumptions conform to reality. Marx did not work that way. He was peering into the world around him, trying to understand its mode of operation. His theory formalised what he believed to be the case. He did not 'construct' his beliefs from his theory.

A review of *Marx's Economic Predictions* by Fred M. Gottheil, Northwestern University Press, 1966, and *Input-Output Economics*, by Wasily Leontief, New York, Oxford University Press, 1966. *Indian Economic Review*, April 1968.

In particular, Marx did not 'construct' a theory of prices based on labour value. He took it over from Ricardo as an established, orthodox doctrine and it seemed to him obvious. What he saw in it was a clue to the determination of wages, profits and accumulation in the process of industrialisation. All commodities exchange at their *values*: that is, in proportion to the labour-time required to produce them, and this is true also of labour power itself, since wages must provide the subsistence of the worker. The surplus which accrues to the capitalist as profit is the excess of the *value* of net output over the *value* of the labour power that produced it. Thus the theory of *value* is used to describe the distribution of the proceeds of industry between what the academics call 'the factors of production'. This type of distribution is the pecularity of capitalism. Under feudalism the surplus was extracted as land rent. In an artisan economy each commodity is produced by a man with his own tools; the distinction between wages and profits has no meaning there. In a visionary future, under socialism, exploitation will cease; the workers will organise production for their own benefit.

Marx loads his analysis with moral indignation but at the same time he provides the justification for capitalism as a necessary phase in economic development. The feudal landlords consumed the surplus; capitalists invest it, and competition amongst them is constantly inducing them to increase productivity. Joseph Schumpeter realised that by changing only the adjectives, it is possible to convert Marx's argument into an adulation of capitalism.

But the academic economists, for the most part, reject that line of defence. The old-fashioned text books used to begin with Robinson Crusoe satisfying his wants in the most economic manner by allocating his time between fishing and gathering coconuts according to the marginal principle. This provides a parable of the operation of a modern economy. The concept of social harmony, of the competitive system producing the maximum benefit to society as a whole from given resources, is still the central core of academic teaching.

* * * *

The theory of the relative prices of commodities based on labour *value* is a side issue, but it has been the main butt of academic criticism. The rate of profit on capital must be more or less uniform throughout a competitive market economy; since different commodities require different amounts of value of capital per man employed, prices cannot be proportional to wages cost alone. Where the capital

to labour ratio in a particular line of production is greater than the average in the economy as a whole, the ratio of profit to wages must be correspondingly greater.

Nineteenth century critics of Ricardo tried to deduce from this that capital as well as labour produces *value*. (The labourer is worthy of his hire and the capitalist is worthy of his profit.) But this is to carry the argument onto a metaphysical plane. In a simple straightforward sense, all it means is that business men try to avoid investment in lines where it is not possible to charge prices that yield a profit as good as could be obtained elsewhere.

Marx did not regard this modification of the theory of relative prices as contradicting the essential point of labour *value*. The overall ratio of profits to wages is determined by the rate of exploitation, and competition shares out the profit in different lines so as to equalise the rate of profit on the capital invested in each.

When Engels was editing the notes for Volume III of *Capital* he gave out in advance that Marx had some quite new way of reconciling a uniform ratio of profits to wages with prices proportional to labour *values*, but when it came out, it appeared to be a mere rigmarole. This has caused the smart Alecks to mock ever since.

But however clumsily Marx put the point, there is surely a great deal of sense in it. The overall ratio of profits to wages *is* determined by the overall strategic position of employers and employed. How else can we account for the fact that the share of wages in the value of net output in organised industry is reckoned to be less than 20 per cent, for instance, in Costa Rica, 40 per cent in Japan, 55 per cent in U.S.A., and 60 per cent in Australia.[1] What else is there that makes these various societies 'decide to spend on labour power' such different 'portions' of their proceeds? The academics find logic-chopping objections to Marx's answers to such questions as an excuse not to ask them.

* * * *

It is true that Marx did use his own system clumsily. He admitted that under capitalism the prices of commodities are not proportional to *values*. The normal level, round which the market fluctuates from day to day, is set by the 'prices of production' which permit a uniform rate of profit, but this often slips his mind. The schemes of reproduction, which analyse the transactions between the investment-good

[1] *Patterns of Industrial Growth* 1938–58, U.N. Department of Economics and Social Affairs, 1960.

sector and the consumption-good sector of an economy, and the allocation of investment between them when accumulation is taking place, are set out in terms of arithmetical examples based on *value*, with different rates of profit in different sectors of the economy. Gottheil, although he gives a more reasonable account of Marx's theory of prices than most, picks upon this mistake as a sufficient reason for rejecting the schemes altogether. This is a weak point in his survey of Marxian analysis, for these schemes, with the necessary corrections and elaborations, are the basis of all modern theories of economic growth; they have been much in vogue amongst the academics ever since Professor Domar rediscovered the model of the Russian economist F'eldman. They were used by Michal Kalecki in his analysis of fluctuations, which is the basis of all modern trade cycle theories. They are the basis of the theory of prices in a socialist economy—the amount of surplus collected from the value of goods sold to the public is governed by the expenditure out of incomes earned in investment, defence, administration and social services, going to the moon, etc. And they are the basis of Professor Leontief's input-output economics.

Marx did not have very much to say about the economics of socialism. As Kalecki once remarked, it was not his business to write science fiction. Moreover he thought of the working class taking possession of a going concern after capitalism had fulfilled its historic task of development, so that accumulation would not be the main task facing a socialist economy. When the Soviets, having got rid of the capitalists, had to set about planning the process of industrialisation, they immediately found that the limiting factor in every line of production was the supply of materials. Both for current activity and for investment planning it was necessary to operate in terms of the balances of outputs of commodities against requirements. Marx's scheme of intersectoral transactions provided the framework within which this principle could be elaborated. Professor Leontief transplanted it in the United States, and adapted it to the analysis of transactions within a market economy.

The basic idea, once seen, is very simple. Transactions between the departments of an economy are

> set up on a matrix of horizontal rows and vertical columns. The horizontal rows of figures show how the output of each sector of the economy is distributed among the others. Conversely, the vertical

> columns show how each sector obtains from the others its needed inputs of goods and services. Since each figure in any horizontal row is also a figure in a vertical column, the output of each sector is shown to be an input in some other. The double-entry book-keeping of the input-output table thus reveals the fabric of our economy, woven together by the flow of trade which ultimately links each branch and industry to all others.

With the post-war development of national statistics all over the world, this method has made a very great contribution to knowledge of the structure of various economies.

In the nature of the case, the table is completely neutral on theoretical questions. The entries are made in money values at whatever prices happened to be ruling at the date to which the statistics apply. It cannot offer any explanation of how they came to be or what will make them change.

Leontief himself is a devoted believer in the neoclassical equilibrium theory:

> How does this system operate? How does it solve its problems? It solves them by a trial-and-error method. A competitive economy can be viewed as a gigantic, natural computing machine which tirelessly grinds out solutions to an unending stream of quantitative problems automatically fed into it. It allocates labour, capital, and natural resources among all the different branches of production. It determines automatically which industry should expand and which contract its output, which corporation should invest and which go out of business.

But he does not even notice that the question *cui bono* may arise.

From time to time Professor Leontief wakes up and hits some particular nail on the head with robust common sense, as in his article on the effects of automation,[1] but most of the time he is dreaming to the lullaby of harmony and equilibrium.

One of the most fanciful constructions of this school of thought is the treatment of international trade in terms of 'factor endowment'. A country with plenty of cultivable land and scarce labour will be likely to have low rents, high real wages and an advantage in exporting agricultural products. Similarly, according to this argument, a country that has plentiful capital will have a low rate of profit and an advantage in exporting 'capital-intensive' goods.

[1] *New York Review of Books*, Dec. 15, 1966.

Leontief, in two articles which form the *pièce de résistance* in this volume of collected papers, sets out to examine the factor-endowment theory by means of his input-output method.

He investigates the effect of a notional cut in imports and in exports of the United States of a billion dollars, distributed proportionally over all commodities (excluding exotics such as coffee) and calculates how much labour and capital would be released from exports and would be required to replace imports. The transfer of capital is, of course, purely notional, based on estimating the value of productive capacity and stocks on each side of the account; it does not express the amount of investment that would be necessary to do over the equipment now in being to meet such a change in requirements (Leontief is not altogether precise in distinguishing the cost of investment in new capacity from the written-down value of existing installations).

He finds that the amount of labour released from exports, on this calculation, is greater and the amount of capital less, than is required to replace imports. (The capital to labour ratio, on average, turns out to be somewhat lower in exports than in import substitutes.) This he presented to the world as a great paradox, because, as the United States is notoriously rich in capital, it should be exporting 'capital-intensive' goods and importing 'labour-intensive' goods. The first article aroused much discussion when it appeared; in the second he reaffirms his results with some elaborations.

He proposes to resolve the difficulty in a typically metaphysical style. Since labour in the United States is more efficient than elsewhere, it should be counted as correspondingly more. The United States would then appear as exceptionally well endowed with labour, and the paradox would be resolved.

But what is the paradox? The United States has a considerably higher value of capital per man employed, but, if anything, the general overall rate of profit is somewhat higher than elsewhere, in moderately prosperous times. Money-wage rates are also considerably higher. This entails a value of net output per man (which covers wages and profits) much higher in U.S.A. than in other industrialised countries within the market economy. When comparable products are sold at competitive world prices, it follows that physical output per man is correspondingly higher. This may be accounted for by greater specialisation in a large market, greater efficiency of management, a labour force more responsive to money incentives, better design of

plant and a faster rate of scrapping of obsolete designs, as well as by more physical capital, as measured for instance by horse-power per man employed.

In so far as similar goods from different sources enter into trade, U.S. exports must be in lines where these particular American advantages tell most, and imports where they tell least. There is nothing paradoxical in finding that the advantages tell even more in respect to equipment than to labour, so that the most successful industries have a lower capital to labour ratio than the less successful. Leontief's best line would be to introduce another metaphysical 'factor of production'—*success*. The U.S. is better endowed with *success* than other nations, and so exports her relatively *success-intensive* goods.

* * * *

This delicate structure of circular arguments and ambiguous definitions certainly needs to be sheltered from the rough breadth of Marxian analysis. To point out that Marx's apocalyptic vision of the collapse of capitalism has not been fulfilled in a hundred years is the fashionable defence.

Marx did not expect revolutions to come outside the capitalist system, while capitalism still flourishes; his formalisation of history into successive stages does not permit of the co-existence of two systems using more or less the same techniques of production.

He did not foresee how successful capitalism would be in raising real-wage rates within the metropolitan countries of the great economic empires, mitigating the conflict which he foresaw between the ever growing powers of production under capitalism with the restricted powers of consumption that a falling share of wages in the value of output would bring about.

He was correct in foreseeing an ever greater concentration of economic power in fewer and fewer large units, but he was off the mark in thinking that this would leave only a few heads to cut off when the revolution came. He did not foresee the thick layers of professional and semi-professional middle classes that would grow up between the manual workers and the capitalists.

He had some uneasy intimations of how the labour movement would be tamed by prosperity, as some of Gottheil's quotations from his correspondence show; he very well knew how chauvinistic patriotism was inimical to class feeling.

> The English working-class . . . can never do anything decisive here in England until it separates its policy with regard to Ireland in the most definite way from the policy of the ruling classes. . . . And, indeed, this must be done, not as a matter of sympathy with Ireland, but as a demand made in the interests of the English proletariat. If not, English people will remain tied to the leading-strings of the ruling classes, because [they] must join with them in common front against Ireland. [Civil rights in U.S.A. and Vietnam?] The antagonism between English and Irish workers is artificially kept alive and intensified by the press, the pulpit, the comic papers, in short by all the means at the disposal of the ruling classes. It is the secret of the impotence of the English working class, despite their organization.

But he allowed faith in his vision to assure him that class consciousness was bound to prevail.

The fact that the industrial workers (the white ones at least) in the Western world have growth complaisant, and back up their employers in exploiting coloured workers overseas (and in slaughtering them when required) does not fulfil Marx's prediction of an explosion of capitalism from within, but it is a very striking illustration of his general thesis that to understand political motivation we must look to material interests.

The other method that the professors use to keep their pupils from learning anything from Marx is to present superficial errors (like the confusion of *values* with prices) as being the essence of the whole argument. In this they are much assisted by the professed Marxists who take every iota in the text as eternal doctrine.

Logic-chopping disputes over these points are very useful to the academics. They help to confine the argument to the 'strictly economic' field and so prevent any intrusion of politics. Otherwise their pupils might want to ask awkward questions. Why is it, for instance, that the great rise of real-wage rates, that proves Marx wrong, yet has not eliminated poverty—even hunger—in the most *successful* of all nations? How does it come about that the devotion of the American authorities to democracy and freedom leads them to impose or support harsh military dictatorship all over the underdeveloped world? Might there be some political influences behind economic phenomena, or some economic motivation behind policy? It would be most unprofessional to ask such questions as these.

4

SOCIALIST AFFLUENCE[1]

History has seen two methods of carrying out the accumulation necessary to install scientific technology. The first, which has been in operation for two centuries, relies upon individual acquisitiveness; the second, which has been in operation for less than half a century, relies upon socialist planning. Both have reached the stage where, in a number of countries, the fruits of accumulation are now available to be enjoyed in a high level of consumption, but in each the process of accumulation has set up institutions and habits of mind which put obstacles in the way of rational enjoyment.

1

Problems of Capitalism

In England, the pioneer of private enterprise, the first stages of accumulation were carried out with the utmost brutality. In the later stages, with the evolution of head-counting democracy, and now after the shared experience of two wars, all classes have come more or less to accept the idea of a welfare state—that gross poverty should be eliminated; that there should be equality of opportunity; that the great wealth of the nation should be deployed, for, in some sense, the general good of all its citizens.

The process of accumulation, however, cemented great inequality into the system, and this is now an impediment to realizing the accepted ideal. In principle, a democracy should be able to vote itself into egalitarianism through the tax system, but in practice the legal arrangements favourable to property and the habitual acceptance of the class structure, which were necessary to foster accumulation, now put up a resilient defence of inequality.

The institutions of private property and great inequalities of wealth were necessary to the process of accumulation in the manner in which it was carried out. Universal suffrage and egalitarian ideals

[1] From *Socialism, Capitalism and Economic Growth*, Essays in Honour of Maurice Dobb, Cambridge University Press 1967.

in the eighteenth century would have inhibited the industrial revolution before it began. But now private property has become otiose. What does the individual share-holder contribute to the operations of a modern corporation? Private saving is a convenience for private families—it is no longer necessary to aliment industrial accumulation. The gross investment that corporations carry out from amortization funds and retained profits is continually installing improved techniques, enlarging productive capacity without requiring 'abstinence' from anyone.

The shareholders and rentiers indeed, make a great negative contribution to industry, for much of the best talent of every generation is engaged, one way and another, in the lucrative business of swapping securities around amongst them and so is kept away from constructive activities. The notion that the Stock Exchange, with all its ancillary apparatus, is the most efficacious means of supplying finance to industry, compared to other available methods, is a fig-leaf which it wears to preserve its self-respect.

After the experience of the Thirties, full employment is an insistent demand. This, combined with the institutions of private enterprise, which limit the sphere of government expenditure, has led to the ugly situation where democratic opinion accepts the arms race as a useful expedient for maintaining prosperity.

The institutions of private enterprise leave the main initiative in economic affairs to a number of independent corporations which have developed a motivation of their own—a pursuit of *success* which includes but is not bounded by the mere pursuit of profit. It is now generally agreed that the interplay of the policies of these independent corporations cannot be relied upon to secure continuous full employment, a consistent pattern of development, or a viable balance of trade. A national 'plan' is now seen to be necessary to co-ordinate their activities. But their very independence and power of individual initiative, which was the main-spring of the private-enterprise system, now prevents the economy from developing organs to control them in the general interest. So far, 'national planning' at most consists in persuading them to remove gross inconsistencies from their individual programmes.

To direct their behaviour towards a democratically decided programme would be quite another matter. If we think of the nation as a family, how would it wish to dispose its resources? The manner in which the public *does* spend its money is not a reliable guide, for

all the arts of salesmanship, direct and indirect, are used to build up in the public a system of wants that provide a convenient outlet for profitable sales. There is a systematic bias in the pattern of production, dramatized in Galbraith's slogan: *private affluence and public squalor*, in favour of goods and services which can be sold piecemeal, so as to provide scope for profit, and against collective consumption which has to be financed by taxation. This bias is unfortunately fostered by economists who, when they purport to measure consumption as an indication of the standard of life, are really measuring only the sale of consumption goods.

Consider a middle class family with an income considerably above the national average but not great enough to saturate all their possible wants, and with sufficient education and self-confidence to resist advertisement and ignore the Joneses. In their notion of a comfortable standard of life beyond the obvious needs of food, clothing and amusement, a decent house ranks highest; the provision of education for the children; retirement pensions for the elderly and good medical help when needed. If a member has some disability, he will be kept as far as possible in the same comfort as the rest. Other wants are sacrificed, when need be, to satisfying these needs. Some scion, perhaps, finds comfort stuffy and goes out of his own free will to test his hardihood in a primitive world, but the family would by no means consider it a benefit to have the test of poverty thrust upon them.

The wealthy capitalist democracies have a great struggle to impose this scale of values upon their pattern of production. Housing, education, the health service are starved of funds. The elderly and the handicapped suffer. Pockets of squalid misery persist. The modern cry for 'growth' is partly an expression of the hope that a sufficient all-round proportionate rise in income will bring the bottom to a tolerable level without the necessity to interfere at the top.

In one respect latter-day capitalism has been remarkably successful—in avoiding serious recessions. This very success creates further problems. With continuous near-full employment superimposed upon the system of industrial relations and of wage-bargaining and price-fixing developed in other circumstances, inflation has become chronic and the system is extremely resistant to the institutions of an 'incomes policy' designed to preserve the value of money.

Finally, the spread of quasi-planning within each country runs

into conflict with international anarchy, so that one government after another has to sacrifice progress towards a welfare state (whether gleefully or sadly) to the requirements of the balance of payments.

2

Problems of Socialism

In the European socialist countries, also, the toughest phase of accumulation has been accomplished. They do not have to contend with the heritage of private property and private enterprise. Without unearned income, the objective of equality of opportunity is less hard to attain, and differential earnings can be kept within acceptable limits. The distinction between profits and state revenue does not arise, so that resources can be allocated between industry and social services according to rational criteria. There can be no question of wilful independence of enterprises which are all organs of the planned economy. Inflationary pressure occurs during the phase of accelerating accumulation, because spendable income is then increasing relatively to the output of purchasable goods; but there is not the same pressure from the mere persistence of full employment to raise money-wage rates and prices. Defence expenditure is a burden to them. They have no need to fear that an 'outbreak of peace' would cause a slump, for the resources involved can be redeployed to useful uses with little delay. They suffer, indeed, like capitalist countries, from insufficient export earnings, but they cut their imports to fit and do not allow the tail to wag the dog.

On the other hand, the socialist method of accumulation has left its own legacy of obstacles to the enjoyment of the potential affluence which it has achieved.

Of these, the most serious is in the political sphere. Whether or not repression is 'necessary' for rapid accumulation, they have in fact occurred together, both in East and West. In England four or five generations passed between the time when Trade Union organizers were deported to Australia and when they are installed in the House of Lords. The corresponding reversal in socialist countries has occurred within a decade. It is against the background of this disturbing experience that economic reforms are being carried out.

The demand for reforms, which has been rumbling since 1956, has broken out most recently in Czechoslovakia, and is there most

sharp and articulate. The following is based mainly upon Czech experience.

The economic system developed for the purpose of rapid accumulation was imitated from the Soviet Union and contained features which were not at all appropriate to the requirements of a small country highly dependent upon international trade. Moreover the Soviet system imposed not only necessary but also unnecessary hardships upon the consumer, for instance, the elimination of individual tradesmen, such as cobblers. The planners were taught to think that only investment goods were 'serious' and neglect of consumer interests became a virtue in itself.

The dogma that, under socialism, the share of investment devoted to Department I, which was identified with heavy industry, must exceed the share of Department II, meant a continuous effort to *accelerate* accumulation. The dogma was disputed, for instance in Poland in 1956, but policy in Czechoslovakia continued to be dominated by it. When the rate of growth slackened and actually came to a halt, the authorities could think of no remedy except more investment.

The organization of industry was a system of command from above which deprived the individual manager of authority and initiative. Planning was both rigid and clumsy. The criterion of success was reckoned in terms of gross output. The highest possible degree of self-sufficiency was aimed at. Trade, not only with the capitalist world, but amongst the People's Democracies, was heavily discouraged. The class war was carried to the second generation; children of middle-class parents were debarred from education. Much of this, which may have been unavoidable in the struggle for industrialization in the Soviet Union, was retrograde in Czechoslovakia, where there was a larger professional class and where more subtle methods of accounting and management had been developed in capitalist businesses. Even in Czechoslovakia, however, the heavy pressure to accumulate overrode all its drawbacks. It is reckoned that, not only national income, but *per capita* consumption was more than doubled between 1948 and 1960.

The methods which were successful in rushing to full employment and full utilization of resources have now become a fetter upon further progress.

The command system in industry led to inefficiency within an enterprise, both in the details of technique and in the handling of

personnel. The method of reckoning in terms of gross output fostered waste of materials. The arbitrary system of prices made cost-accounting useless as a check on efficiency. Dictating the plan to an enterprise in physical terms broke contact with the market, so that it was common for unsaleable goods to be piling up in the cellars of shops while the enterprise was earning premia for plan fulfilment. Foreign competition, as a control upon quality, was cut off, for no imports were permitted of goods which an enterprise could claim to make at home. Innovation within enterprises was inhibited by the exaggerated horror of risk which the command system induces.

Proposals are now being made to overcome these particular drawbacks of the present situation.[1]

The main lines of the central planning system are not to be affected. No one now supports the suggestion that prospective profitability should influence the allocation of investible resources in the central plan; nor, indeed, has anyone succeeded in showing what such a criterion would mean in operational terms. Overall changes that are to be made, for instance greater attention to agriculture and light industry and a relaxation in the general rate of accumulation, are to be made centrally in a coherent manner, but in detail much more autonomy is to be given to the individual enterprise. The enterprise will have control over minor investments and, in the sphere of consumer goods, can choose its own product mix to suit the indications of demand coming from retailers; in some branches it is given authority to vary its prices.

Gradually the system of absorbing the surplus through the turnover tax at various rates on different commodities will be liquidated. Each enterprise will be required to pay a tax of 10 per cent on its wage bill and 6 per cent on a valuation of its installed capital, and will then be instructed to earn its costs from the sales of its output. Management is permitted to dispose of its wage fund as it pleases, so as to introduce incentive schemes.

Between the ministries and the enterprises is to be interposed a system of trusts, each concerned with a particular industry. Efficiency is to be promoted by the trust imposing a system of prices based upon average (or better) performance (taking account of inevitable advan-

[1] See Ota Šik 'The Problems of the New System of Planned Management', *Czechoslovka Economic Papers*, no. 5.

These proposals were repudiated in 1968.

tages or drawbacks of the situation of different enterprises), so that its worst managed firms will be penalized unless they can improve, while its best enjoy a stimulating reward.

No doubt these reforms can produce a dramatic improvement. The better performance of individual workers and more efficient deployment of teams, the elimination of wastage of materials, the rationalization of relations between suppliers within a trust, and above all the direction of production towards what consumers actually want to buy, should bring an upward bound in the standard of life that will hearten the reformers.

But it is not easy to see that they have evolved a viable system for continuing development. A great deal of experiment and adaptation still must be to come.

3

Management

The much-discussed question: whether there is commodity trade under socialism, is a somewhat metaphysical way of drawing the distinction between principals and agents in economic affairs. The housewife who goes shopping is a principal. She is spending the family's money for their benefit as she judges best. When she buys from a peasant, he also is a principal. (It is commodity trade on both sides of the market.) When she buys in a state shop she is dealing with agents. When the shop replenishes its stock from a socialist enterprise, both parties to the transaction are agents of the same principal.

The point of the distinction is that a principal uses his judgment while an agent is directed by rules laid down for him. A western economist may say that the housewife is maximizing utility under a budget restraint, the advertiser may be studying her motives to get her hooked, but she feels that she is doing what she wants to do; she need not account, even to herself, for why she does it. The distinction is not absolute. An agent must have *some* discretion. A principal is guided by law and tradition. The problem for the reforms in socialist management is where to draw the line. The top management of a capitalist enterprise, though legally agents of the shareholders, act as principals in the interests of the company. They need to make profits, since profits are necessary to secure the survival and growth of the company, but the pursuit of profit does not confine

them to a narrow groove; there is a wide range of possibilities between playing safe and adventurous experiment. Moreover, in a world of uncertainty the pursuit of profit is expressed in short-cuts, rules of thumb and conventions of policy. Considerations of reputation and professional honour modify pure money-making. The management of a company feels 'a three-fold public responsibility, to the public which consumes its products, to the public which it employs, and to the public which provides the capital by which it operates and develops'.

When the management of socialist enterprises are given more autonomy, they will have the same three-fold responsibility, with contributions to the national budget substituted for the interests of the share-holders. Merely to instruct them to maximize net profit from the capital equipment with which they are provided is an inadequate guide. From a long-run point of view, a contented labour force and satisfied consumers are essential to profitability—how weigh one against the other when their interests conflict, and each against short-period advantage? One of the evils of the present system is that proper expenditure on upkeep and repairs is sacrificed to short-run plan-fulfilment. An instruction to maximize net profit is no substitute for judgment in weighing the present against the future. Moreover, net profit is an *ex-post* measure. The decisions that have to be taken by management, about day to day operation as well as about long-run policy, are decisions about people and things. At best the instruction to maximize net profit is an instruction to act in a manner that may be reasonably expected to maximize profits over some future term. And what is it reasonable to expect?

In Czechoslovakia the proposal is, not to use net profit as a criterion of success, but to instruct management to recover the wage fund which they have been advanced, along with other expenses, from their annual operations. This is a remedy aimed at the crude evil of fulfilling a plan by producing unsaleable goods at unnecessarily high costs. It seems also to be intended to give the workers an interest in the efficiency and discipline of the enterprise in which they work without going the whole length of giving them the equity in it, on the Yugoslav model. (The wage fund is ensured up to 90 per cent, so that bad management would not be the disaster for a group of workers that a bankruptcy may be under capitalism.)

In practice, it seems, the autonomy of enterprises is to be much less than this scheme suggests. The trusts that have been set up for

each broadly defined industry will give instructions to the enterprises in some mixture of physical and financial terms, which, no doubt, will be evolved as experience accumulates, while the overall plan is given to the trusts from above. The analogy, then, will be not with capitalist enterprises, but with cartels. A well-run cartel is by no means the worst form of management that capitalism has produced for its own purposes, but to adapt it to socialist purposes needs some care. The most obvious danger is that the officials of the trusts will develop an excessive patriotism for their particular industry and devote more effort to gaining favours for their enterprises from the centre than to subordinating them to it.

4

The Workers

In China, North Korea and Cuba, where revolutionary patriotism is still warm, the proposal to make greater use of monetary rewards as incentives to the individual worker is regarded with grave suspicion. It seems to them a denial of the moral content of socialism, which should appeal to public spirit and personal self-respect. Capitalist experience suggests that it is dangerous also from a purely economic point of view.

The money motive under capitalism has two sides, fear of loss and hope of gain. The first is far and away more powerful than the second, especially for a worker to whom loss of employment entails total misery. In the post-war era of continuous near-full employment, progressive management, to attract labour, to effect improvements in efficiency and to call forth effort from the men, offers increased earnings in various open or disguised forms. Every grievance, every demand, is bought off by offering more pay. It suits the progressive firms to do so, for by setting a level of costs that less efficient firms cannot cope with, they rob their rivals of their market as well as their labour force. But from the point of view of the economy as a whole it is a great nuisance, since money incomes rise faster than *average* output and so generate chronic inflation. When a man has got used to a certain pay packet, it becomes his necessary standard of life; to reconcile him to any change will need another rise. Even under capitalism there is an irresistible demand for fair (that is, more or less equal) relative earnings, so that less progressive industries and occupations have to follow the progressive ones in raising money-

wages continuously. Moreover, once it is accepted that the motive for effort, above the bare minimum, is extra income, it becomes perfectly legitimate for individuals or groups of workers to prefer minimum effort with minimum earnings. Hard trades, like mining, become impossible to man.

Let alone morality, the socialist countries should consider the psychology and the economics of money incentives very carefully before they step onto this slippery slope.

5

Prices and Costs

General instructions to the enterprises in terms of net profit or gross receipts make sense only if the system of prices is sensible. One of the sharpest objections to the present system is the arbitrariness of prices.

The Czech proposal is to rationalize the system, gradually introducing prices based on costs, including the taxes on resources used (10 per cent on the wage bill and 6 per cent on assessed capital) which are to provide the fund for accumulation and general expenses of the state. Subject to covering total costs from total receipts, the enterprises have some freedom (in certain lines) to vary prices of particular products—for instance to adjust scales of prices for differences of quality.

So far as consumer goods are concerned, a system of prices based on costs cannot be completely satisfactory. For a long time to come there will be particular scarcities of supply relative to demand. A pattern of supply-and-demand prices has somehow or other roughly been established by differential rates of turnover tax. To move directly to a pattern of prices based on relative costs would fail to maintain a fit between demand and supply. Yet there is no reason why a particular enterprise should benefit (in easier profits) from the scarcity of the type of productive capacity it happens to command. Moreover, since the socialist sector of the economy 'imports' consumer goods from co-operative agriculture, and imports a great deal from capitalist and from other socialist countries, there are bound to be unforeseen changes in supply from time to time, which are more convenient to deal with by altering prices than by rationing. The remedy is for the office of price administration, which is an independent organ of the economy, to set final prices to the consumers so

as to maintain an overall balance between sales and expenditure and as close a fit as possible between particular demands and supplies, without upsetting cost relationships by interfering with the prices of productive enterprises.

For the enterprises, to have prices adjusted to costs would bring order into chaos and permit some rational cost-accounting and calculations of efficiency to be undertaken. But is it satisfactory on its own merits? The basis of the proclaimed virtues of the competitive system in the textbooks is that each producer finds himself faced with a price in the market so that his profit depends on keeping his costs below it. In capitalist industry, of course, this situation does not really obtain. Prices are administered on a cost-plus basis, while competition runs into salesmanship and product differentiation. Will the socialist trusts avoid the evils of cost-plus?

6

Optimum Saving

Czech economists maintain that the cessation of growth in national income in 1963 came about in spite of an exceptionally high rate of investment in the preceding years.[1] To carry out investment faster than the digestive sysem of the economy can absorb it is a vain sacrifice. But when a proper balance between physical investment, education and research ensures that current saving will increase future production, are there any principles in which the ratio of investment to consumption should be fixed?

In practice the capitalist nations have given up the pretence that private enterprise produces either the right amount or the most efficient form of investment (witness the fashion for planning) but the economists still discuss the problem in terms of the desirable rate of saving.

There is no way of judging, from the behaviour of individual families in a capitalist country, what people *really want* to save. The distribution of income between families, the general habits of the various classes, and the reliability of the social security system have a strong influence on private saving. Nor is it possible to judge the effect of incentives to save. It is a fallacy to say that interest is the 'reward' of saving. The reward of saving, in the capitalist world, is

[1] J. Goldman, 'Short and Long term Variations in the Growth Rate and the Model of Functioning of a Socialist Economy', *Czechoslovak Economic Papers*, no. 5.

owning wealth. The fact that wealth can be placed in assets that yield a return is only one of its advantages. The amount of saving that individuals do to acquire individual wealth cannot tell us anything about the amount of saving they *really want* to do to acquire collective productive capacity. Nor does the reaction of individuals to the return on placements give an indication of what their attitude may be to the return on social investment. The question has been open since Marshall's day, whether the typical family saves more or less from earned income at a higher rate of interest. The question concerns differences, say, between 3 and 7 per cent on gilt-edged placements. Now, it is generally estimated that the incremental capital to output ratio in a developing economy is of the order of 2 or 3. To be on the safe side, and to be sure that it is net, let us put it at 4. This means that saving today yields 25 per cent per annum in perpetuity. How much would you or I save at that offer? How do we know?

There is a more subtle difficulty in passing from individual psychology to social choice. The process of investment cannot be represented simply as sacrificing present for future consumption or vice versa. It is true that a sacrifice in current consumption can always be made, in conditions of full employment, by drafting labour into basic industry, but, after the heroic age of accumulation, such a policy is unlikely to be chosen. Consumption will not be allowed to fall below a level that it has once reached. The other way round, to increase current consumption by cutting investment is generally not possible (except by acting upon the balance of trade). The choice is rather between an increase in consumption in the relatively near future (by directing investment into light industry) and a greater increase in the more distant future (by maintaining investment in basic industry). Any path that is chosen has to be followed consistently and the possible paths are indefinitely various. There is no way in which signalling from the market can direct the choice between them.

This does not mean that the choice must be foisted upon the public by the whim of the authorities. The present revolt is largely a demand (in vague general terms) for consumption to rise as fast as may be. The very inefficiency of the present system provides a hump, so that it should be possible to increase consumption appreciably without cutting basic investment. After that, a wise strategy might be to bring about a further sharp rise in consumption, then to keep

it almost stable for a few years while investment was directed to securing another burst later. Such a scheme (in spite of marginal utility theory) might give more satisfaction than a slow steady rise which would scarcely be noticed from year to year.

This is a new problem for the socialist countries. Up till now optimum saving has simply been the maximum possible investment; and in fact they have sometimes done more—imposing abstinence on their people which failed to fructify in increased productive capacity.

7

Investment Planning

The planning of investment is the key to economic control, and the authorities do not intend to relax their grip on it. In Yugoslavia the original conception of the economic reform was that investment funds should be allocated by the central plan to branches of industry and to districts, and that individual enterprises (now under the control of their own workers) should bid for shares. This system has evidently got out of hand, and the authorities instead of trying to get a grip on the plan again, have resorted to a temporary all-round credit squeeze. This has been a useful warning for Czechoslovakia.

Not only the overall rate, but the broad composition of investment must be planned centrally. Long-range decisions, such as the source of power, affect the whole of industry and all elements have to be made consistent with them. (This is precisely what has driven the capitalist countries to accept the necessity for planning.) In this sphere, improvements in methods are being sought, but there is no basic change in contemplation.

So far as the choice of technique for a given output is concerned, the enterprises must have considerable influence, since it is they who have concrete detailed knowledge of the problems involved. The charge of 6 per cent on assessed value of fixed capital is intended to induce economy. Once an installation has been set up, the enterprise ought to use it to the best advantage, and 6 per cent is neither here nor there. The charge is intended to curb demands for unnecessarily lavish extensions and re-equipment, and to affect the design of new installations. Presumably, with experience, the tax charges can be varied to express the scarcity of labour relatively to investible resources, but this could work only if prices are independently given. Cost-plus would make it ineffective.

Hitherto the socialist economies have approached the problem of the choice of technique in terms of the saving of future labour cost to be attributed to an addition to investment—they have had in mind something like a production function, or spectrum of known techniques. Czechoslovakia is the most mature in the sense of having reached an overall scarcity of labour. The amount of progress to be made by pure 'deepening' of the capital structure is presumably not very great. The problem now is to foster technical progress—to find out methods of production that save *both* future labour and present investment cost.

The worst feature of the command system is the timidity which checks experiment. There is considerable danger that mistakes made under the new system will be used by those who flourished under the old to press for a return to rigid planning. There is always a certain superficial plausibility in the argument that it is dangerous to allow a child into the water till he has learned to swim. The problem now is to find a form of economic organization which encourages initiative without being too lenient to wasteful errors.

8

Consumer Sovereignty

In all this what seems to be most lacking is some method to direct the use of the resources now available to 'securing the maximum satisfaction of the constantly rising material and cultural requirements of the whole society'. Now that the emphasis has changed from growth at all costs to raising the standard of life, there is an obvious need for the public to be given some means of saying what their requirements are. It is an illusion to suppose that market signals can guide the planners. Increasing consumption involves not only a consistent path through time, but a consistent composition of output. The goods that represent a rising standard of life are consumed in clusters—housing, electric gadgets and domestic power; sports goods, hotels and travel. The housewife knows what gadgets to buy only after she has been informed what the future price of power will be. Moreover, in a fairly egalitarian society, the demand curves for particular commodities are likely to be highly convex—elastic at small quantities, plunging abruptly to saturation after a certain point. The height of the demand price today does not tell the planners what increase in output would carry supply to the corner. Nor can it tell

them anything about the effect of one man's consumption on the welfare of his neighbours. At some stage they will have to face the problems which arise from satisfying the constantly rising requirements of the whole society for motor cars.

The present system is just as much a system of producer's sovereignty as the capitalist system is, and it is even beginning to develop a rudimentary form of sales pressure to get the consumers to take what the producers choose to offer. Under capitalism, the consumers have begun to make some feeble efforts to defend themselves with institutions such as *Which*? Under socialism, surely, the consumer's interest should be defended, by imposing standards of quality and design and by research into needs and desires, not, as under capitalism, to find how to exploit them, but how to give satisfaction.

5

VALUE AND PRICE

THERE are many examples in economic theory of problems, giving rise to a great deal of confused controversy, which turn out to be quite simple once they have been solved. The 'transformation of values into prices' is one of these. The solution has been provided by Piero Sraffa's *Production of Commodities by Means of Commodities.*[1]

1

PROFITS AND PRICES

Consider the physical input-output table of an industrial economy without foreign trade. If competition prevails in the long-period sense that all markets are equally easy to enter, so that a uniform rate of profit rules on all capital invested, then corresponding to the ruling rate of profit there is a determinate set of relative prices for all commodities and means of production, and a level of prices in terms of any *numéraire*. The cost of labour in terms of own product to each employer is such that the surplus per man that he extracts is just sufficient to yield a profit at the ruling rate on the value of capital per man that he operates. Thus 'labour commanded' by a unit of any commodity is higher the greater the capital to labour ratio involved in producing it. (The real wage from the point of view of the worker depends upon the prices of the goods that his family want to buy.)

The gross output of any period includes replacement of means of production used up in the process (the c of Marx's formula). If the stock of means of production were in a balanced state and no technical change had occurred during the lifetime of plant now in existence, the subtraction of replacement of constant capital from gross output could be conceived in physical terms. From the physical product of

[1] This paper owes a great deal to discussions with Professor K. Naqvi of Delhi University.

This article was presented as a background paper for the Symposium on the influence of Karl Marx on contemporary scientific thought, Paris, May 8–10, 1968, organized under the auspices of Unesco by the International Social Science Council and the International Council for Philosophy and Humanistic Studies.

each year, the equivalent of the physical means of production used up during the year could be taken, item by item. Thus, if a particular kind of machine is worked for ten years, the number of ten-year-old machines must be subtracted from the output of machines of that type built this year. The nine-year-old machines become ten-year-old machines in next year's stock, and so forth. In simple reproduction the whole year's output of machines is required for replacement. With expanded reproduction going on at a steady rate, part of the output of machines enters into net output and the stock of machines of each age is raised in the same proportion.

In reality these conditions are never completely fulfilled. The distinction between net and gross output is not exact either in physical or in value terms. But since we are in search of basic concepts we may permit ourselves to use simple categories into which reality can be fitted only in a very rough and approximate way. Supposing, then, that we have a precise statement of the prices corresponding to the ruling rate of profit in our system, we can proceed as follows. Keeping everything exactly as it is in physical terms, work out what prices would be at all other possible rates of profit.

Begin with a zero rate. Then the wage bill in each line is the only cost of production. The relative prices of commodities are proportional to the labour-time directly and indirectly required to produce them. The stock of means of production in existence can be measured by the labour embodied in it, and the capital to labour ratio, for the economy and for each line of production, can be expressed as the ratio of labour embodied in means of production to current labour employed. Value in terms of labour embodied and labour commanded are identically the same.

Now go to the other extreme and consider prices at a zero wage rate. Here profits absorb the whole of net output. The rate of profit is determined by the self-reproduction rate of the stock of means of production and prices of commodities are identical with the proportions of the total value of capital directly and indirectly required to produce them.

In a special case, where the physical input-output table happens to be such that the ratio of embodied to current labour is the same for all commodities, and the time-pattern in which costs are incurred in the process of production is identical for each, the price ratios determined by output per unit of labour and those determined by output per unit of capital are identical. The value of capital in terms

of a unit of net output is independent of the rate of profit. Prices proportional to Marxian *value* obtain at all rates of profit, from zero to the maximum rate which corresponds to zero wages.

In general, the pattern of prices varies with the rate of profit. Some prices rise and others fall as the rate of profit rises. (A *rise* in this sense, of course, is not a process taking place through time; it is merely a convenient way of expressing a comparison of differences.)

When the commodities entering net output have, on balance, a higher ratio of embodied to current labour than the overall rate, while the time-patterns are more or less alike, the value of capital in terms of a unit of output falls consistently as the rate of profit rises. And conversely. But when the time-patterns are markedly different, and labour ratios not much dispersed, the value of capital may fall and rise, or rise and fall as the rate of profit rises. (This is illustrated by Sraffa in the diagram on page 38 of his book. In this case the labour ratios are identical for two commodities and the reaction of their relative prices to changes in the rate of profit is due entirely to the differences in their time-patterns.)

2

Organic Composition

There is an ambiguity in Marx's conception of the organic composition of capital. He defines it as the ratio of constant to variable capital, but the clue to its meaning is the prediction that rising organic composition will create a tendency for the rate of profit on capital to fall.

Variable capital, that is the wage fund, is part of the investment required to employ workers. Thus when the wage rate is higher or the delay between paying out wages and receiving payment for goods sold is longer, the value of working capital in a business has to be so much the greater. On the other hand, the longer the delay between starting work and receiving wages, the greater is the amount of the interest-free loan that the worker is obliged to make to his employer. There is no reason why a fall in the ratio of the wage fund to other elements in investment should reduce the rate of profit.

What the argument requires is not the wage fund, but the wage bill. When the ratio of the value of capital to the wage bill is rising relatively to the share of profit in the value of net output, the rate of profit is necessarily falling. (In modern times there does not seem to

be any strong tendency for organic composition in this sense to rise, and, when it does, monopoly power is evidently strong enough to raise the share of profit correspondingly, so that a long-run fall in the rate of profit is not to be expected.)

Marx did not take account of the influence of the rate of profit on the prices of means of production; he reckoned only in terms of labour-value. (It is for this reason that his own treatment of the transformation problem was not exact.) The concept of organic composition that best fits his way of thinking is the ratio of labour embodied in the stock of capital goods (including the wage fund) to labour employed.

Sraffa eliminates variable capital by assuming that wages are paid out of the proceeds of net output.[1] This is in no way essential to the argument; it is a convenient simplification, which is adopted in what follows.

3

Transformation

The key concept in Marx's system is the rate of exploitation, s/v, the ratio of net profit to wages in value added. This can be conveniently expressed as the share of profit in the value of net output, or 1 *minus* the share of wages. (The v which appears in the formula is here the wage bill, not the wage fund.)

If we are given the physical input-output relations and the share of wages, we can find the rate of profit and the pattern of prices which it entails.

In Sraffa's exposition in terms of his standard commodity, the rate of exploitation cannot readily be seen. It is simpler to set out the argument in terms of labour commanded. Let us call a man-hour of labour time a dollar. Then we know the dollar-wage bill of the system. As soon as we know the rate of exploitation, we know the dollar-value of net output, the dollar prices of commodities, and the rate of profit, that are consistent with it.

The transformation thus goes from the overall rate of exploitation to the prices of commodities. To find the system of prices corresponding to *values* (that is, what prices would have been if the share of wages had been unity) is an unnecessary detour.

[1] To prevent this assumption from affecting relative prices we must suppose that the wage includes interest on the working capital which the worker 'lends' to the employer. (This was pointed out to me by Professor Gautam Mathur.)

The famous argument, that, if one quarter of corn exchanges for x cwt of iron, they must contain the same quantity of labour, can be restated: When there are uniform rates of profit and of wages in the economy, these quantities of the two commodities evidently contain the same quantity of costs of production, composed of wages of the labour, and profit at the ruling rate on the value of capital, directly and indirectly required to produce them.

4

An Alternative Formulation

Morishima[1] formulates the problem in a slightly different way. First, he puts back the wage fund into the stock of capital. Then he takes the physical components of the real wage consumed by workers, and sums them in terms of labour-value, in accordance with labour embodied at a zero rate of profit. The ratio of the wage bill in these terms to the labour-value of net output $(v/(s+v)$ is correlative to the rate of exploitation (s/v). From this, the rate of profit compatible with the given real-wage bill can be derived.

Once more the analysis runs from the overall rate of exploitation to actual prices, but in this formulation the labour-values of particular commodities form a step in the argument.

5

The Neoclassicals

All this while, the neoclassical economists have been bluffing us. They maintain, that because the simple labour theory of value does not take proper account of profits, it follows that their own theory is correct.

Böhm-Bawerk[2] mocked at the theory of prices of production in Volume III of the *Capital* as 'a quite ordinary theory of cost of production'. But his own theory does not hold water. To include profits (or interest, as they call it) in the theory of prices, it is necessary to have some measure of the value of capital on which the profits must be paid. Böhm's attempt to measure capital in terms of the period of production failed to work, as Wicksell[3] was sufficiently

[1] M. Morishima, and F. Seton 'Aggregation in Leontief matrices and the labour theory of value', *Econometrica*, April 1961.

[2] *Karl Marx and the Close of his System* (English edition), p. 30.

[3] *Value capital and rent* (English edition), p. 137.

candid to admit. Walras' system is designed to deal with the allocation of *given* physical resources between different uses, governed by the pattern of supply and demand for different commodities, and there is no mechanism in it to establish a uniform rate of profit on capital.[1] Marshall (like Marx, a disciple of Ricardo) makes good use of a system of prices based on a 'normal' rate of profit, but he expects us to swallow a theory in which the *real cost* of output is composed of the wages of labour, measuring the *efforts* of the workers and interest on capital representing the *sacrifice* of owning it.

The neo-neoclassicals, when they began to reconstruct orthodox theory after the upheaval of the 'Keynesian revolution', had evidently forgotten that the problem of measuring capital and accounting for profit as an element in costs had never been solved.

Only the other day, Samuelson, in a Centenary appreciation of the *Capital*,[2] remarked that the assumption of equal factor proportions in all lines of production, and therefore labour-value prices, provides an 'impeccable model', 'even though not defensible as a general theory of markets'. But if he gives up the labour-value assumption it is *his* system that collapses. Marx, taking the rate of exploitation to be governed by the balance of forces in the class struggle, can derive from it the rate of profit and so find the appropriate 'prices of production', whether proportionate to labour-values or not, but Samuelson is at a loss when the value of capital is not independent of the rate of profit. A 'quite ordinary theory of cost of production' is just what the neoclassics and the neo-neoclassics have not been able to find.

The neoclassical system depends essentially upon the idea of substitution between factors of production, so that, in a 'given state of knowledge', a lower rate of profit is associated with a higher capital to output ratio. A 'given state of knowledge' is represented by a series of alternative technologies for producing a given net output, each fully blue-printed, each with its own physical input-output table.

Now, when labour-value rules, each technique has its own value of capital per man employed (in terms of a unit of net output) independent of the rate of profit. No technique is included in the scheme unless it is the least-cost combination at some rate of profit. Thus a lower output per man must be associated with a lower value of capital per man. A movement along the series of techniques from a lower to a higher wage rate (and lower rate of profit) is a movement

[1] *Cf.* J. Robinson, 'Normal prices', *Essays in The Theory of Economic Growth.*
[2] 'Papers and proceedings,' *American Economic Review*, May 1967.

towards a higher output per man associated with more capital per man; thus it can be mistaken for a 'substitution of capital for labour'. But when the value of capital appropriate to each technique varies with the rate of profit, there may well be ranges over which a lower wage is associated with a higher output per man, so that the illusion of substitution cannot be maintained.[1]

Substitution in this sense is an illusion in any case. A comparison of economies, each with a different rate of profit, each with its own future and its own past at its own rate, but all facing the same spectrum of technical possibilities, is an artificial construction. In reality two economies with two different rates of profit must be separated from each other either in time or in space. There is no way of *moving* from one rate to another; moreover they are most unlikely to be faced with an identical spectrum of technical possibilities.

Changing factor ratios takes place through time by a process of accumulation and is associated with changes in technical knowledge. The direction of technical change may well be influenced by the availability of labour and natural resources; but comparing one part of the capitalist world with another, we find very great differences in real wage rates with more or less the same overall rate of profit. The United States, for instance, is notoriously a high-wage country, with a high value of capital per man employed. According to the neo-classical scheme, this should be associated with a very low rate of profit; there is no evidence that this is the case.

6

Prices in a Planned Economy

All this is a scholastic discussion conducted in terms of artificial assumptions. Nowadays the problem of value and prices is coming up as an issue in real life. The economic reforms in the Soviets and Peoples' Democracies are intended to increase efficiency in production by using the relation of proceeds to costs as an indication of success instead of the multiplicity of physical directives, which has proved to be a barrier to further progress when the main foundation of industry has been laid. This change requires a rational system of prices and costs.

The prices at which goods are sold to the public must include a surplus over their own wages cost to provide for the consumption out

[1] Sraffa, *op. cit.*, p. 84.

of wages of those engaged upon investment, defence, administration, non-priced services, etc. (In a capitalist economy consumption out of unearned income has to be added to the list.)

Under the old system, the surplus was collected mainly by turnover-taxes at more or less arbitrary rates, and planned profits of enterprises assessed in such a way as to be counter-productive of efficiency. The question now being discussed is: in what form should the surplus enter into the prices of goods sold to the public? A group of Czech economists[1] describe the choice between four possible systems—labour value, under which prices are such as to make value added, at each stage of production, a given multiple of the wage bill; prices of production, which yield a uniform rate of profit on capital invested (as in Sraffa's system); a proportional tax on value added; and the system that was actually being proposed in Czechoslavakia, prices, to cover costs of production including a 10 per cent tax on the wage bill and a 6 per cent tax on the assessed cost of fixed capital.

It seems fairly clear that in the present situation, none of these systems could be satisfactory. The prices of consumer goods cannot be set by costs alone (however they are determined) so long as there are scarcities of particular commodities relative to demand.

In the socialist economies, some prices are influenced by social considerations (cheap milk and dear vodka) and for durable consumer goods rationing by delivery dates (which are negative when hire purchase is permitted) is preferred to controlling demand by price; for the ordinary run of goods, it is convenient, both to the public and to the authorities, to set a pattern of relative prices that keeps demand more or less in line with available supplies—allowing stocks to rise or fall with passing fluctuations.

Now, so long as the pattern of potential supply is arbitrarily given by the past history of accumulation, the pattern of prices governed by demand will not correspond to costs. Walrasian, or Marshallian short-period prices will rule, and the surplus yielded on different lines of production (quasi-rents) will vary widely from one enterprise to another. These surpluses, under the old system, were mopped up by differential rates of turnover tax.

One of the main aims of the reform is to put the managers of enterprises into touch with the market. To set ex-factory prices on

[1] L. Hejl, O. Kyn, and B. Sekerka, 'Price calculations', *Czechoslovak Economic Papers*, 8, 1967.

some principle of cost and levy supplements at the retail level would break the connection. (In China the connection is made by contracts, placed with producers, to make what the market requires, so that a system of fixed cost prices and variable market prices can operate satisfactorily.)

On the other hand, if enterprises were allowed to benefit or suffer from the accidental scarcity or plenty of productive capacity in their line, profitability would cease to reflect efficiency. For instance, when leather is in short supply the prices of shoes are high in the market, and, if those prices are allowed to the enterprises, either the tanneries or the shoe factories earn high profits for no merit of their own.

The Czech proposal points to a way of escape from the dilemma. The fixed capital of each enterprise could be valued, not at historic cost, but in terms of its earning power. An equal percentage tax on these values would then absorb varying amounts of quasi-rent per man employed, and market prices would be reconciled with cost prices. Reassessments would have to be made only at fairly long intervals and care should be taken to avoid penalising efficiency. (There is a close analogy with tenants' improvements under a system of land rent.) In practice, of course, the assessments would only be rough and ready, but this system seems more promising than any other.

In some happy future, particular scarcities may have disappeared, in the sense that the composition of output is adjusted to the pattern of demand; what system of prices would then be appropriate? There might be a case for making each branch of industry raise the funds for investment in its own expansion (as happens to a large extent in modern capitalism) in which case a rate of profit on capital equal to its own rate of growth would be an element in cost. For the general overhead expenses of the economy and for general investment in power, transport, etc., there seems to be no case for raising the funds *pro rata* to capital invested in the production of various commodities. It would make more sense to raise the surplus by a uniform tax on the wage bill, thus establishing prices proportionate to labour value.

The concept of prices of production is required to explain capitalism. Under competitive conditions in capitalism there is good reason for a uniform rate of profit to be established. Each firm wants to get the best profit open to it on its investments, and so presses into any market where the prospect of profit appears above average, and

withdraws from markets where it turns out to be below average. Thus supply is led to follow demand and the rate of profit tends to be evened out. The system of prices of production (as set out by Sraffa) is a stylised picture of competitive capitalism. It has no claim to be an ideal or rational system to be imitated in a regime of socialist affluence.

7

Investment Planning

Every year a certain amount of resources (including education and training of labour) is devoted to enlarging productive capacity. Even under capitalism the main allocations—between, say, going to the moon, improving the transport system, and permitting an increase in the output of marketable goods—have to be made by a political process. The problem of economic choice comes up in the allocation of resources within the consumption-good sector.

It would clearly be absurd to plan the increment of consumption by the criterion of profitability on the basis of current market prices. Suppose that, because of immediate scarcity, the quasi-rent on shoe factories is greater than on other lines; if the year's investment is all put into shoe factories, then at the next round the demand for shoes may have been more than saturated and the investment will turn out to have been mistaken. (The private profit economy is saved from the worst absurdities because each industry has a limited range of products, and each likes to invest its own profits in its own lines, but it often happens that exceptionally high expected profits lead to overshooting.) Marginal adjustments—a little more in this line and less in others—can be made by the criterion of maximising future returns, but the main layout of the plan cannot.

Moreover, at the stage which the socialist economies have reached, an increasing standard of life takes the form of new types of consumption goods rather than more of the old. The western textbook argument begins within given commodities and discusses only the proportions in which they should be produced. Small-scale trials to find what the market will take are appropriate to variations in design, but for the general pattern of consumption they are not feasible. Demand arises for overlapping complexes of commodities and services, which cannot be tested piecemeal.

The aim of an investment plan is presumably to give the greatest

increment of satisfaction to the consumers, or, as it presents itself to the planners, to minimise grousing. The addition to satisfaction due to a new product becoming available is not measured by the price that consumers are willing to pay for it. In Marshall's language, satisfaction is measured by 'consumer's surplus', not 'marginal utility'. When the housewives of Moscow demand washing-up machines, it is a consumer's surplus of easier married life that they are asking for. The proposed reforms still seem to lack an adequate representation of consumer's needs and desires. Meanwhile the bill of goods to be offered as an increment of consumption has to be arrived at somehow or other, and the principle of minimising grousing will no doubt provide a better guide than maximising profits.

When the bill of goods has been listed, another set of decisions has to be made—the technique of production. Here the neoclassical principle of substitution has after all something to contribute. Looking forward to investments that have not yet been made, there are alternative ways of producing a given output that can be listed in terms of factor ratios—more current labour with less investment per man, or *vice versa*. The art is to get an overall fit between labour becoming available and the increment of means of production. As Mario Nuti has shown,[1] this fit can, in principle, be secured by setting an appropriate shadow price on capital invested (made up of amortization and a notional of rate interest) and instructing enterprises to choose the technique that minimises cost per unit of output including that rate of interest.

The principle of a uniform rate of profit on capital has no part in a rational system of prices, but the principle of a uniform rate of return on investment has this limited role to play in rational economic planning.

[1] 'Material incentive schemes and the choice of techniques in Soviet industry,' *Australian Economic Papers*, December 1966.

6

THE THEORY OF VALUE RECONSIDERED

PRICES are the most obvious surface phenomena in economic life. Every school of economic theory was obliged to give some account of the determination of prices, but each school was concerned with wider questions; a theory of value was merely incidental to a general view of how the economic system operates.

To go back no further than Adam Smith, the concern of theory was to advocate a policy of laisser faire. Adam Smith was maintaining that to release the forces of self-interest would lead to a great increase in material wealth. How right he was! His theory of prices was very simple. In each neighbourhood there is a certain level of rents, wages and rate of profit. The price of each commodity is determined by the cost of the land, labour and capital required to produce it. He was a bit confused about gross and net output, but otherwise his theory was very sensible and quite adequate for his purpose.

For Adam Smith wages were a cost. The wealth of nations was the surplus. Wages of labour were no more to be counted in net income than the fodder of cattle. Ricardo also was concerned with the surplus of product over wages. He was contemplating the transition from feudalism to capitalism. (I am using feudalism in a loose sense to mean an economic system in which the predominant form of property is ownership of land.) Landlords consumed their share of the surplus; capitalists saved and reinvested profits. His concern was to show that rent was wasted from the point of view of accumulation. His central problem therefore was to find a theory of the distribution of the value of output between the factors of production.

He never quite succeeded in getting it out. Ricardo, with untutored genius, invented the method of constructing a 'model' on simple assumptions. So long as he could assume that there was a single wage good—corn—produced by agriculture, and that the subsistence wage was fixed, he could establish a theory of distribution which was quite watertight.

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The output of corn per annum per man employed on marginal land is a technical datum. The wage fund required to employ a man is a technical datum, being determined by the weekly needs of subsistence and the number of weeks from harvest to harvest. Profit per man employed is a technical datum—output minus wage. Thus the rate of profit is technically determined—profit per annum, as a quantity of corn, as a percentage of capital, as a stock of corn in the barn after harvest set aside to be paid out as wages over the year. The rate of profit for all other kinds of products must be the same, for the prices of all goods in terms of corn are such as to make it possible for them to cover their corn-wage bill.

This is a very striking conception. We now see from von Neumann that it survives breaking the real wage up into a variety of commodities. So long as the real-wage rate is fixed in physical terms the rate of profit is determined by the technique of production in use.

But Ricardo, in his day, got lost when he tried to bring other commodities into the wage bill. He saw that a difference in the rate of profit produced a difference in the pattern of prices, because the capital to labour ratio is not uniform, so that labour time, through its equivalence with corn, is not an invariable measure of value.

However, it was near enough for his purpose. His main point, that rent is an incubus on society, could be established just as well with this imperfect measure.

Marx took up the argument from Ricardo. Nowadays it is often thought that the Labour Theory of Value was a Marxian idea. This is not the case. To Marx it appeared as the obvious, orthodox theory. The contribution that he made to it was the conception that labour power also is sold for its *value*. The wage is necessary to produce labour. The wage is valued by the labour time necessary to produce it. Thus labour has the unique quality of producing more than its own value. This might seem nowadays a rather metaphysical way of looking at things but the simple basic idea is solid enough—it is that by employing labour and other physical inputs it is possible to produce goods that can be sold for more than they cost—that is, to make a profit.

The relative prices of particular commodities were not relevant to Marx's main argument, for it is concerned with the overall division of net product (or value added) of industry as a whole between wages

and profits. The overall rate of exploitation—the ratio of net profits to wages—is the clue to distribution.

Prices of particular commodities are determined by the rule that, in competitive conditions, the rate of profit on capital has to be equalized throughout the system. If we know net output in physical terms, and we know that the rate of profit is uniform, then when we know the share of profit in the value of net output, we can find the appropriate pattern of prices.

Marx himself did not get it quite right. He made a slip in working out the relation between prices and labour values. This gave a handle to his critics and confused his followers. The 'transformation problem' became a *pons asinorum* of Marxist theory.

Now that it has been correctly worked out in Sraffa's *Production of Commodities by Means of Commodities* we can see that there is no mystery about it. State your assumptions clearly and do not lose your head. Then the problem solves itself.

Marx's theory is sometimes presented as an attack upon capitalism. This is misleading. Certainly, he regarded capitalism as cruel, unjust and morally repulsive, but so were slavery and serfdom that preceded it. The advantage of capitalism was that it took the surplus and invested it. It ripened the productive power of social labour as though in a hot-house. It would bring itself to an end when it has completed its historical task. Revolutionary activity was to prepare the workers to take over when the time was ripe.

This view of the procession of economic systems was not to the taste of the nineteenth century. In the 1860s, capitalism was flourishing; real wages had begun to rise. Engels complained that the working class was becoming bourgeois.

Orthodox teaching took a violent turn. The neoclassical school came into fashion. Laisser faire was no longer merely a programme. It became a dogma.

To attack the classical view, Böhm-Bawerk and Marshall changed the question. Ricardo had used labour as the measure of value. The neoclassicals pretended that he treated it as the *cause* of value, and advanced the view that capital also causes value. Thus the moral basis of the argument was shifted. The labourer is worthy of his hire and the capitalist is worthy of his profit.

However, the neoclassical school never succeeded in getting out a theory of profits. There are two main branches of the school which we may call for convenience Walrasian and Marshallian.

The Walrasian system is concerned with given physical means of production already in existence—labour, machines, stocks of cement and copper, and so forth. It can be shown that, for any basket of final output, with known techniques of production, there is a maximum quantity of output from the given resources and a set of relative prices which show the marginal rates of transformation between one basket of goods and another. This is a very pretty argument. It embodies the central notion of the meaning of economic efficiency and the nature of opportunity cost. With modern mathematical refinements it has been found to be applicable to a number of problems.

But how can it provide a theory of distribution? Who owns the commodities and receives the prices paid for them?

The weakness of the Walrasian system is exposed when too much is asked of it. Take for instance the refinement of the theory of demand made by Hicks and Allen.

Their question was how demand will be affected when the price of one commodity is reduced. The argument is as follows:

There are two elements in the response of demand, a substitution effect and an income effect. The income effect follows from the rise in real income due to a fall in one price. More of all commodities can now be bought. A negative income effect follows if the commodity whose price has fallen is an inferior good of which less is consumed at a higher level of real income.

This also is a very useful idea. But what is it doing in a theory of prices determined by supply and demand? What about the sellers of the good whose price has fallen? What has happened to their real income? Has it gone up or gone down? And how is it going to affect their demand for other goods?

This is very far from being what it claims—a system of general equilibrium.

Marshall had quite a different approach. If we scrape all the nonsense off it, his theory is much more relevant to the economic system that we know. There is a normal rate of profit on capital which is established where there is competition in the long-period sense that all markets are equally easy to enter. Supernormal profits attract new investment, which tends to bring them down by increasing supply relatively to demand. The prices of commodities are determined by costs, including profit at the normal rate on the capital directly or indirectly required to produce them.

But what determines the normal rate? All we hear about is that, in the ultimate stationary state when accumulation has come to an end, the rate of profit must be equal to the rate of interest which measures 'discount of the future'. If the return on capital were below this level, the capitalists would prefer to consume their wealth in 'present gratifications'. They have to receive the 'reward of waiting' to induce them to continue to own it.

Marshall was not really thinking of a stationary state. He was thinking of investment rolling along through time, normally earning profits at the normal rate. But then there is no theory at all of what the normal rate is.

Orthodox teaching came to a crash in the great slump and was overthrown in the Keynesian revolution. But the neo-neoclassical school, now dominant in the U.S.A. and rapidly infecting the profession all over the world, is based on a revival of Walrasian supply and demand.

The neo-neoclassicals evidently had not been told that the neoclassical theory did not contain a solution of the problems of profits or of the value of capital. They have erected a towering structure of mathematical theorems on a foundation that does not exist. Recently Paul Samuelson was sufficiently candid to admit that the basis of his system does not hold, but the theorems go on pouring out just the same.

Why should this be? How do very clever and well educated men allow themselves to become committed to an untenable position? Perhaps the neo-neoclassical theory is acceptable because it *seems* to provide the justification for the profit system that the old neoclassicals were looking for. It renews the justification for laisser faire—what is profitable is right. Don't interfere with businessmen, they always know best.

But for modern capitalism those slogans are useless. Modern governments, even in U.S.A., have to consider the balance of payments, full employment, inflation, and even sometimes the distribution of income and problems of social justice.

This situation leads to a complete gulf between economic orthodoxy and actual problems. The orthodox theory has relapsed into the state from which it was awoken in the 'thirties, dreaming of equilibrium.

The Keynesian revolution brought us down from the neoclassical cloud-cuckoo-land, to here and now, facing the problems that we

actually face. Combined with the theory of imperfect competition, the Keynesian theory of value starts from the formation of prices as it actually occurs. Prices of manufactures are set by a gross margin added to prime costs. The main influence on the level of prime costs is the level of money-wage rates. Thus the wage bargain determines the general level of prices.

How are the gross margins formed? From the point of view of the individual producer, they are set by the rule that, at the expected rate of output, receipts should cover the total cost of producing and selling the goods, including whatever seems a reasonable level of profits.

From the point of view of total income for industry as a whole, applying the Keynesian notion of the two-sidedness of income—one man's receipts is another man's expenditure—it is obvious that gross profit overall on goods sold to the public (when the above-the-line budget is balanced, and neglecting foreign trade) is equal to the wage bill for investment *plus* the excess of expenditure out of profits over saving out of wages.

Thus the share of gross profit in the short run and the rate of profit on capital in the long run are governed by investment and the propensity to consume. This is the Keynesian theory of distribution.

Though Keynes himself rejected Ricardo and disapproved of Marx, this theory links up with the classics. The function of profit is to be accumulated. Expenditure out of unearned income is an extra exploitation of the workers that is not justified by its usefulness to society.

This is the uncomfortable element in the generalization of Keynes's *General Theory* that is being smothered by the teaching of the neo-neoclassicals.

Let us apply this analysis to one of the urgent problems of modern capitalism—wages policy.

The Keynesian theory of how the system works is now pretty well accepted except by the most devotedly loyal disciples of the neo-neoclassics. A rise in money-wage rates throughout the economy leads to a more or less proportional rise of prices. The profit margins are roughly proportional, so that the absolute margin rises in terms of money and is more or less constant in terms of purchasing power. Thus the remedy is to ask the workers to limit the rise of money-wage rates so as to keep prices from rising. They are being asked to recognize the justice of keeping gross margins constant. The workers find this hard to accept. Let us consider their case.

What is the gross margin made up of? It covers the following items:

1. Salaries of overhead staff. Let us put the incomes of lower-paid white-collar employees in with the wage bill. This part of the overhead can be regarded as a necessary cost. High salaries of top executives will be discussed below.

2. Amortization of capital. In so far as this corresponds to replacements required to keep equipment in order, it is part of necessary costs.

3. Promotion and advertisement. For the individual firm these outlays are just as necessary as prime costs. There is no use in producing goods which find no market. But looking at the matter from the point of view of the workers, can this be said to contribute to the level of real wages? When you buy a packet of goods, part of the price you pay is the cost of persuading you to buy it. As a contribution to your standard of life it is not much to get your teeth into.

4. Taxes, both direct and indirect. Government outlay enters into the stream of demand which makes it possible for gross profits to be earned. In so far as taxes cover this outlay, they must be held to be part of the necessary costs of output in general. It would take us too far afield to inquire whether the objects of government outlay are well chosen. The point to notice, however, is that all government outlay, whether covered by profit taxes or not, is at the expense of real wages, since it enters into the difference between money prices and money-wage rates.

5. Net profits. In so far as profits are retained to finance investment they are fulfilling their proper function—to exploit us for our own good. Once more we cannot go into the question of judging the desirability of the content of outlay in investment—we must take it in the round as a necessary cost of development. But we can distinguish between expenditure of profits on investment which increases the productivity of industry and expenditure on take-overs, that is buying up productive capacity that already exists.

6. Finally we come to the heart of the argument—distributed profits. For the firm it is necessary to pay dividends to keep up its credit, but what do the workers gain from it?

It used to be said that income from property is an inducement to accumulation. The rich are useful to society because they save. But nowadays industry does not depend upon saving from individual households. The whole of investment—sometimes even more than the whole—is

covered by retentions. This does not mean, of course, that no firm ever goes to the market for funds, but it does mean that by and large, taking them together, the saving provided out of profit margins is sufficient to finance the total outlay on investment. Legally, the firm is saving on behalf of its shareholders but this is legal fiction. The shareholders can realize the capital gains that arise from ploughing profits back into real assets, and when they do so, the same money is being spent twice over.

This is the extraordinary economic system that we are living in. It has been evolved by a historical process; no one thought it out or designed it, and no one has yet been able to give a rational account of it. Workers, managers and research teams bring about technical progress and accumulation, and the capital falls into the lap of shareholders who are not making the smallest contribution to the process which is bringing it into being. Income from property is not the reward of waiting, it is the reward of employing a good stockbroker.

Along with dividends, we can consider the salaries of the top executives. Once more, the individual firm has to pay the going price for the services of good men; they compete amongst themselves for a limited supply. A great part of the level of the high salaries are like selling costs, a phenomenon of imperfect competition, not a necessary cost of production.

When we ask the workers to accept the mechanism which ensures that wages cannot encroach on the share of profits in the proceeds of industry, are we asking something reasonable?

Moreover we cannot even be sure that the mechanism keeps the share of profits no more than constant. When money-wages are kept in check, the more progressive industries, where output per head is rising, experience falling costs. Can we be sure that their prices automatically fall? Profit margins may be fixed on the principle of heads I win and tails you lose. Where costs fall, the first effect is to make the market in question more profitable. Selling costs are often pushed up, each producer trying to catch a larger share of it. Then the higher margin becomes necessary, the more progressive industries find it impossible to cut prices, while the less progressive find it necessary to raise them.

If this is how the system really works, it is no wonder that the neo-neoclassicals do not want to draw attention to it.

7

HARROD AFTER TWENTY-ONE YEARS

No one would disagree with the contention of Harrod's *Towards a Dynamic Economics* that an uncontrolled capitalist economy is unlikely to maintain a steady rate of growth at some 'natural' or desirable rate, but his contention that it is *logically* impossible (except by a fluke was found to be startling.[1]

The argument is embodied in the formula $g=s/v$; assuming that s, the proportion of net income saved is given by the habits of the public and that v, the ratio of the value, of capital to net income (the marginal and average values being equal in steady growth) is given by technology, the possible growth rate, g, is governed by these factors, while n, the 'natural' rate of growth, is given independently by God and the engineers.

It was soon pointed out that the rate of profit on capital, π, must be supposed to influence both s and v, so that there must be a range of possible growth rates, corresponding to different rates of profit, not just one.

As Paolo Leon[2] has argued, the notion of a uniform rate of profit in a growing economy is somewhat anomalous, but it is just as well to get the analysis settled at this stage before going on to the next.

With given technical conditions, given competitive conditions (or the 'degree of monopoly') a given steady rate of growth and a given rate of profit (uniform throughout the economy) all relative prices are determined. In these conditions we can reckon values in any convenient *numéraire*, say, a basket of consumer goods. The simplest model of a pure capitalist economy (neglecting the Government and foreign trade) is as follows:

$$Y \equiv W + P \equiv C + I$$

The value of net income for, say, a year can be exhaustively divided

[1] There have been twenty-one years of discussion of Harrod's model but it has been in existence for thirty years, as it was originally put forward in 'An Essay in Dynamic Theory', *Economic Journal*, March 1939. In drafting this paper I have much benefited from discussion with Mr. J. A. Kregel and Mrs. K. Bharadwaj.

[2] See *Structural Change and Growth in Capitalism.*

Economic Journal, September 1970.

into the wage bill and the amount of net profit; and into the value of sales of consumption goods and the value of net investment. Net saving is equal to value of net investment; when s is the overall proportion of income saved, $s=I/Y$. The value of the stock of capital at the ruling rate of profit is K. The growth rate, g (assumed to be constant through time), is equal to I/K; v, or K/Y, is the ratio of the value of the stock of capital (at the ruling rate of profit) to the net income of a year and gv is identical with I/Y. The rate of profit, π, is P/K. The share of saving in net profit is s_p, and of wages, s_w.[1]

The value of v depends on a number of factors—the state of technology, which determines the physical inputs required to produce the flow of output, the distribution of the labour force between the various sectors of the economy and, at a given rate of profit, the prices of capital goods relatively to consumer goods. These determine the capital-to-output ratio in the sectors of the economy. In some neoclassical models[2] (given s), v is assumed ('in the long run') to be inversely proportional to g, but this appears to be quite arbitrary; for instance, if the investment sector requires a higher capital to output ratio (at all rates of profit) the capital to output ratio in the system as a whole must be higher the greater the proportion of investment to consumption, so that v is an increasing function of g.

To cut out these complications, let us confine the argument to a model in which the value of capital is independent both of the growth rate and of the rate of profit.[3]

Now consider s, the overall proportion of saving in net income. We will take no account of any subjective influence on the desire to save of the rate of interest regarded as a return on rentier wealth; we

[1] In reality, sales are only approximately equal to purchases and expenditures to receipts (for the two halves of a transaction may fall in different time periods). Saving is reckoned to be equal to net investment by the convention that calculates net profit after allowing for depreciation; actual investment decisions and actual accruals of profit are always gross. The growth of the value of capital over a period is by no means the same thing as expenditure on investment, or the growth of rentier wealth as the amount of saving, because of mistakes or strokes of luck. The valuation of the stock of capital involves the rate of profit, which is neither uniform throughout an economy nor constant through time. The interpretation of actual figures in terms of the categories of steady states is never unambiguous.

[2] See *e.g.*, T. W. Swan, 'Of Golden Ages and Production Functions', in *Economic Development with Special Reference to East Asia* (International Economic Association).

[3] Thus, there is a single known technique of production, and the price of capital goods in terms of consumer goods is independent of the rate of profit because the capital to output ratio is uniform (at all rates of profit) throughout the economy. The influence of the level of utilisation of capital equipment will be discussed below.

will consider only the influence of the relative shares of the two elements in net income, P and W.[1] It is natural to suppose that the proportion of saving out of income is different for the two classes of income, wages and profits.

On the extreme classical assumption, $s_w=0$, $s_p=1$, the share of saving in income is identical with the share of profit, $s=P/Y$. With a constant v, which we have postulated, I/Y, the share of net investment in income, is an increasing function of g, the growth rate. Whatever I/Y may be, P/Y, and therefore s, is equal to it; the rate of profit on capital is identical with the growth rate; an equilibrium growth rate may be anything between zero and g^*, the upper limit set by the minimum acceptable level of real wages.

When $s_w=0$, $0<s_p<1$, the rate of profit on capital, π, is equal to g/s_p. Now the rate of profit is greater than the rate of growth. This sets an upper limit to the possible value of the equilibrium growth rate. It is now less than g^*, the maximum physically possible growth rate. The greater is the amount of consumption out of profits, the lower is the consumption of workers, in given technical conditions, at any given rate of growth, and therefore the lower the highest possible equilibrium growth rate.

When there is saving out of wages, $s_w>0$, the amount of profit is $\frac{I-s_w(W)}{s_p}$ and the rate of profit is $\frac{g-s_w(W/K)}{s_p}$. There is then a lower limit to the possible equilibrium value of g. If saving out of wages, at full employment, was greater than the value of investment there would be under-consumption even at a zero rate of profit. Thus g must be at least sufficient to make I/Y greater than s_w. In short, I/Y must be less than s_p and greater than s_w.

[1] Luigi Pasinetti pointed out (in 'Rate of Profit and Income Distribution in Relation to the Rate of Economic Growth', *Review of Economic Studies*, 1962), that when there is saving out of wages there must be a class of worker-rentiers who draw income from both wages and profits. The overall value of s_p, the proportion of profits saved, would then vary with the share of capital owned by various classes of savers. In the controversy about this model (for instance, 'The Pasinetti Paradox in Neoclassical and More General Models', by Professors Samuelson and Modigliani, *Review of Economic Studies*, 1966) it was shown that, on some assumptions, these shares of capital will be continuously changing; for instance, if the share of wages in net income is high, the share of capital owned by worker-rentiers may be constantly growing at the expense of the share of pure capitalists. Since the propensity to save of the former class is assumed to be lower than of the latter, the overall propensity to save of the economy would then be falling through time, and steady growth with a constant s would not be attained until Kingdom Come, when effectively all the capital was owned by the worker-rentiers. Here we are assuming that s_w and s_p are constant through time.

When $s_w = s_p$ we are confined to Harrod's knife edge; I/Y is limited to the value of s.

Now consider the short-period equilibrium of the system when it is on a steady growth path within the possible range, assuming continuous full employment of available labour. We need not suppose that there is perfect competition in the sense that the output of each commodity every week is running at the full capacity of plant. We may suppose that there is a normal rate of utilisation of plant and near-full employment of the labour force with a normal number of man-hours of work per year. Then there is a certain flow of output in physical terms. When the money wage bill is given, the level of money prices of goods sold to the public is such that the flow of goods to be sold is absorbing the flow of expenditure, $(1-s_w)W+(1-s_p)P$. There is then a normal relation of prices to prime costs, or 'degree of monopoly' which is yielding the normal rate of profit on the normal output.[1] The output entering into net investment is reckoned at prices yielding the same rate of profit. Thus the normal level of utilisation of plant is an additional variable that must be specified in the model.

The relationship between the degree of monopoly and the rate of profit on capital depends upon the value of s_w—saving out of wages. When s_w is zero the rate of profit, π, is equal to g/s_p. It is independent of the degree of monopoly. A higher degree of monopoly means higher money prices relatively to money wages throughout the system, and so a lower level of real wages and a lower rate of sales of goods to wage-earners. But at a given point on a given growth path the value of investment in terms of a basket of consumer goods is independent of the degree of monopoly, and therefore the amount of saving, s_pP, is the same at a higher degree of monopoly; therefore the amount of profits, P, is the same. The output of consumer goods is less by the amount of the lower sales to wage-earners (money expenditure out of wages being the same at higher money prices). Net income, in real terms, Y, is thus lower, and consequently I/Y and P/Y are correspondingly higher. In physical terms, the same plant is working at a

[1] This implies that there may be chance variations in sales in particular markets, although the economy as a whole is in a steady state. The firms are assumed to keep prices constant from day to day and allow output to vary up and down around the normal level. Perfect competition would imply continuous full-capacity operation of plant. Gross margins must be governed by the relation between marginal prime cost and average prime cost. The relation between capacity and output must then be such as to yield and net profit appropriate to conditions of equilibrium.

lower average level of utilisation. The value of capital, K, is the same, and therefore v is higher. (The lower level of real wages, due to lower utilisation of plant, at a given rate of profit, lowers the upper limit to the possible value of g.)

When s_w is positive (though less than s_p) the rate of profit, π, is

$$\frac{g-s_w(W/K)}{s_p}$$

Now compare a higher with a lower degree of monopoly. A lower level of real wages (due to a higher degree of monopoly) entails less saving out of wages, and so requires more saving out of profits. P is correspondingly higher. A higher degree of monopoly thus produces a higher rate of profit on capital. $\triangle P=\frac{s_w}{s_p}\triangle W$. The transfer of purchasing power from wages to profits which is entailed by a higher degree of monopoly involves a reduction in sales of consumer goods, though less than in the case of $s_w=0$.

When $s_w=s_p$, $\triangle P=-\triangle W$; a higher degree of monopoly raises P by the amount that it reduces W. Higher purchases out of profits just make up for lower purchases out of wages. The utilisation of plant and value of Y are unaffected. The share of profit in income, P/Y, and the rate of profit, π, are fully determined by the degree of monopoly.

This does not mean that on an equilibrium growth path on which saving is independent of distribution ($s=s_w=s_p$) the rate of profit is free to vary from time to time. The degree of monopoly, once established (by the custom of the trade in each market or the policy of price leaders), has great inertia; incomes are generally received before they are spent; a *rise* of prices at a moment of time, meeting the money expenditure corresponding to the money incomes of the recent past, would bring a sharp decline in sales. Higher profits could be realised only if they were distributed in advance to provide the purchasing power to meet the higher prices. Whatever degree of monopoly has been chosen, the corresponding rate of profit is established. (But if the rate of profit has an effect upon the value of v, the knife edge is precarious indeed.)

The awkward appearance of this model is due to the fact that it reflects some features of a capitalist system but not others. The economy is made up of firms and households; incomes are derived from work and property; profits are derived from selling goods in the

market at prices which yield a return on the invested capital; from the point of view of production there are classes of workers, rentiers and entrepreneurs. On the other hand, it seems that net profit is all distributed to households, that differences in the distribution of net income between wages and profits have no appreciable effect on the distribution of income amongst households and that in respect to saving and spending all households are alike—from the point of view of income and consumption there are no classes.

In such a world, the households, taken together, decide the distribution of resources between consumption and investment and impose their decision upon the firms.

A model less inappropriate to modern capitalism could be set up as follows. The firms taken together decide upon the rate of investment; they finance net investment by retention of net profits (as well as covering replacement of equipment out of amortisation allowances); they pay out as dividends $(1-r)\ P$, where r is the retention ratio. (For simplicity we may assume that there is no borrowing at fixed interest and no new issues of shares.) When households spend the whole of the wages and dividends that they receive, and no more, the firms have complete control over the rate of saving. Then $\pi=g/r$ (s_p is equal to r). The higher is g (given r), the higher is the rate of profit. The degree of monopoly is set at a level which is appropriate to the rate of profit. The firms are, so to say, taxing the consumers to pay for their investment.

However, the firms are not able to impose this rate of saving upon the shareholders unless they are willing to submit to it. The capital created out of the retained profits legally belongs to them, and they are at liberty to treat the corresponding capital gain as income. When they are spending capital gains they are causing prices to be correspondingly higher; the firms are gaining more profits than they need to finance investment: they must be supposed to be using the surplus profits to buy up each other's shares, thus providing the counterpart to the sales of securities by shareholders realising capital gains. The extra expenditure is depressing real wages. The growth rate is limited by the tolerable minimum of real wages. Thus spending by shareholders may limit the rate of investment to less than the firms would otherwise be able to carry out.

In so far as saving out of wages is absorbing dis-saving represented by realising capital gains, the equilibrium rate of profit is lower and the real-wage rate higher.

In so far as firms prefer to finance investment by new issues, equilibrium requires that net saving by households is equal to borrowing by firms. To deal with this requirement we should have to introduce some further complications into the model.[1]

But all this is pure formalism. The controversies around $g=s/v$ have been concerned with the logical possibility of steady growth at some desirable level. But any situation that actually exists is evidently possible. The point of Harrod's argument was that actual economies cannot be expected to grow at a steady and desirable rate without conscious control and direction. Economic policy is concerned with the amount and the concrete content of investment, and with the distribution of the burden of abstinence amongst the community. Those are the questions that Harrod opened up; in twenty years what progress have we made in discussing them?

[1] Kaldor, in 'A Neo-Pasinetti Theorem' (following the Samuelson-Modigliani article referred to above), divides households into old shareholders and new savers. An excess of new savings over new issues tends to drive up the price of securities on the Stock Exchange. A higher valuation ratio of shares provides a larger flow of capital gains at a given rate of growth. The sale by old shareholders realising capital gains provides a supply of shares on the market. The valuation ratio settles at the level which equates supply and demand.

8

THE BADLY BEHAVED PRODUCTION FUNCTION

With K. A. Naqvi

The discussion of 'double switching' has left the analysis of the relation, which underlies it, between the value of capital and the time-pattern of the process of production in a somewhat confused state.[1]

In a diagram on page 38 of *Production of Commodities by Means of Commodities*,[2] Sraffa compares the prices of two commodities which are produced by the same overall quantity of labour with two different time-patterns of inputs. The prices of these commodities are equal at a zero wage rate, and at a zero rate of profit. They are equal also at an intermediate rate of profit.

We might use this to illustrate the case of two techniques to produce the same type of output—output being the net product of a self-replacing system. The rates of profit at which the prices are equal then correspond to switch points at which two techniques are equally eligible. But, if so, there is no meaning in asking whether the production function which they compose is well or badly behaved. At a switch point, the value of capital per man is the same for both—we cannot tell which switch is which.

In any case this example is not to our purpose.[3] The main point of the argument of which it forms part is to show that capital *cannot* be reduced to dated labour. Sraffa is here demonstrating that, even if it could be, there is no such thing as a quantity of capital independent of the rate of profit, elaborating a point that Wicksell had already conceded.

Sraffa himself does not use this type of example in his discussion of the choice of technique: he uses the diagram on page 85. There

[1] 'Paradoxes in Capital Theory: A Symposium,' *Quarterly Journal of Economics* 80. (Nov. 1966). All references are to this symposium.

[2] Cambridge University Press, 1960.

[3] Pasinetti (p. 504) draws on this example but he makes a radical change in it by allowing different total quantities of labour to the two techniques.

Quarterly Journal of Economics, November 1967.

one technique, let us call it Alpha, had a higher wage rate than the other, Beta, at a zero rate of profit. Output per head is higher for Alpha.

Here there is a difference between the techniques which is not solely due to the time-pattern of inputs; it involves a combination of time-pattern with the amounts of 'labour embodied' in the stocks of commodities in existence at any moment while the flow of output is being produced. This does not depend upon the existence of fixed capital in the sense of long-lived equipment. It may be true also in a pure working-capital case. (In the discussion there has been a tendency to confuse the pure working-capital case with the pure time-pattern case).

Since we are comparing different methods of producing the same thing, we may take a unit of net output in common to both techniques as our measure of value. Sraffa's diagram can be reinterpreted to make the wage a quantity of output instead of a share of output valued in terms of the standard commodity of one of the systems.

It is convenient to continue to set out the argument in terms of only two techniques. It can then be applied to a series of techniques which can be as dense as you please.

At a switch point the Alpha technique has a higher value of capital per man. Output per man is just sufficiently higher to allow the switch point rate of profit to accrue to the additional capital.

Now we can say which switch is which. When Beta becomes eligible at a lower rate of profit, above a switch point, we have the 'perverse' case in which the more labour-intensive technique is eligible at a higher real-wage rate. If there is one 'perverse' switch, there must be another, the other way, for there is one real-wage rate at which Beta yields zero profits while Alpha has a positive profit. Thus double switching is associated with perversity. The interesting point, however, is the perversity, not the duplicity.

In order to avoid prejudice, let us call the 'perverse' case a *backward* switch, and the 'normal' one a *forward* switch.

When Beta enjoys a higher rate of profit at zero wages (as it does in the single forward switch case) in spite of a backward switch at a high rate of profit, there is a third, forward, switch at a still higher rate. In short, when there is a backward switch there *must* be two ranges in which Alpha is eligible, and there *may* be two in which Beta is eligible.

The dramatic appearance of double switching has somewhat

distracted attention from a more general point. While, at the prices corresponding to any rate of profit, we can say that Alpha has a higher capital to labour ratio than Beta, we cannot say anything of the sort when we compare them at two different rates of profit.

Even in the so-called normal case, when we compared Beta at a higher rate of profit, at which it is eligible, with Alpha at a lower rate, it is not necessary that Alpha should have a higher capital to labour ratio than Beta. Alpha may be called '*more mechanized*' (less labour-intensive) but it is not necessarily *more capital-intensive* than Beta. (A case where Alpha has a lower value of capital than Beta at high wage rates is shown in Figure I).

There is a special case in which Alpha is more capital-intensive in an unambiguous sense. This is seen when, within each technique, there is a uniform capital to labour ratio, in the sense that, at any one rate of profit, the ratio of wages to net profits in value added is the same for all commodities and at all stages of the productive process, so that the relative prices of commodities are proportional to their wages costs. Within each technique a pure labour theory of value holds sway. (A special case of this is the one-commodity world in which each stock of capital consists of the same substance, say butter, as the flow of output). Then the capital to labour ratio (and therefore the capital to output ratio) for each technique is independent of the rate of profit. Since it is higher for Alpha than for Beta at a switch point, it is higher all along the line. Only one switch point is possible —at the wage rate at which the ratio of profit per man for the two techniques is equal to the ratio of their capital values. (See Figure II).

Samuelson seems to have had this case in mind when he constructed his surrogate production function with jelly capital, but, although in this case the envelope of the lines for the separate technique may *look* like a well-behaved production function, it would not *be* one. The elasticity of the envelope does not express the relative share of wages and profits, for it does not indicate how the capital to labour ratio changes when we switch from one technique to another.

Picking up the hint from the labour theory of value, we can pursue the matter a little further. Let us divide each technique into two stages. Department I (means of production) and department II (net output). When, at a given rate of profit, department I is more capital-intensive than department II then, at a slightly lower rate of profit, the capital to output ratio is lower. Since physical output per

man is independent of the rate of profit, it follows that the capital to labour ratio is also lower. Contrariwise when department II has a higher capital to labour than department I.[1]

Now, at the wage rate corresponding to a switch point, Beta can just compete with Alpha. A higher wage entails a larger proportionate reduction in profit per man for Beta than for Alpha, because output per man is less. Thus Beta could hold its own with Alpha, at a lower rate of profit (above the switch point), only if there was a sufficiently large relative reduction in capital per man.

The relations between the departments is a crude representation of the time pattern of inputs. More generally, we may say that backward switching rises from a time pattern for Beta which gives a relatively heavy weight to the 'earlier' terms. At low rates of profit this has little effect, and the upper switch is forward, going from Beta to Alpha as the rate of profit falls and the wage rate rises. Further down, there comes a point where Beta, although more labour-intensive than Alpha, fails to benefit from a reduction in the wage rate because the relative saving in wages cost is offset by the large capital cost which Beta's time pattern lets it in for at high rates of profit, so that Alpha knocks it out, in a backward switch.

There is already afloat a terminology for this discussion. In a forward switch, where the more mechanized technique becomes eligible at a lower rate of profit, there is a *positive real Wicksell effect*; a backward switch is a *negative real Wicksell effect*. A higher value of capital in terms of net output for a given technique associated with a lower rate of profit is a *positive price Wicksell effect*. A value of capital for a given technique invariant to the rate of profit (as in the labour theory of value case) is a *neutral price Wicksell effect*. A lower value of capital associated with a lower rate of profit is a *negative price Wicksell effect*. Then we can say that a backward switch arises from the less mechanized technique having a price effect which is sufficiently more negative (or less positive) compared with that of the more mechanized technique, to bring about a negative real effect. This terminology, perhaps, was not well chosen. There are no 'effects' in this story, for nothing happens. We are merely carrying out comparisons of possible equilibrium positions.

Two types of diagram have been used in this discussion. In Sraffa's diagram (followed by several participants in the symposium)

[1] Cf. Morishima, p. 525.

a family of curves shows each teachnique[1] at all rates of profit. In the other, a family of curves, ('productivity curves') shows all techniques at each rate of profit, with the corresponding values of capital in terms of output.

The two types of diagram can be combined.

The productivity curves are drawn with an x axis representing the real-capital to labour ratio. The real cost of capital, in labour time and interest at a rate equal to the rate of profit, or value of capital in terms of 'labour commanded', is an interesting concept; here we may regard it simply as the value of capital in terms of product divided by the real wage, depicting the influence of the rate

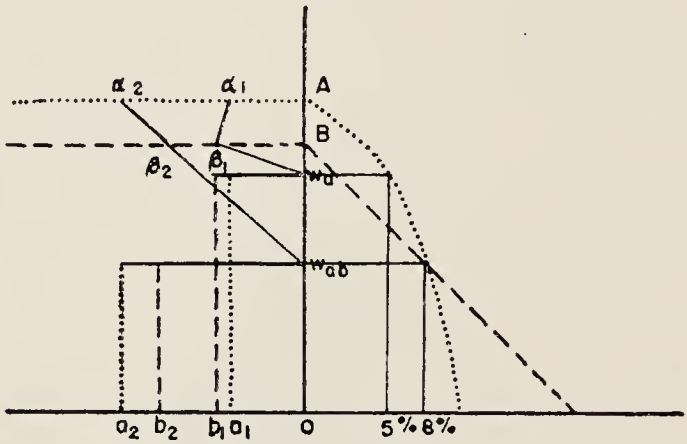

FIGURE I

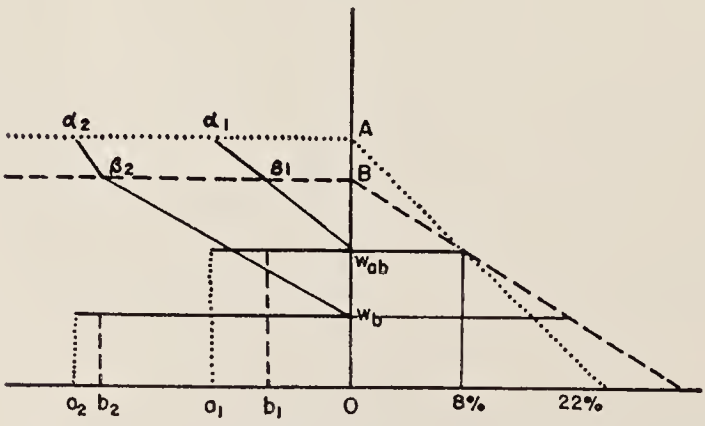

FIGURE II

[1] Each technique, of course, that is eligible, at some rate of profit. A diagram including a curve for an inferior technique is confusing. See Bruno and others, p. 535.

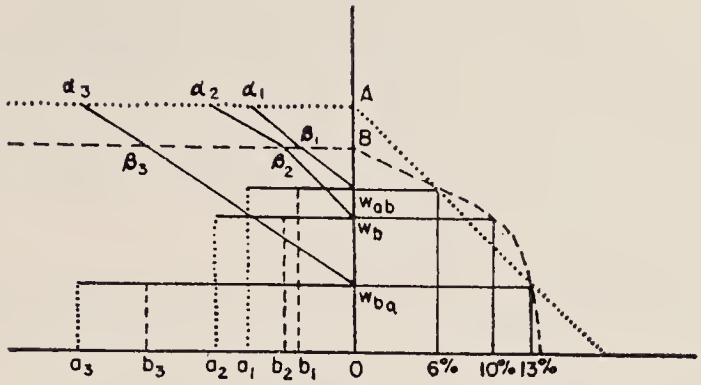

FIGURE III

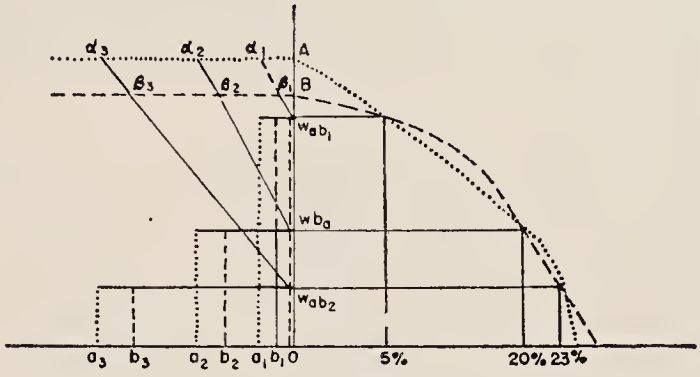

FIGURE IV

of profit. It becomes meaningless at the maximum rate of profit (zero wages). We can meet this point by setting a minimum wage below which no comparisons are made.

In each diagram the vertical axis represents net output per unit of labour. The right-hand horizontal axis is the rate of profit and the left-hand the value of capital in labour time. The labour force being given, *OA* is the output of the Alpha technique and *OB* of the Beta technique. *OWa* is a wage at which Alpha is eligible; at *OWb*, Beta is eligible. At *OWab* there is a forward switch and at *OWba* a backward switch. The value of capital for Alpha at the wage *OWab* is $OWab.a_1$; for Beta $OWab.b_1$, and so forth. $a_1\beta_1$, etc., are the corresponding productivity curves.

In Figure I the Beta technique has a constant value of capital (in the above terminology, a neutral price effect) shown by a straight line in the right-hand diagram. For Alpha the value of capital rises

as the real-wage rate falls (a negative price effect) shown by a curve that is convex outwards. In Figure II each technique has a constant value of capital. In Figure III Alpha has a constant value of capital and for Beta the value of capital rises as the real-wage rate falls. In Figure IV both techniques have a rising value of capital, the convexities of the curves varying relatively to each other so as to give a backward switch between two forward ones.

Any number of such examples could be constructed. For instance, if Alpha were continuously more concave than Beta, there would be two switches, as in Figure III; or if both were concave to varying degrees there might be three switches, as in Figure IV.

These relations illustrate the basic proposition that the value of capital in a system can be determined only when the rate of profit is specified, and show that when two techniques with different levels of net output yield the same rate of profit at a given wage rate, then, at a slightly lower wage rate, either one or the other may yield the higher rate of profit.

The same relations can be exhibited by using the method of input-output relations obtained from a 'book of blue prints' representing a given set of technical possibilities.

In the following numerical examples it is assumed that every technique can be represented by an image in miniature of an actual system. Each one of these miniature images represents a system in which one unit of current labour is employed, and the surplus consists of a single commodity.

Assume that the following three techniques A, B and C can each produce a *net* output of one ton of wheat.

Technique A

$$\frac{14}{9}\text{t. wheat} + \frac{20}{9}\text{t. iron} + \frac{4}{5}\text{labour} \rightarrow \frac{10}{3}\text{t. wheat}$$

$$\frac{7}{9}\text{t. wheat} + \frac{10}{9}\text{t. iron} + \frac{1}{5}\text{labour} \rightarrow \frac{10}{3}\text{t. iron}$$

Technique B

$$1\text{ t. wheat} + \frac{14}{5}\text{t. copper} + \frac{3}{5}\text{labour} \rightarrow 3.\text{ t wheat}$$

$$1\text{ t. wheat} + \frac{6}{5}\text{t. copper} + \frac{2}{5}\text{labour} \rightarrow 4\text{ t. copper}$$

Technique C

$\frac{3}{4}$t. wheat + $\frac{3}{8}$t. lead + $\frac{1}{3}$labour → $\frac{5}{2}$t. wheat

$\frac{3}{4}$t. wheat + $\frac{3}{8}$t. lead + $\frac{2}{3}$labour → $\frac{3}{4}$t. lead

The worker gets a share of the product, and the wage rate (w) and the rate of profit (r) are the same in the two industries in each system, for any given technology.

By arbitrarily giving values between 0 and 1 to w, or, what amounts to the same thing and is more convenient, by arbitrarily putting values of r from zero to R, the maximum rate of profit, we obtain for each of the three techniques a unique relationship between w and r. These are plotted in Figure V.

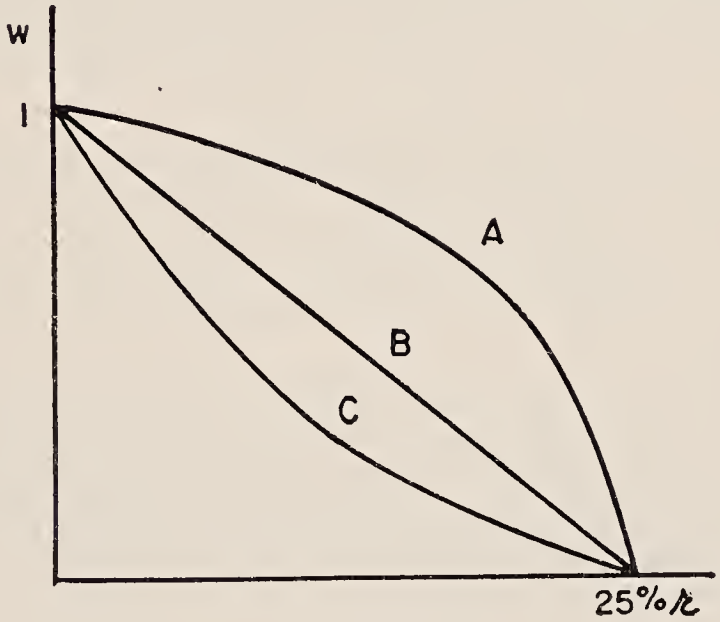

FIGURE V

Let us begin with technique B. For this technique, the w—r curve is a straight line, because at zero rate of profit the ratio of the value of means of production to labour in the wheat and the copper industries is the same. As a necessary consequence it follows that the relative price of the two commodities is constant at different rates of

profit. This price ratio is 2 tons copper=1 ton wheat, and therefore the value of means of production at all possible rates of profit between zero and R, in terms of wheat, is 4 tons wheat. This corresponds to the labour theory of value case described above.

It will be noted that in Figure V, the w—r curves for techniques A and C join the corresponding curve for technique B at the zero and at the maximum rate of profit. This is so because the above numerical examples have been so constructed that both the net output per worker and the maximum rate of profit is the same for all three techniques. And since the value of capital at $r=R$ is the reciprocal of the maximum rate of profit when net output is unity and when value of capital is expressed in terms of units of net output, uniform R in the three techniques necessarily implies that when $r=R$, the value of capital is the same in the three techniques.

We can, therefore, say that the value of capital at zero wage must be 4 tons of wheat in techniques A and C also. It further follows that the relative price of wheat and iron at zero wage rate in technique A would be 2 tons iron=1 ton wheat. Corresponding price ratio for technique C would be 1 ton wheat=$\frac{3}{10}$ton lead.

If, from the technological data of technique A, we constructed another system generating a surplus of one ton of iron, we would obtain the figure $\frac{11}{25}$ as the requirement of input of current labour. Labour 'embodied' in 1 ton of iron, then, is $\frac{11}{25}$ units. Labour 'embodied' in 1 ton of wheat, of course, is 1. Thus, at $r=0$, $\frac{25}{11}$ ton of iron=1 ton of wheat. The value of capital in units of net output, then, is 3.8 in wheat units at zero rate of profit. It can be checked easily that at various values of r from zero to R the corresponding value of capital turns out to be higher successively, till it reaches the value 4 at $r=R$.

A similar exercise in respect of technique C shows that the labour 'embodied' in one ton of lead is $\frac{34}{9}$, and therefore the wheat-value of means of production at zero rate of profit is $4\frac{1}{3}$. The value of means of production corresponding to different rates of profit from zero to R is successively lower, and in this case also is 4 at $r=R$.

It was pointed out above that the $w—r$ curve of technique B is a straight line because the proportion of means of production to labour is the same in the two industries comprising that technique. In technique A the proportion of means of production to labour is higher in the iron sector relative to that of the wheat sector, and therefore the value of capital rises as r increases. In technique C, on the other hand, the proportion of labour to means of production is higher in the wheat sector relative to the lead sector, and hence the value of capital falls as r is progressively given a higher value.

Having determined the conditions necessary for obtaining a straight line, a convex or a concave shape of the $w—r$ curve from the above exercise, it may be noted that these examples were so constructed that the difference in the proportions of means of production to labour is not disturbed through changes in relative prices. However, if we were interested in obtaining the general condition for, say, a curve that is convex outwards we would have to transform the system of technique A to simulate the production of a ton of surplus of iron:

$$\frac{4.9}{9}\text{t. wheat} + \frac{7}{9}\text{t. iron} + \frac{7}{25}\text{labour} \rightarrow \frac{7}{6}\text{t. wheat}$$

$$\frac{5.6}{9}\text{t. wheat} + \frac{8}{9}\text{t. iron} + \frac{4}{25}\text{labour} \rightarrow \frac{8}{3}\text{t. iron}$$

The two activities together use the following quantities:

$$\frac{7}{6} \qquad \frac{5}{3} \qquad \frac{11}{25}$$

The condition for the consistent convexity of the $w—r$ curve for a technique in a two-commodity system can be formulated thus: if the value of capital per worker in the system generating a net output of a unit of the commodity which serves as a *numéraire* is lower than the value of capital per worker in the system simulating the generation of a surplus of one unit of the other commodity at all possible prices corresponding to various values of r from zero to R, the $w—r$ curve would be consistently convex outward.

The condition to be satisfied for the $w—r$ curve to be concave (and, of course, the straight line case) can easily be derived from the above.

In the following examples the letters A, B and C denote the shapes of the curves and the subscripts alpha and beta refer to the relative output per head. Technique B is the same in all the examples.

Consider the case where two techniques exist which can be represented by a two-commodity self-replacing system generating different magnitudes of surplus of wheat per unit of labour.

Technique B

1 t. wheat + 2.8 t. copper + 0.6 labour → 3 t. wheat
1 t. wheat + 1.2 t. copper + 0.4 labour → 4 t. copper

Technique B_β

0.9 t. wheat + 2.088 t. lead + 0.6 labour → 2.484 t. wheat
0.684 t. wheat + 1.224 t. lead + 0.4 labour → 3.312 t. lead

At $r=0$, the proportion of means of production to current labour is the same in the wheat and the copper industries in the case of technique B and in the wheat and lead industries in technique B_β. From the earlier argument it follows that the $w-r$ curve would be a straight line for both the techniques. (See Figure II).

It may be noted that while the net output per worker is higher in technique B, the value of R is less, relative to technique B_β. Since the value of capital in terms of a unit of the commodity of which the surplus consists remains constant in both the techniques, one, and only one, switch can occur. (A single commodity case produces a single switch precisely because changes in relative price have no meaning in that situation).

We notice the fact that the value of capital per worker in our *numéraire* is for the technique with higher net output per worker (B has a net output of 1 t. wheat per worker) compared with 3.24 for technique B_β which has a net output of 0.9 t. wheat per worker.

That it is not necessarily the technique with a higher output per worker which has a higher magnitude of capital per worker at all possible rates of profit is demonstrated by the following system.

Technique A_α

0.51 t. wheat + 2.x48 t. coal + 0.8 labour → 2.55 t. wheat.
1.02 t. wheat + 2.x48 t. coal + 0.2 labour → x.896 t. coal.

Comparing technique A_α with B it is seen that while net output per worker is higher in technique A_α the latter has a lower magnitude of capital per worker at zero rate of profit. However, because of the sharp convexity of the $w-r$ curve, at higher values of r, the capital per worker in technique A_α is high enough to wipe out the difference

in net output. Indeed, the value of R in technique A_α is lower compared with that of technique B. (See Figure I).

This case demonstrates that higher output per worker does not necessarily correspond with higher capital per worker at all possible rates of profit.

Again, consider the following technique, A_β.

Technique A_β

$$0.4 \text{ t. wheat} + 1.6 \text{ t. lead} + \frac{7}{9}\text{labour} \rightarrow 1.98 \text{ t. wheat}$$

$$0.6 \text{ t. wheat} + 2.4 \text{ t. lead} + \frac{2}{9}\text{labour} \rightarrow 4 \text{ t. lead}$$

If we compare this technique with technique B, we find that while both net output per worker, and the value of R, are lower, there is a certain range of r in which A_β would provide a higher value of w compared with technique B. At $r=10$ per cent, for instance, while w equals 0.60 for technique A_β its value is above 0.64 for technique B. (See Figure III).

We may compare technique B with C_α where the latter is as follows:

$$\frac{3}{4}\text{t. wheat} + \frac{3}{8}\text{t. iron} + \frac{1}{3}\text{labour} \rightarrow 2.52 \text{ t. wheat}$$

$$\frac{3}{4}\text{t. wheat} + \frac{3}{8}\text{t. iron} + \frac{2}{3}\text{labour} \rightarrow \frac{3}{4}\text{t. iron}$$

The two activities together use the following quantities:

$$\frac{3}{2} \qquad \frac{3}{4} \qquad 1$$

Here we have r higher at a zero wage rate and w higher at zero rate of profit in technique C, and yet in a certain range of r technique B is eligible.

Finally, let us compare technique A with technique A_α when the latter is as follows:

$$0.48663 \text{ t. wheat} + 0.48663 \text{ t. aluminium} + 0.48663 \text{ labour} \rightarrow 2.046 \text{ t. wheat}$$

$$0.55934 \text{ t. wheat} + 0.76336 \text{ t. aluminium} + 0.51337 \text{ labour} \rightarrow 1.245 \text{ aluminium.}$$

It will be seen that at zero rate of profit technique A_α yields higher w, but this technique also has a lower maximum value of r.

At 5 per cent, 10 per cent and 20 per cent rates of profit, however, the two techniques yield the same value of *w*. (See Figure IV).

Incidentally, this example conclusively disproves the notion that the number of switches cannot be more than the number of capital goods in a system.[1]

Evidently multiple switching is the general case, and Samuelson's straight lines the most restricted. But there is no point in discussing which is most 'likely to be found in reality'. First, the argument concerns comparisons of equilibrium positions with different rates of profit and the same 'state of technical knowledge'. These are not found in nature and cannot be observed. Second, the argument is concerned with a point of logic, to which the number of instances has no relevance one way or the other. The benefit of the discussion is only to dispel illusions.

But when the fog has lifted two great fields of inquiry come into view—the determination of the rate of profit on the stock of capital in existence, and the choice of technique in a process of accumulation. Do not let nostalgia for jelly hold us back from exploring them.

[1] Cf. Bruno and others, p. 542.

9

MICHAL KALECKI

In 1936 Michal Kalecki took a year's leave from the institute where he was working in Warsaw and went abroad to write the General Theory of Employment. He had already published some articles in Polish (the first in 1933) outlining the main points of what afterwards became known as Keynes' theory, and he had published an article in French which nobody read and a mathematical article which nobody understood.

He was in Stockholm when Keynes' *General Theory of Employment, Interest and Money* came out. He picked up a copy and began to read the book that he had intended to write. He confessed, in private conversation, that this was a disconcerting experience but he never made any reference in public to his priority of publication (apart from one footnote in his first English book which could mean nothing to a reader who was not already *au fait*). Only just before his death, long after others had publicly made the claim for him, did he allude to it briefly in the Introduction to this volume.[1]

The volume consists of his early articles, a selection from books published after he came to England, giving the final version of his theory of fluctuations in national income and its distribution between wages and profits, together with a number of articles dealing with aspects of the same subjects. All except one ('The problem of effective demand in Tugan-Baranowski and Rosa Luxemburg') have already appeared in English, but not all are well-known. It is extremely useful to have them in a handy form. A new generation of students will find this volume very useful.

After reading the *General Theory*, Kalecki came to Cambridge and started arguing with the young Keynesians. (Keynes himself was rather aloof. Temperamentally, oil and vinegar would not mix).

He challenged us on a number of weak points in Keynes' analysis and forced us to reconsider them.

[1] *Selected Essays in the Dynamics of a Capitalist Economy*, Cambridge University Press, 1971.

Cambridge Review, October 1971.

He introduced a different interpretation of the process by which an increase in investment brings about an increase in saving; Keynes relied upon a 'psychological law' that when an individual's income increases, his expenditure for consumption increases by less; an increase in the rate of investment pushes income up to the point where saving has increased correspondingly. Kalecki pointed out that an increase in investment brings about increased saving by raising profits relatively to wages.

The whole theory in a nutshell is seen in this passage:

> We may consider first the determinants of profits in a closed economy in which both government expenditure and taxation are negligible. Gross national product will thus be equal to the sum of gross investment (in fixed capital and inventories) and consumption. The value of gross national product will be divided between workers and capitalists, virtually nothing being paid in taxes. The income of workers consists of wages and salaries. The income of capitalists or gross profits includes depreciation and undisturbed profits, dividends and withdrawals from unincorporated business, rent and interest. We thus have the following balance sheet of the gross national product, in which we distinguish between capitalists' consumption and workers' consumption:

Gross profits	Gross investment
Wages and salaries	Capitalists' consumption
	Workers' consumption
Gross national product	*Gross national product*

> If we make the additional assumption that workers do not save, then the workers' consumption is equal to their income. It follows directly then:

Gross profits=Gross investment+capitalists' consumption

What is the significance of this equation? Does it mean that profits in a given period determine capitalists' consumption and investment, or the reverse of this? The answer to this question depends on which of these items is directly subject to the decisions of capitalists. Now, it is clear that capitalists may decide to consume and to invest more in a given period than in the preceding one, but they cannot decide to earn more. It is,

> therefore, their investment and consumption decisions which determine profits, and not vice versa (pp. 78–9).

This was summed up in Kalecki's saying (which I have not found in print in English): the workers spend what they get and the capitalists get what they spend. (The workers spend their wages individually; the capitalists receive what they spend as a class.)

Kalecki transformed the highly academic theory of imperfect competition into a realistic account of the formation of prices by a mark-up on prime cost. The contention that profits per unit of output depend upon the 'degree of monopoly' is reconciled with the view that profits per annum depend upon capitalists' outlay by the argument that a higher level of prices, with a given volume of money demand, must lead to a lower level of utilisation of plant and lower employment, so that the *share* of profit is increased only by reducing the amount of wages paid out. This has always been well-known to any businessman but it was not formerly brought into the canon of economic theory.

In the passage quoted above, taxation is left out in order to get the main lines of the argument clear. The theory of taxation is treated in a separate article, included in this volume.

Kalecki laid the foundation for the only coherent model of a 'pure' trade cycle—that is a succession of boom, slump and boom without net accumulation of capital, although he later became sceptical about the validity of such a concept.

Kalecki's analytical system was based on Marx's schema of reproduction. He supplied the Marxists with a coherent solution of 'the problem of the realisation of surplus value'—that is, the determination of effective demand—which no one had succeeded formerly in extracting from Marx's writing.

Coming from a study of Marx and from the experience of quasi-Fascist pre-war Poland, Kalecki took a much less rosy view than Keynes of the possibility of reforming capitalism. In the article on 'Political aspects of full employment' (originally published 1943), he predicted that the vacillation of modern governments between fear of too much unemployment (which loses votes) and of too little (which promotes inflation) would bring about the regime of a political trade cycle (or stop-go).

For Marxists, the problem of the relation of the price level to movements in money-wage rates has been a stumbling block. It was

easy enough to accept the argument that cutting wages in a slump will only lower prices and increase unemployment. But then how could Marx be right in asserting that raising money wages will not raise prices? On the other hand to preach to the trade unions that raising wage rates does their members no good is clearly a deception. In an article published posthumously, 'Class struggle and distribution of national income' (included in *Selected Essays* 1971) Kalecki works out the consequences of continuously rising money-wage rates, and shows that while the main effect is to raise prices, yet it may also to some extent raise real wages. It is of no use to advocate 'income policy' as a remedy for inflation, without taking account of its political content.

There is one article in *Selected Essays* with which Kalecki himself was not quite satisfied. He remarks in the Introduction:

> It is interesting to notice that the theory of effective demand, already clearly formulated in the first papers, remains unchanged in all the relevant writings, as do my views on the distribution of national income. However, there is a continuous search for new solutions in the theory of investment decisions, where even the last paper represents—for better or for worse—a novel approach.

This was a subject about which I was arguing with him, on and off, for many years. He maintained that inventions (technical progress) raise the prospects of profit for capitalist firms and so encourage investment. I followed Keynes and Marx in regarding the desire of capitalists to expand their operations as an inherent characteristic of the system. I expressed this view in Keynes' phrase about 'animal spirits' which caused Kalecki to regard it as somehow irrational. I pointed out that technical progress *permits* accumulation to go on faster than the labour force is growing but it cannot *cause* high profits, for if accumulation is actually going on steadily, Kalecki's own theory shows that the rate of profit on capital will be constant. In the paper referred to in the Introduction, 'Trend and the business cycle', he compromised with me, pointing out that at any particular moment some go-ahead firms are installing equipment embodying the latest inventions in the hope of gaining a higher rate of profit than the average at the expense of their rivals. Thus it can both be true that inventions may stimulate investment and that the overall rate of profit may be constant over the long run.

The problem of accumulation in the long run comes up again in

the essay on Tugan-Baronowski and Rosa Luxemburg which, in Kalecki's usual terse style, opens up a huge field of speculation in a few paragraphs. Here my dispute with him comes up again. I do not think that he does justice to Rosa Luxemburg's vision of the long-run problem of investment opportunities drying up when the geographical expansion of capitalism comes to an end.

However that may be, this volume reminds me that I learned far more, over thirty-five years, from the arguments with Kalecki that I lost than from those that I won.

10

THE SECOND CRISIS OF ECONOMIC THEORY

The title of this talk—the second crisis of economic theory, is related to the first crisis—the great slump of the 'thirties. It is the second crisis in our lifetime—there were others before. I should say rather in my lifetime. When I see this throng of superfluous economists—I am using that word, of course, in the Shakesperian sense —I am reminded how much the profession has grown since the 'thirties and how many more there are now to suffer from the second crisis than there were to be discreditted in the first.

What was the state of orthodox opinion when the world was struck by the great slump? First of all, there was the famous Treasury View of 1929. Great Britain had been suffering from heavy unemployment while the United States was enjoying the long boom which culminated in the great bull market on Wall Street. The British situation had been exacerbated by what Keynes unkindly called *The Economic Consequences of Mr. Winston Churchill*—the return to gold at an overvalued exchange rate. In 1929 Lloyd George was campaigning for a policy of public works; Keynes, with Hubert Henderson, produced the pamphlet *Can Lloyd George do it?* which first adumbrated the theory of the multiplier and of the relation of saving to investment. To answer Lloyd George, the Conservative government produced a White Paper in which various ministers stated the case against spending money in their respective departments on housing, schools, roads etc. The Chancellor of the Exchequer was Churchill; he could not bring himself a second time to defend deflation and sound finance. It was left to the officials to produce the argument for the Treasury. Their case was very simple. It was based on the idea that investment is governed by saving. If the government borrowed £100 million to spend on public works, there would be £100 million less for foreign investment. The surplus of exports would fall by a corresponding amount. There would be a transfer of employment but no change in the total. It is not fair to put much weight on this.

Richard T. Ely Lecture, delivered to the American Economic Association meeting at New Orleans, December 27 1971 with J.K. Galbraith in the Chair.

The Treasury, after all, was rquired to say something and this was what they thought of to say. The fact that it appeared to be a respectable argument, however, certainly was a sympton of the state of opinion at that time.

In 1932, Professor (now Lord) Robbins published the famous essay in which he describes economics as the subject that deals with the allocation of scarce means between alternative uses. No doubt this was the expression of a long tradition but the date of publication was unlucky. By the time the book came out there were 3 million workers unemployed in Great Britain and the statistical measure of GNP in U.S.A. had recently fallen to half its former level. It was just a coincidence that the book appeared when means for any end at all had rarely been less scarce.

The main orthodox reaction to the slump was the argument that wages were too high. This could be backed up by statistical argument. In those old days, prices used to fall when there was a decline in demand, so that prices were lower relatively to money-wage rates than when employment was higher. In a style of argument nowadays familiar in another context, a correlation was exhibited as a cause. The theory that unemployment could be due only to wages being too high received solid support from the evidence.

In Chicago, Henry Simons maintained that there were two causes of the depression. One was the existence of trade unions which refused to allow wages to fall. The other was the existence of commercial banks. It must be observed that the trade unions support *money* wages while the theory required *real* wages to fall but no one at that time had ever discussed the influence of wages on prices. Prices were conceived to be something to do with money. It was because commercial banks were always allowing the quantity of money to expand and contract that Simons regarded them as the main source of the trouble.

While the controversy about public works was developing, Professor Robbins sent to Vienna for a member of the Austrian school to provide a counter-attraction to Keynes. I very well remember Hayek's visit to Cambridge on his way to the London School. He expounded his theory and covered a black-board with his triangles. The whole argument, as we could see later, consisted in confusing the current rate of investment with the total stock of capital goods, but we could not make it out at the time. The general tendency seemed to be to show that the slump was caused by con-

sumption. R. F. Kahn, who was at that time involved in explaining that the multiplier guaranteed that saving equals investment, asked in a puzzled tone, 'Is it your view that if I went out tomorrow and bought a new overcoat, that would increase unemployment?' 'Yes', said Hayek 'But' pointing to his triangles on the board 'it would take a very long mathematical argument to explain why.'

This pitiful state of confusion was the first crisis of economic theory that I referred to.

To understand how disconcerting the slump was, it is necessary to recall the atmosphere of the times. For fifty years before 1914 the established economists of various schools had all been preaching one doctrine, with great self-confidence and pomposity, the doctrine of laisser faire, the beneficial effects of the free play of market forces. In the English-speaking world, in particular, free trade and balanced budgets were all that was required of government policy. Economic equilibrium would always establish itself. These doctrines were still dominant in the 1920's.

The post-war atmosphere in 1919 was very different from that of 1945. Last time, the keynote was Never Again! All schemes of reconstruction and new policies were aimed at preventing a recurrence of the pre-war situation. In 1918 the mood was nostalgia. The world before 1914 appeared as normality to which all must desire to return. Of course this was an illusion. There is no such thing as a normal period of history. Normality is a fiction of economic text books. An economist sets up a model which is specified in such a way as to be a normal state. He takes a lot of trouble to prove the *existence* of normality in his model. The fact that evidently the world does exist is claimed as a strong point for the model. But the world does not exist in a state of normality. If the world of the nineteenth century had been normal, 1914 would not have happened.

At the time, however, in the post-war scene, normality lay in the past. As far as the economists were concerned, they did not really know very much about that world. They knew what was in their books. In their books, a private enterprise economy tends to equilibrium and not only to equilibrium—to an optimum position. Trouble was often caused by politicians who were short-sighted and under the sway of particular interests. If only they would establish free trade, restore the gold standard, keep budgets balanced and leave the free play of the market forces to establish equilibrium,

all would be for the best in the best of all possible worlds. Of course, there were footnotes making cautious reservations. Indeed, in the higher reaches of the profession there was something of the atmosphere of the augurs touching their noses behind the altar. Amongst themselves, they admitted it was not really like that. But their pupils took it all literally. They formed an official opinion deeply influenced by the conception of equilibrium which could be relied upon to establish itself provided that no one tried to interfere.

The doctrine that there is a natural tendency to maintain equilibrium with full employment could not survive the experience of the complete collapse of the market economy in the 'thirties.

Out of this crisis emerged what has become known as the Keynesian revolution. After the war, Keynes became orthodox in his turn. Unfortunately, the Keynesian orthodoxy, as it became established, left out the point. This is not the second crisis. This is still part of the first crisis.

Consider what was the point of the Keynesian revolution on the plane of theory and on the plane of policy. On the plane of theory, the main point of the General Theory was to break out of the cocoon of equilibrium and consider the nature of life lived in time—the difference between yesterday and tomorrow. Here and now, the past is irrevocable and the future is unknown.

This was too great a shock. Orthodoxy managed to wind it up in a cocoon again. Keynes had broken down the compartments of 'real' and 'monetary' theory. He showed how money is a necessary feature of an economy in which the future is uncertain and he showed what part monetary and financial institutions play in the functioning of the 'real' economy. Now the compartments have been restored in the division between 'micro' and 'macro' theory. Axel Leijonhufvud points out that an analysis of the harmony of an organism should be useful for dealing with the problems of its malfunctioning:

> Not so in economics. We use 'Walrasian' models for the first type of question, and 'macro-models' for the second; and we act as if this schizophrenic State of the Arts was something that we are willing to live with indefinitely. The theory of value and resource allocation deals with how economic activities are co-ordinated. Macro-theory deals with co-ordination failures—at least, that was the original problem. But the structure of the two types of models is so dissimilar that the price-

theoretical content of 'Keynesian' macro-models is often difficult to distil.[1]

The price theory of Keynes' system (as opposed to a 'Keynesian' one) certainly cannot be fitted into Walras. Axel Leijonhufvud has made an heroic effort to show how a theory of unemployment could be derived from a Walrasian model—Walras without the auctioneer. But this in fact was not the basis of the argument. The peculiar mixture of Walras with Pigou—supply and demand for given resources with profit-maximising firms of optimum size—which nowadays passes for 'micro theory' was first blended by John Hicks after the *General Theory* was published. Walras leaves out the very point that Keynes was bringing in—historical time. I remember Keynes suggesting that Walras got his idea of crying prices from the Paris bourse where in his day deals were really made by shouting bids and offers. A stock market can operate so, for it is dealing with stocks. Anyone who tries to introduce a flow of production into Walras immediately falls into contradictions. Either the whole of future time is collapsed into today or else every individual has correct foresight about what everyone else will do, while they have correct foresight about what he will do, so that the argument runs into the problem of free will and predestination. This could not be of any use to Keynes. The very essence of his problem was uncertainty. He started from a Marshallian short period. Here we are today with whatever stock of capital equipment, training of labour and business organisation that the past has produced; decisions are being taken today on the basis of expectations about the future. The Treasury View, that savings govern investment, is knocked out by the observation that investment is free to fluctuate under the influence of expectations so that income and employment are continually being pushed to the level at which overall *ex-post* saving is equated to investment.

In the new macro-micro theory, this point is lost. By one simple device, the whole of Keynes' argument is put to sleep. Work out what saving *would be* at full employment in the present short-period situation, with the present distribution of wealth and the present hierarchy of rates of earnings for different occupations, and arrange to have enough investment to absorb the level of saving that this distribution of income brings about. Then hey presto! we are back

[1] Two lectures on 'Keynes' Contribution to Economic Theory' *IEA Publications.*

in the world of equilibrium where saving governs investment and micro theory can slip into the old grooves again.

Keynes himself was not very much interested in the theory of value and distribution. Kalecki produced a more coherent version of the General Theory, which brought imperfect competition into the analysis and emphasised the influence of investment on the share of profits. Kalecki's version was in some ways more truly a *general* theory than Keynes'.

In the orthodox micro theory, having put Keyncs to sleep, perfect competition and optimum firms come back and all the problems of the New Industrial State drop out of the argument. At this very time, when the great concentrations of power in the multinational corporations are bringing the age of national employment policy to an end, the text books are still illustrated by U shaped curves showing the limitation on the size of firms in a perfectly competitive market.

This is all part of the first crisis that has by no means been resolved before the second crisis sets in.

Keynes' monetary theory has also been lost. His point was that in any given short-period situation, plans for investment are being made in the light of expectations of profit. The supply of finance has an influence on these plans—cheap money makes investment easier. In my opinion, Keynes rather exaggerated the influence of the rate of interest, but in any case it was always the rate of interest *relatively* to expected profits that had an influence. If the economy is always in equilibrium anyway, where is the room for expectations?

The strangest of all is to set up a model of a one-commodity world where there are no prices, saving governs investment, full employment is guaranteed by the real-wage rate, the difference between the future and the past is eliminated by making capital 'malleable' so that mistakes can always be undone and equilibrium is always guaranteed; then when every requirement for money as a medium of exchange, a store of value and an object of liquidity preference has been eliminated from the model, money is introduced to finance the national debt.

In the one-commodity world, of course, the distinction between real and money wages does not arise, and with 'malleable capital' the demand for labour depends on the level of wages. So Simons is proved right after all. By the one simple trick, time is abolished,

Keynes is smothered, Kalecki is ignored and equilibrium theory is enthroned once more.

This is all part of the first crisis but it helps to prepare the setting for the second crisis.

What about the Keynesian revolution on the plane of policy? Certainly the 25 years after the end of the last war were very different from the 20 years after the first. The notion that it is the responsibility of a government to maintain a 'high and stable level of employment' in its national economy was a novelty. Perhaps its acceptance as orthodoxy was mainly due to the realisation that unemployment did not occur in planned economies. Private enterprise had to vindicate itself before its own employees. A doctrine that promised to show how it could do so was very welcome.

Keynes was writing and arguing *against* the prevailing orthodoxy. He had to argue first and last that something could be done. He did not have an opportunity to describe the workings of an economy in which employment policy was an accepted feature of government. He did throw out the suggestion that he did not expect either monetary or fiscal instruments to be powerful enough to maintain stability; he believed that it would be necessary to have a general social control over investment. This has not been seen in any private enterprise economy. So-called Keynesian policy has been a series of expedients to deal with recessions when they occurred. Kalecki had a much less optimistic view than Keynes of how it would work out. Unemployment could be overcome by government loan-expenditure. With very low unemployment, the 'captains of industry' find that discipline in the factories breaks down, and prices rise.

> In this situation a powerful block is likely to be formed between big business and the rentier interests, and they would probably find more than one economist to declare that the situation was manifestly unsound. The pressure of all these forces, and in particular of big business would most probably induce the Government to return to the orthodox policy of cutting down the budget deficit. A slump would follow.[1]

Then the next election looms up and pressure to relieve unemployment grows strong again. So, he predicted in 1943, after the war we shall have overcome the problems of the commercial trade cycle

[1] 'Political Aspects of Full Employment' *Political Quarterly*, 1943, Reprinted in *Selected Essays on the Dynamics of the Capitalist Economy*, Cambridge 1971.

and we shall be living under the regime of a political trade cycle. Just now the political trade cycle seems to be taking a more violent turn than ever before.

The advocates of 'Keynesian' policies accepted only half of Keynes' diagnosis of the instability of capitalism. He described how the level of output is determined (in given technical conditions) by investment and consumption. He described how the level of prices is determined by the level of money-wage rates. It was sufficiently obvious that if continuous near-full employment was maintained without any change in traditional institutions and attitudes in industrial relations, there would be a irresistible pressure to inflation. I think that in the United States this element in Keynes was somehow swept under the carpet. It seems that the extraordinary vogue in recent years of an argument so unplausible as the Quantity Theory of Money was due to a refusal to accept the fact that the main influence on the general price level in money terms is the level of money-wage rates and the level of wage rates at any moment is more or less an historical accident, depending on conditions in the labour market over a long past. This was such a serious blow to notions of equilibrium and the rationality of a market economy that any theory was better, even a theory that consisted of nothing but a set of incantations.

In England the point was met by a new Treasury View that it would be desirable to maintain enough unemployment to keep prices stable. To make this policy acceptable it had to be argued that a 'small' amount of unemployment, say 3 per cent, would be enough. The Famous Phillips curve was used to support this point of view. After a run of years with statistical unemployment between 1 and 2 per cent, 3 per cent is not regarded by the workers as just a little, especially as, of course, it is not evenly spread, so that some regions are running into 10 per cent and more. In any case the experimental demonstration of the Phillips curve has failed. Prices go on rising along with unemployment. Now suddenly and abruptly the second half of Keynes theory has been accepted and President Nixon decides to alter the rules of the game in industrial relations by decree.

This is a fresh upheaval in the private enterprise economy but so far as economic theory is concerned it is still an element in the first crisis—the breakdown of laissez faire in face of the problem of effective demand.

The second crisis is quite different. The first crisis arose from

the breakdown of a theory which could not account for the *level* of employment. The second crisis arises from a theory that cannot account for the *content* of employment.

Keynes was arguing against the dominant orthodoxy, which held that government expenditure could not increase employment. He had to prove, first of all, that it could. He had to show that an increase in investment will increase consumption—that more wages will be spent on more beer and boots whether the investment is useful or not. He had to show that the secondary increase in real income is quite independent of the object of the primary outlay. Pay men to dig holes in the ground and fill them up again if you cannot do anything else.

There was an enormous orthodox resistence to this idea. The whole weight of the argument had to be on this one obvious point.

The war was a sharp lesson in Keynesism. Orthodoxy could not stand up any longer. Governments accepted the responsibility to maintain a high and stable level of employment. Then the economists took over Keynes and erected the new orthodoxy. Once the point had been established, the question should have changed. Now that we all agree that government expenditiure can mantain employment, we should argue about what the expenditure should be for. Keynes did not *want* anyone to dig holes and fill them. He indulged in a pleasant daydream of a world in which, when investment had been kept at the full employment level for thirty years or so, all needs for capital installations would have been met, property income would have been abolished, poverty would have disappeared and civilized life could begin.

But the economists took up the argument at the point where it had broken off before the war. When there is unemployment and low profits the government must spend on something or other—it does not matter what. As we know, for twenty-five years serious recessions were avoided by following this policy. The most convenient thing for a government to spend on is armaments. The military-industrial complex took charge. I do not think it plausible to suppose that the cold war and several hot wars were invented just to solve the employment problem. But certainly they have had that effect. The system had the support not only of the corporations who make profits under it and the workers who got jobs, but also of the economists who advocated government loan-expenditure as a prophylactic against stagnation. Whatever were the deeper forces leading into

the hypertrophy of military power *after* the world war was over, certainly they could not have had such free play if the doctrine of sound finance had still been respected. It was the so-called Keynesians who persuaded successive Presidents that there is no harm in a budget deficit and left the military industrial complex to take advantage of it. So it has come about that Keynes' pleasant daydream was turned into a nightmare of terror.

In spite of wastage and slaughter, there certainly was a great increase in economic wealth in 25 years without a slump. This was especially true in the countries which were initially not allowed to dissipate their resources on arms and could put all their investment into productive forms so that they are now threatening the overburdened U.S. industry with 'unfair competition'. But even in the United States, certainly, wealth increased. Even in Great Britain, limping along playing at being a great power after the game was over, wealth increased. The socialist countries began to envy the consumer society. Capitalism with near-full employment was an impressive spectacle. But a growth in wealth is not at all the same thing as reducing poverty. A universal paean was raised in praise of *growth.* Growth was going to solve all problems. No need to bother about poverty. Growth will lift up the bottom and poverty will disappear without any need to pay attention to it. The economists, who should have known better, fell in with the same cry. Economists used to know (but they had evidently forgotten) that the decent acceptable standard of life, in any society, is somewhere about the average that that society provides. It is a law of nature that much more than half the population (for lower incomes are more numerous) is always living below the decent standard, whatever their absolute level of consumption may be.

That is not the only point. Not only is subjective poverty never overcome by growth, but absolute poverty is increased by it. Growth requires technical progress and technical progress alters the composition of the labour force, making more places for educated workers and fewer for uneducated, but opportunities to acquire qualifications are kept (with a few exceptions for exceptional talents) for those families who have them already. As growth goes on at the top more and more families are thrown out at the bottom. Absolute misery grows while wealth increases. The old slogan, 'poverty in the midst of plenty', takes on a new meaning.

Then consider the notorious problem of pollution. Here again the

economists should have been forewarned. The distinction that Pigou made between private costs and social costs was presented by him as an exception to the benevolent rule of laisser faire. A moment's thought shows that the exception is the rule and the rule is the exception. In what industry, in what line of business, is the true social costs of the activity registered in its accounts? Where is the pricing system that offers the consumer a fair choice between air to breath and motor cars to drive about in? The economists were the last to realise what is going on and when they did recognise it they managed to hush it up again. Laissez faire and consumer's sovereignity were still absolute except for a few minor points discussed under the heading of 'externalities' that could easily be put right.

These problems arise in the economies that boast of their wealth. Perhaps they can afford the luxury of an economics profession that builds intricate theories in the air that have no contact with reality. But this luxury is too expensive for the so-called developing world where the doctrines of laisser faire and the free play of market forces are exported along with armaments to keep them from looking for any way out of their infinitely more grievous situation.

The second crisis of theory is already far advanced. I do not regard the Keynesian revolution as a great intellectual triumph. On the contary, it was a tragedy because it came so late. Hitler had already found how to cure unemployment before Keynes had finished explaining why it occurred. This time also the real situation is crowding upon us before we have begun to discuss our problems.

A sure sign of a crisis is the prevalence of cranks. It is characteristic of a crisis in theory that cranks get a hearing from the public which orthodoxy is failing to satisfy. In the 'thirties we had Major Douglas, and Social Credit—it can all be done with a fountain pen—and Warren and Pearson, who convinced President Roosevelt that raising the dollar price of gold would raise the price of everything else and bring the slump to an end. The cranks are to be preferred to the orthodox because they see that there is a problem.

Nowadays we have plenty of cranks taking up the problems that the economists overlook. Charles Reich proposes to turn America green with a spade and hoe. J. W. Forrester proves on a computer that humanity is bound to be wiped out either by poison or by famine within a hundred years. Our distinguished Chairman can hardly be classed with the cranks, considering the seat he occupies this year, but next year, perhaps, he will be relegated once more to the

position outside the pale of those who commit lese-majesty against consumer's sovereignity. The cranks and critics flourish because the orthodox economists have neglected the great problems that everyone else feels to be urgent and menacing.

The whole trouble arises from just one simple omission; when Keynes became orthodox they forgot to change the question and discuss what employment should be for.

This primarily concerns the allocation of resources between products, but it is also bound up with the distribution of products between people. On the subject of distribution, of course, there is quite a lot in the orthodox text books, but is it not at all easy to make out what it means. Keynes did not need a theory of distribution for the long run, though he had a vague idea of a falling rate of profit in his daydream of future civilization. He was concerned mainly with the short period, here and now, when only expectations of future profits come into the argument. What is the orthodox theory of profits actually received? Many years ago I set out to write a little book on Marxian economics; when I had written a chapter on Marx's theory of profits, I thought I had to write a chapter on the orthodox theory for comparison, and blest if I could find one high or low. Ever since I have been inquiring and probing but I still cannot find out what it is. We have Marshall's theory that the rate of interest is the 'reward of waiting' but 'waiting' only means owning wealth. A man 'may have obtained the *de facto* possession of property by inheritance or by any other means, moral or immoral, legal or illegal. But if, having the power to consume that property in immediate gratifications, he chooses to put it in such a form as to afford him deferred gratifications, then any superiority there may be in deferred gratifications over those immediate ones is the reward of his waiting'. In short, a man who refrains from blowing his capital in orgies and feasts can continue to get interest on it. This seems to be perfectly correct, but as a theory of distribution it is only a circular argument. The passage I just quoted came from the first edition of Marshall's *Principles*. Later he muddled up 'waiting' with saving—that is refraining from consuming income, not refraining from dissipating capital. This idea seems to have been taken up in the modern orthodoxy. The rate of interest is accounted for by the discount of the future of owners of wealth. Household saving, of course, is mainly saving up to spend later, and Marshall himself admitted that it is likely to respond the wrong way. A higher rate of return means

that *less* saving is necessary to get a given pension or whatever. But there may be some savers who have the psychology required by the text books and weigh a preference for present spending against an increment of income (interest, dividends and capital gains) to be had from an increment of wealth. But what then? Each individual goes on saving or dis-saving till the point where his individual subjective rate of discount is equal to the market rate of interest. There has to be a market rate of interest for him to compare his rate of discount to. But of course the whole thing is quite beside the point once we have accepted the Keynesian view that investment governs saving, not saving investment.

This concerns the broad division of national income between work and property or, as the British tax system describes it, between earned and unearned income. There is also the problem of the relative levels of different types of earned income. Here we have the famous marginal productivity theory. In perfect competition an employer is supposed to take on such a number of men that the *money* value of the marginal product *to him*, taking account of the price of his output and the cost of his plant, is equal to the money wage he has to pay. Then the *real* wage of each type of labour is supposed to measure its marginal product *to society*. The salary of a professor of economics measures his contribution to society and the wage of a garbage collector measures his contribution. Of course this is a very comforting doctrine for professors of economics but I fear that once more the argument is circular. There is not any measure of marginal products except the wages themselves.

In short, we have not got a theory of distribution. We have nothing to say on the subject which above all others occupies the minds of the people whom economics is supposed to enlighten.

Here the second crisis links up with the first. The first crisis failed to be resolved because there was no solution to the problem of maintaining near-full employment without inflation. Experience of inflation has destroyed the conventions governing the acceptance of existing distribution. Everyone can see that his relative earnings depend on the bargaining power of the group that he belongs to. The professors become quite nervous when they are discussing the earnings of the garbage collectors. Now it is clear enough that income from property is not the reward of waiting but the reward of employing a good stock broker. On top of this a sudden freeze comes down. If it is successful it is to keep everyone in the position

where he happened to be when the scramble for relative gains was brought to a halt and it will perpetuate the division of income between work and property that happened to exist when it set in. But it does not seem likely that it will be as successful as all that. Rather it will add a political element to the distribution of bargaining power. Perhaps this is going to create a crisis in the so called free-enterprise economy. I am not talking about that. I am talking about the evident bankruptcy of economic theory which for the second time has nothing to say on the questions that, to everyone except economists, appear to be most in need of an answer.

11

THE POVERTY OF NATIONS

GUNNAR MYRDAL went to India to embark upon this great undertaking in 1957. At that time there was hopeful talk in Delhi of finding the Third Way. Nehru's personal prestige made it possible to combine one-party rule with the trappings of democracy. The Second Five Year Plan was under way; heavy industry in the public sector was to lay the base for the modernisation of the economy. Economists were arguing about deficit finance, the capital to output ratio and the reserve of labour in disguised unemployment.

Myrdal declared his allegiance to the ideals of modernisation which are proclaimed in official pronouncements of policy by the successor governments of the disintegrated British, French and Dutch empires. He summarises them thus: Rationality—the eradication of superstitious beliefs and the adoption of a 'scientific' approach to all problems. Development and planning for development to apply rationality to economic affairs and bring about a rise of productivity and rise of levels of living, and an equalisation of income and opportunity. All this was to subserve and be supported by the overriding purpose of national integration and national independence (Chapter 2).

As the study went on, he sank deeper and deeper into disillusionment. The more he learned about India and the other nations in the region the less he could accept the facile promises of the modernisers. The mountain of information and argument in these three volumes is a record of the obstacles to development that have *not* been overcome.

The book is entitled *Asian Drama*, but the study of necessity had to omit half the protagonists. The obstacles to modernisation in South Asia present themselves in China as problems which are on the way to being solved.

First of all, the attempt to build a new society by government planning is condemned to futility in what Myrdal describes as a 'soft

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A review of *Asian Drama*: *An Inquiry into the Poverty of Nations* by Gunnar Myrdal. Penguin Press. *Cambridge Quarterly*, Autumn 1968.

state' where 'policies decided on are often not enforced, if they are enacted at all' and where 'the authorities, even when framing policies, are reluctant to place obligations on people' (p. 66). This is associated with a universal corruption that makes the administration of 'modernising' policies ineffective.

> When we observe that corruption is more prevalent in South Asia than in the developed Western countries, we are implying a difference in mores as to where, how, and when to make a personal gain. While it is, on the one hand, exceedingly difficult in South Asia to introduce profit motives and market behaviour into the sector of social life where they operate in the West—that is, the economic sphere—it is, on the other hand, difficult to eliminate motivations of private gain from the sector where they have been suppressed in the West—the sphere of public responsibility and power. In South Asia those vested with official authority and power very often exploit their position in order to make a gain for themselves, their family, or social group. This is so whether that position is the high one of a minister, a member of the legislature, or a superior official, whose consent or co-operation is needed to obtain a license or settle a business deal, or the humble position of a petty clerk who can delay or prevent the presentation of an application, the use of a railroad car, or the prompt opening of the gates over the tracks. Certain behavioural reactions generally held to be outside profit considerations in the West are commonly for sale in South Asia; they have a 'market', though certainly not a perfect one in the Western sense of the term (p. 948).

In China the state is anything but soft. By gradual stages the socialist sector absorbed the whole of industry and commerce, so that the conflict of interest and jockeying for advantage between private and public enterprises are inhibited. At the same time devolution and local initiative mitigate the rigidity of a monolithic plan. The question of personal taxation does not arise. Unearned income is a mere remnant of the manner in which the 'patriotic bourgeoisie' was let down lightly by the revolution. The funds for administration, investment and defence are collected in the prices of goods sold to the public. Thus the scope for corruption is very much less. Moreover, workers and peasants are encouraged to watch out, so that any failure of civic morality is quickly detected.

The key to economic development is to increase agricultural output. The modernisers have tried to bring about improvements by technical means but the limitation is set by institutions which destroy the motive to produce.

> The unfortunate consequences of the 'quasi-capitalistic' structure of South Asian agriculture can be seen vividly if we consider for a moment the situation in which an important member of the rural community—the sharecropper—finds himself. The insecurity of his tenure robs him of much incentive to execute output-raising improvements. Even a relatively quick-yielding investment, such as the use of fertilizer, does not deliver its full benefit in the first crop. More important, the fact that the rent varies, not with the net return, but with the gross output, means that the system has a strong built-in deterrent to intensified cultivation. Nor has the landlord any forceful inducement to invest, as he can obtain a comfortable return without doing so (p. 1065).
>
> A further deterrent to advances in agricultural productivity and to the intensification of land use is to be found in the quasi-capitalist mentality of the typical landowner. In the main, he is content with whatever his holdings produce, and disinclined to attempt to improve their yield. His negative attitude toward work, even of a supervisory kind, means that he prefers to lease his land to sharecroppers or other tenants rather than to cultivate it with hired labour. If he operated with hired hands he would have to supervise their activities or at least pay closer attention to the accounts of his managers. This passive attitude also means that most landowners are indifferent to making capital available for agricultural improvements, even when they are wealthy themselves and have ample resources to do so. Their receipts from rents and crop-shares are already satisfactory (p. 1067).

The planners and modernisers have averted their eyes from the necessity for land reform. Myrdal quotes the statement of an American expert—

> Important though the other ingredients are, unless those who work on the land own it, or are at least secure on the land as tenants, all the rest is likely to be writ in water. And this is the most difficult step to achieve. It is relatively easy to use science

> to increase production, but only if the cultivator's relationship to the land and the state's treatment of him and of agriculture create incentives to invest, to improve the land and to raise productivity (p. 1257 footnote).

—and remarks that his report was very coldly received in New Delhi.

There was a moment when it would have been possible to carry out a radical reform in India (Chapter 7, section 3), but now it is too late.

There are prospects that capitalist farming will provide institutions that permit technological improvements to raise output. Myrdal rather wistfully outlines a scheme for welfare capitalism but he has no hope that it will be realised.

> [That this process of capitalist development] is allowed to take place in a non-planned manner, and very often in blunt contradiction to commonly accepted programmes, means also that its pace is slower than it would be if governments had accepted the need for a capitalist agriculture. At the same time, no attempts are being made to introduce those policy measures that could effectively defend and advance the interests of the landless sharecroppers and labourers and thus bring about a form of welfare capitalism, particularly the minor redistributional land reform of giving the landless a tiny plot on individual title. To the radical ideologist that reform seems too timid; to the conservative it is obnoxious. Not the least of the harmful effects of the prevalent radical ideological pretensions, when they are devoid of practical accomplishment, is that they have obstructed realistic thought and debate about pragmatically sound radical policies. Yet the need for such policies is great; that they are becoming necessary in order to avoid disaster should be clear from our analysis here and in other chapters of this book (p. 1384).

The Chinese have shown what institutions the modernisation of Asian agriculture requires. First of all, a drastic land reform in each village put almost every family into the position of a 'middle peasant'; that is, brought about a land to labour ratio that permitted every one to work his own holding with his own family labour. The landlords, formerly idle, now had to work like their neighbours. Then holdings

were gradually consolidated into co-operatives, which permit organisation of labour, investment and experiment to improve methods and a system of distribution that gives every individual a visible stake in the success of the system.

> [In India] Food crops are made available for sale to the non-agricultural population, but in general this does not come about through the agency of the price system. Instead, the landlord and the moneylender are the major instruments for extracting marketable output from traditional agriculture (p. 1064).

This means that the surplus is extracted largely at the expense of the standard of life of the cultivators, whose undernourishment reduces energy and keeps production low. In China the marketed surplus is planned to skim off the excess over local needs and is paid for in cash that can be spent on industrial products for investment or household consumption. Every year, in the slack season, schemes of irrigation and land improvement are carried out and the area where drought and flood are under control is gradually spreading.

Myrdal regards industrial development as indispensable, but it cannot solve the problem of finding employment for a rapidly growing labour force. Investment which is taking place does not do much more than perpetuate the 'enclave economies' of colonial times. He favours the support of small scale production, but here also institutions stand in the way. Many of the craftsmen

> are in some form of bondage to middlemen or moneylenders. These intermediaries have an obvious stake in perpetuating the *status quo* and thwarting the reforms expected from the formation of co-operatives, the provision of technical guidance, and the distribution of equipment supplied by the government; often they take over these facilities for their own advancement. Their destructive power can be broken by vigorous policy measures, but it would be folly for reformers to underrate the force of this opposition (p. 1237).

The Chinese investment programme is formed on the principle of 'walking on two legs'. A part goes into thoroughly modern, automated installations with a high ratio of investment to labour and the rest is spread thin to bring the whole population into productive employment.

Myrdal deplores the education system in India which brings a

flood of graduates who cannot find work at the level for which they think that they are qualified; while the tradition that an educated man must not get his hands dirty keeps them from doing anything useful. In China the oriental tradition was no less strong. It is being systematically broken down by obliging students, teachers and bureaucrats to spend some time on manual work, and insisting upon trained personnel returning to work in the villages. Urban unemployment is kept in check by refusing to allow workers to drift into the cities until there are jobs for them and by spreading small but modern factories over the rural areas.

After a detailed survey of foreign trade, capital flows and 'aid', Myrdal concludes:

> There is no easy solution to any of the problems mentioned in this chapter. All avenues of policy are severely circumscribed, and each has significant and often adverse repercussions on other aspects of policy. Import substitution, in particular, is no shortcut to engendering development. This, of course, is one of the several dilemmas that weigh most heavily on those countries which are poorest and most in need of raising output per head, and which harbour the bulk of the region's population. There is a certain desperation in India's and Pakistan's attempts at development in the very difficult climate of the 1960's, and it is far from certain that they will succeed in their purpose. Clearly, these countries face a fundamentally more difficult task in trying to achieve what is glibly referred to as a 'take-off into sustained growth' than any of the now developed countries of the West faced a century or more ago (p. 672).

China has already paid for the material assistance from the Soviet Union and other socialist countries, which was invaluable at the start of her investment programme. Cutting out all but essential imports she maintains a slightly favourable balance of trade.

Myrdal does not say much about the enormous anti-aid which was given first to India by arming Pakistan as a bulwark against Russia and then to Pakistan by arming India as a bulwark against China. The Chinese have felt obliged to burden themselves with a hydrogen bomb, which, however, they call a paper tiger. Their main reliance for defence is on a popular army, which meanwhile earns a great part of its own keep by economic and educational work; and on preparing the whole population, if need be, to fight a people's war.

(At one time Western commentators treated this as a romantic notion arising from nostalgia for the heroic days of the civil war, but experience in Vietnam is making them think again.)

Overshadowing the heartbreaking problems of South Asia is the growth of numbers which frustrate all attempts at betterment. In the institutional setting of these countries an increase in the labour force necessarily reduces the share of wages and peasant incomes and increases inequality. Myrdal sadly recounts the wavering efforts to reduce the birth rate, and has not much confidence that the policies now in hand will have a quick success.

> But it is not enough to have decided on a policy. In implementing a programme to spread birth control among the masses, large cadres of workers at different levels have to be trained, organized, and put into efficient action; the whole effect has to be integrated into the general framework of administration. It is no accident that the planners in India and Pakistan, when committing themselves in the most recent plans wholeheartedly and on a large scale to a programme for spreading birth control, have emphasized above all the administration of this programme. This is not simply because of the insufficiency of trained personnel and the necessary delays before more personnel can be trained. As in all other fields, what the governments are up against are the difficulties we have summed up in this study under the heading 'the soft state', which in general tend to keep effectiveness and implementation of policies at a low level. If the new plans should fail to attain their goals, any shortcomings of plan implementation will more likely be due to this set of impediments at the administrative level than to obstacles posed by the attitudes among the masses of people (p. 1513).

In China the problem is much less desperate, because per capita food supplies are rising and employment opportunities are organised for all comers, but the drive for late marriage and small families can reach every village and every alleyway through the network of medical services and women's organisations.

The Chinese had one enormous advantage for modernisation, that their tradition was basically rationalist. Superstition was easily peeled off. ('I prayed for years to get a piece of land, but it was not the god, it was the Communists that gave it me.') Religion was, first and foremost, concerned with right conduct in this world. In South

Asia religion is impregnated with hatred of unbelievers and so provides an easy vehicle for political exploitation. At the same time an 'image' is built up of the Asian peoples as spiritual and other-worldly, selfless and disposed to disregard wealth and material comfort (p. 95) and they are taught to abhor the atheistic Marxists. But it is in China that the people seriously try to put into practice the ideal: Combat egoism and reject privilege.

As for national integration and national independence, the faint signs of hope that Myrdal allowed himself are not much brighter now.

In all these respects, like a positive, China shows the lines of Myrdal's negative in reverse. Development *is* possible, but not in a 'soft state'.

12

THE RELEVANCE OF ECONOMIC THEORY

THE controversy which has been going on for many years amongst theoretical economists about the meaning and measurement of capital must appear to outsiders (including the bulk of the profession itself) as mere scholasticism, yet it has important implications both for the formation of ideology and for understanding the world that we are living in.

Academic teaching for the last hundred years has been concerned much more with the first task than the second. It has been concerned with propagating the ideology of laisser faire and of the beneficial effects of the free play of market forces; it has done more to distract attention from the actual operations of the capitalist economy than to illuminate them. Yet it does not consist merely of slogans; it has an intellectual structure which has fascinated generations of students and provided generations of professors with position and with reputation for the brilliance with which they expound and elaborate it.

Marxists generally dismiss the whole thing as a deception without bothering to understand it; their own categories such as surplus value, variable capital, and organic composition are not defined in a way that brings them to bear on the questions that the academics discuss. Thus the two systems of ideas are not confronted with each other in logical argument, and the choice between them is left to ideological prejudice. Prejudice, of course, as well as academic funds, is heavily on the side of orthodoxy, which thus grows and flourishes undisturbed.

The new criticism, inspired by Piero Sraffa, does not merely mock at orthodoxy. It penetrates into its theoretical system and exposes its weakness from within. The debate is carried out on the plane of logical analysis; when the logical argument has been refuted, the orthodox ideology is left floating in the air, deprived of what it used to claim was its scientific basis.

Monthly Review, January 1971.

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To understand the criticism, we must first survey the scheme of ideas that it is replacing. Modern doctrines are derived from the neoclassical school which established itself as orthodox in the latter part of the nineteenth century and continued in vogue right up till the great slump of the 1930s. One of its main elements was the principle of optimum allocation of scarce means between alternative uses. Consider a situation in which there are given productive resources, fully specified in physical, engineering terms, a given body of technical knowledge, and a specific list of commodities to be produced. Resources can be used in various combinations to produce any one commodity. This is most easily seen in the case of agriculture, from which the idea was originally derived. An annual output of so many tons of corn can be produced (in the same weather conditions) by a larger labour force working more intensively on a smaller area of land or by a smaller labour force working a larger area. Again, the same labour force and the same area of land can produce a variety of crops—say, more corn and less turnips or vice versa.

This construction illustrates the concepts of *efficiency* and of *opportunity cost.* For any particular combination of commodities, there is a maximum quantity that the given resources could produce when they are fully utilized. It would be inefficient to use them in such a way that more resources produce less output. When production is efficient, in this sense, it would be impossible to produce more of any one commodity without reducing the production of something else. Thus, at every point in the range of possible efficient patterns of production, each commodity has a marginal opportunity cost in terms of the sacrifice of other commodities which would be required in order to produce a little more of this one. There is a pattern of relative prices, for any given combination of commodities reflecting marginal opportunity costs of each in terms of the rest.

Now, within its proper sphere of operation, this principle is of great importance. Its sphere is the use of limited specific resources for specified ends, in conditions of full employment and full utilization of capacity. This is the reason why the mathematical school in the USSR has been attracted to neoclassical economics, which offers them something they could not find in Marx. In Western orthodoxy, the argument was puffed up to cover the whole of economics. The linchpin of the orthodox defense of laisser faire was the doctrine that, under conditions of perfect competition, a free market will always

allocate resources efficiently in the above sense. This part of the argument has never been convincing. The textbooks dwell upon the characteristics of an equilibrium situation while being excessively vague about how a competitive market would actually reach it. But even if it were perfectly correct, this analysis leaves out the most important part of the problem. The market demand for commodities, which allocates resources between uses, is discussed in terms of the tastes of consumers, not of the distribution of purchasing power amongst them. The prices of the 'factors of production' are derived from the prices of commodities. All factors are on the same footing—the muscle of a labourer, the knowledge of an engineer, the capacity of a blast furnace to produce iron, of a loom to produce cloth, or of a field to produce corn, is each 'rewarded' according to the relation of supply to demand for the type of factor to which it belongs. The distribution of purchasing power amongst the families who derive their incomes from these 'rewards' is discussed in another chapter. It is usually admitted in the orthodox textbooks that inequalities ought to be corrected, but the main emphasis is upon the proviso that interference must not impair the delicate mechanism of the market.

A different application of the principle of efficiency is the notion of a competitive firm producing a given output at minimum cost; here we are concerned not with physical resources but with expenses. Wage rates, the rate of interest on borrowed finance, and the prices of equipment, materials, power, etc., are all given by the market; competition compels the individual seller to adopt the method of production with the least expenses per unit of output and keeps the price of the commodity from rising above its cost. Here again the argument has a certain sphere of application, but it is hardly adequate as the 'theory of the firm' for latter-day capitalism.

There was another layer in orthodox theory which came from a different source. It was a garbled version of Ricardo. Ricardo set out to find the principles which govern the distribution of the produce of the earth between the classes of society, 'the proprietor of the land, the owner of the stock or capital necessary for its cultivation and the labourers by whose industry it is cultivated'. This was turned into a theory of distribution between the factors of production, land, labour and capital. These are factors in quite a different sense from those in the 'scarce resources' argument. The capital which receives a 'reward' is not a blast furnace or a stock of copper already in existence. It is a fund of finance which can be invested in the physical equipment and

work in progress appropriate to some line of production. When the investment is successful, the business gradually recovers the original finance from gross profits and re-embodies it in whatever form, within its horizon of competence, appears to promise the greatest profitability. The service for which the capitalist receives a 'reward' more or less proportional to the amount of finance that he controls (that is, a rate of profit on capital) is described as 'waiting' because investment precedes receipts. The factors of production, then, are land, labour, and waiting, receiving rent, wages, and profits. This construction was used as an answer to the labour theory of value—not only labour produces value, capital produces some too. The labourer is worthy of his wage and the capitalist is worthy of his profit.

All this was under the rule of Say's Law—supply creates demand. Equilibrium with full employment of the labour force will always be established except when the monopolistic combinations of workers in trade unions are so foolish as to demand wages in excess of their marginal product.

The whole structure of ideas came to a crash along with the world market in the great slump. Keynes attacked Say's Law and supplied a theory of effective demand but he did not penetrate into the confusions and sophistries of the underlying doctrines.

After 1945 it was taken for granted that near-full employment was henceforth to be maintained by government policy and the ideology of 'growth' displaced laisser faire as the main defense for private enterprise. The economists, therefore, had to bring the accumulation of capital into the centre of the picture. They plunged in without a moment's thought, failing to notice the ambiguity in the conception of capital and profit in the neoclassical system. The doctrine that the rate of profit corresponds to the 'marginal product of capital' was propagated without inquiring what it was supposed to mean. A whole prosperous profession has been busy for more than twenty years, deriving mathematical propositions, interpreting statistical evidence, and putting out textbooks on this basis, while smothering criticism by a conspiracy of silence.

2

For anyone who has not been mesmerized by neo-neoclassical teaching, the fallacy is easy to see. It consists in confusing the two meanings of capital: finance controlled by capitalists which earns profits is identified with the physical equipment and stocks which

assist labour to produce output. A fund of finance is a sum of money to be invested by buying equipment at current prices or paying for it to be built at current costs. The rate of profit enters into the determination of prices. When the level of money-wage rates is given, the prices at which goods are sold has to be higher if they are to yield a higher rate of profit. The value of a stock of equipment, whether reckoned in terms of money, of labour time, or of a representative 'basket' of commodities, is not independent of the rate of profit. The concept of the 'marginal productivity of capital' was an illegitimate extension of the 'scarce commodities' concept to the sphere of accumulation. The argument is kept going, pupils bewildered, and critics exasperated by, constantly jumping from one concept of capital to the other without distinguishing between them.

The formal argument can be stated in a rough and ready way. (Those who want it rigorously must go to Piero Sraffa's *Production of Commodities by Means of Commodities.*) Suppose that, with x-ray eyes, we can see the actual flow of production that is going on over a period of time in an industrial economy, set out in physical terms—tons, pints, and yards, and man-hours of labour. From the goods in being at the end of the period, subtract the physical equivalent of those in being at the beginning. We then have net output in physical terms. In the Marxian scheme, $c+v+s$ are quantities of labour-value. Here c on one side and $(v+s)$ on the other consist of lists of physical items. These physical specifications cannot tell us the prices or rates of exchange between commodities. (There are n equations for n products and n-1 prices.) Nor can they tell us how net output is shared between wages and profits.

Now let us suppose that 'prices of production' obtain in this economy, with a uniform rate of profit. Conceptually (not, of course, in real life) the rate of profit may be anything between zero (when wages absorb the whole net product) and the maximum that would obtain if wages were zero. Consider how prices and the value of the stock of capital behave as the rate of profit is notionally varied. If the special conditions required for labour-value prices obtain—the capital to labour ratio is identical for all products—then there is one pattern of prices that is independent of the rate of profit. (At every rate of profit, 'prices of production' are proportional to labour-values.) The relative prices of commodities are proportional to the labour-time required to produce them, and the value of capital is governed by the 'labour embodied' in physical equipment and stocks.

In the general case, relative prices vary with the rate of profit. Products for which the ratio of the value of capital to the wage bill is higher than the average at one rate of profit will show a rise in price relatively to the average when the rate of profit is higher and contrariwise. (The 'transformation of values into prices' was nothing to make such a fuss about.)

This is a sketch (not an exact statement) of the formal demonstration that a 'quantity of capital' has no meaning apart from the rate of profit.

The marginal productivity argument, however, does not rely upon a single set of technical relations. The essential point for the neo-neoclassics was substitution between labour and capital. In the 'scarce resources' case, if more land becomes available to a given labour force, output per head goes up. Similarly, they maintained, with more 'capital' (without any change in technical knowledge) output per head would rise, while the 'marginal product of capital' and the rate of profit would fall. Sraffa's argument goes on to show that, when a variety of techniques are compared, a lower rate of profit may be associated with a lower level of output per head just as well as with a higher level.

This was rather shocking. At first the neo-neoclassicals sought refuge in a parable. If 'capital' were made of some homogeneous and malleable substance, such as putty, physical equipment would be just like finance. A business is continually recovering finance invested in one physical form from amortization allowances, and may reinvest it in other forms. Similarly putty-capital can be remoulded at will. Indeed putty is more convenient than finance, for finance has to submit to risk and is recovered only over a period of time, while putty-capital in the parable can be instantaneously adjusted whenever there is a change in the state of demand. The problems concerned with getting into equilibrum and, indeed, the whole problem of historical time, moving from an irrevocable past into an uncertain future, is left out of the story.

A more subtle line of defense was to confine the argument to the case of labour-value prices (though of course a neo-neoclassical would not put it like that) so that a higher value of capital is necessarily associated with a higher output per head. Next, a sally was made to try to prove Sraffa wrong in the general case. At last the conspiracy of silence was broken. In 1966 (in the so-called reswitching debate) a flood of mathematical argument came in from England, Italy,

Japan, India, and Israel. The neo-neoclassics had to admit that Sraffa was right. But:

> He who is convinced against his will
> Is of the same opinion still.

3

The formal argument is just a formal argument, but it opens up questions of the greatest importance.

It destroys the presumption that the rate of profit measures the contribution of investment to national income (let alone to human welfare).

It exposes the fact that the orthodox school has failed to answer Ricardo's question. Indeed, it does not have a theory of distribution at all.

It calls in question the benefit to society of 'economic growth' which consists mainly of the accumulation of capital by the great corporations under their own control and for their own purposes ('what is good for General Motors is good for the United States').

It throws a new light on the meaning of the 'export of capital' which is supposed to be a benefit to so-called developing countries.

Indeed, it requires a radical reconsideration of all the slogans of orthodoxy.

The transformation of *values* into prices is also a purely formal argument. The question which lies behind it concerns the manner in which a capitalist economy operates. Does the rate of exploitation dominate the rate of profit? That is, does the balance of power in bargaining between employers and workers determine the share of wages in net proceeds, or is it rather the requirements of profits that determine what is left over for wages from a given level of physical output?

The wage bargain is made in terms of money. Marx once argued (in *Value, Price and Profit*) that strong trade unions can raise real wages and squeeze profits to any extent. We know now that they can sometimes squeeze profits a little bit for a little time, but, in the main, rises in money-wages rates are offset by rising prices (percentage gross profit margins vary very much less than the level of money-wage rates). In a general historical sense, obviously, the social, political, and economic forces that determine the workers' bargaining power are of dominant importance, but from day to day in the private-enterprise system profits have the upper hand.

The theory of profits which is called Keynesian really derives from Kalecki (Keynes did not interest himself very much in the problem of distribution). It belongs to that part of Marx's scheme which is concerned with the 'realization of surplus value'. The capitalists clearly could not get any profit out of selling commodities on which no more was being spent than the wages earned in producing them. The receipts to cover overheads and profit must come from other sources. The wage bill for investment and rentier expenditure (out of interest, distributed profits, and realized capital gains) comes back through the shops to cover the element of gross profits in sales. 'The workers spend what they get and the capitalists get what they spend.' An important corollary of this way of looking at things is that the proper function of profits in a capitalist economy is to be saved and invested. Expenditure out of 'unearned income' (as the tax collectors neatly describe it) merely raises profits at the expense of real wages without contributing to production.

Another corollary is of the utmost importance in understanding the 'fiscal crises' of the modern state; government outlay (which has the same effect as capitalist investment) reduces real wages even if the whole increment of expenditure is covered by taxes on profits.

The radical economists who have established a new movement in American universities are generally inclined to say that they always knew that economic theory was a lot of rubbish; it is irrelevant anp not worth answering. By this policy they allow themselves to be encapsulated. They are given a course to teach or a paper to examine as a side line, while, in the mainstream, students continue to be demoralized by having to repeat arguments which they vaguely feel to be unsatisfactory without knowing quite why. The radicals ought to be helping them to find the clue. But the neo-neoclassical professors are very agile debaters. The radical has to be well versed in Sraffa and Kalecki if he is going to take them on.

13

ECONOMICS TODAY

THE present state of affairs in theoretical economics is very distressing. There are deep and prolonged controversies going on about purely logical points. Differences of opinion there will always be where political issues are involved; these are differences of judgment and of moral values. They should not affect logical analysis. In economics, unfortunately, logic is corrupted by opinions. Arguments are judged by their conclusions, not by their consistency. Terms are used without definitions, so that propositions containing them are merely incantations. Economics is a branch of theology.

I have myself been involved in a controversy for more than fifteen years, about the meaning of capital accumulation. After it had been going on for about ten years Professor Solow of MIT made the pronouncement 'Everybody except Joan Robinson agrees about capital theory'.[1] But he did not make it at all clear what it was they agreed about, so that it was not easy to answer him. Soon afterwards there was a fresh round in the debate in which Professor Samuelson had to admit that the MIT line was based on a mistake.[2] But we are no further on. Just now a certain Professor Ferguson has published a book[3] in which he concedes the point but still maintains his opinion. He says it is a matter of faith. So what can I do about that?

Modern economic theory began with the question of capital accumulation. Adam Smith and Ricardo were interested in what we nowadays call growth. Ricardo was concerned to justify a political conclusion—he wanted to reduce the level of land rent—but he did not rely on theological arguments. He thought it was necessary to understand how the economy works. His ideas were taken up by

[1] Robert M. Solow, *Capital Theory and the Rate of Return*, North Holland Publishing Company, Amsterdam 1963. Afterwards he got rather self-conscious about this. He cut it out of the second edition.

[2] Paul A. Samuelson in 'Paradoxes of Capital Theory', *Quarterly Journal of Economics*, November 1966.

[3] C. E. Ferguson, *The Neoclassical Theory of Production and Distribution*, Cambridge 1969.

A lecture delivered at the University of Basel, December 1969.
Basel Wirtschaftswissenschaftliche Vorträge, 1970.

Marx and given a political twist that made them disagreeable and dangerous. The neoclassical schools—for there were several of them —came into fashion as an antidote to Marx. Keynes impatiently threw all economics from Adam Smith to Pigou into one box and called them 'classical'. For him they were all alike for they did not take account of his problem—the influence of effective demand on the level of employment. But this was a solecism. There is a great difference between the classics, who were trying to understand the capitalist economy and the neoclassics who were trying to justify it.

The neoclassics (except for Marshall who preserved something of Ricardo mixed up with the new fashionable ideas) did not tackle the classical question. They concentrated upon one point on which Marx was rather weak—the theory of the relative prices of particular products. Supply and demand, the operation of markets, competition and monopoly were elaborated in great detail while what we nowadays call macro-economics—the behaviour of the system as a whole—was left extremely vague.

The neoclassical school was still the dominant orthodoxy when I began to study economics in the 'twenties; I understand it very well—I even wrote a book in that style. It was a system of *a priori* argument. Choose assumptions and deduce conclusions from them. There was no attempt to check up with observations of what actually happens.

The only reason why such a subject was able to flourish was that there was no need for economics to have any real content. The doctrine that it was propagating was laissez faire. There was no occasion to offer any advice on policy, for Governments ought not to have any policy. Leave the market forces free play, eschew protection and balance the budget. Then competition will dispose resources in such a way as to produce the optimum result.

This orthodox system remained floating in the air while on the earth below Great Britain was suffering from severe dislocations after the 1914–18 war and it remained when the whole capitalist world plunged into the great slump. The famous definition of economics as the study of the allocation of scarce means with alternative uses was published by Professor (now Lord) Robbins in 1932 when there were three millions of workers unemployed in Great Britain and the national income of the United States had fallen to half its preceding level. The problem evidently was not scarce means.

This was a bit too much, even for economists. The slump

destroyed the old complacent orthodoxy. With Keynes we seemed to break out of the cocoon of theology. For a time it seemed as though economics had entered a new era. It was going to be about actual problems. It was going to show how the actual economic system works. The debate was sharp. Orthodoxy had not finally surrendered when the war broke out. The war was a good lesson in economics. After that experience it was no longer possible to argue that government expenditure cannot affect employment; vulgar Keynesism became orthodox. Governments accepted the responsibility for maintaining the level of employment each for their own people. (In Switzerland you have a very good method of maintaining employment for Swiss people—when there is a recession you send the foreign workers home.)

In economic life, certainly, this was a new era, with new problems requiring new solutions. But the new era in economic theory did not last long. The neo-neoclassical school soon smothered it and got it wound up again in the cocoon of theology. How did this happen? It was connected with the problem of the meaning of capital.

Keynes theory was deliberately confined to the short-period situation, here and now. (He used to say: the long period is a subject for undergraduates.) But when the mechanism of the short-period was understood and when the promise of continuous near-full employment was held out, long-period theory had to be discussed. The question was opened up by Harrod. Harrod projected Keynes theory into the long period and showed that it is logically possible that there should be growth of the economy as a whole, in some circumstances, in equilibrium conditions with continuous accumulation of capital at a steady rate, but that there is no mechanism in an unregulated private-enterprise economy to ensure that it will be realised.

In Keynes' General Theory there is no need for a definition of capital. The stock of means of production in existence is whatever it is—a huge who's who of specific items—which has been brought into existence by past history. There is no precise meaning for the current rate of profit on capital. There are quasi-rents (gross profits) being received, but the proper allowance for depreciation, to reduce them to net profit and the value of the stocks of capital, to present them as a rate, depend upon what earnings will be in the unknown future. For new investment prospective earnings can be represented as an expected rate of profit—what Keynes called the marginal

efficiency of capital. The capital cost of the investment is known and the future earnings of the project are estimated. But the estimates that were made when the present stock of equipment was created are turning out to have been mistaken.

For long-period problems we have to consider the meaning of the rate of profit on capital. On an imagined equilibrium path, where expectations are being fulfilled, the value of capital equipment, reckoned as its future earnings discounted at a rate of interest equal to the rate of profit, is equal to its initial cost, which involves prices including profit at the same rate on the value of the capital involved in producing it, allowing for depreciation at the appropriate rate over its life up to date.

The value of a stock of capital equipment, therefore, involves the rate of profit. There is no meaning in a 'quantity of capital' apart from the rate of profit.

Following Harrod's lead, I began to try to make a generalisation of the General Theory and for this purpose it was necessary to tackle the problem of the meaning of capital. The neoclassical schools had been very vague on the subject. For Walras all factors of production are given in physical quantities—specific kinds of labour, specific areas of land and specific stocks of means of production of various kinds. In Marshall there is a normal rate of profit but there is no account of what determines its level. Wicksell tried to solve the problem on the lines of Böhm-Bawerk's period of production but he found that it would not work. Unlike Marshall, who, when he comes to a weak point in his argument, distracts your attention with reflections like: 'There are many fine natures among domestic servants' or the story of the apprentice who married the boss's daughter, Wicksell is very candid. When he cannot get an answer he admits the difficulty. This I found very helpful; I gave great credit to Wicksell—not for getting an answer but for seeing the problem. Piero Sraffa's interpretation of Ricardo provided the most important clue and the long-delayed publication of his book *The Production of Commodities by Means of Commodities* put into a sharp form the ideas that I had been groping for.

But meanwhile the neo-neoclassical school had established a dominant position for itself in the United States and was rapidly disseminating its influence over the world. The professors of MIT evidently did not know that the neoclassics had no theory of capital. They just took it for granted that 'capital' is a factor of production

which had a 'reward' equal to its marginal product. They were drawing isoquants and production functions in terms of quantities of labour and capital. Now, we all know that labour is not a homogenous quantity, but, for the sake of the first step in analysis, we can take labour of given quality in terms of a number of man-hours. What is the unit of capital? Is it a sum of money or is it a stock of specific equipment? In either case, what does its marginal product mean?

When I asked this question, the neo-neoclassics came out at me like a swarm of hornets. Capital is capital, they buzzed. Everybody except you knows perfectly well what capital is.

Some of them, in particular Professor Trevor Swan, followed by Professor Meade, offered an answer in terms of a funny story. Capital consists of some homogeneous physical stuff. Professor Meade called it *steel.* I said, let us call it *leets* because we do not know what it is. This leets can be put into a production function—output per man is a function of leets per man. But this still leaves the question of the price of capital goods to be determined. They got out of that by making output also consist of leets—they reduced the whole argument to a 'one-commodity world'. The use of models in economic theory is to eliminate inessential complications from the analysis of some problem so as to concentrate on the main point; the use of this model is just to eliminate the point.

With the aid of the concept of capital made of leets, the neo-neoclassicals, instead of generalising the General Theory, wiped it out. In the one-commodity world, there is no problem of unemployment. Whatever the quantity of leets-capital there is at any moment, it can be squeezed up or spread out to employ the available amount of labour. If there were unemployed workers they would offer themselves for lower leets-wages. The whole wage rate would be reduced by this competition and the leets-capital would be spread out to employ more men with a higher rate of profit. In short, the pre-Keynesian dogma was re-established. Unemployment can be due only to wages being too high.

Equally, in the one-commodity world, there is no problem of the level of effective demand. A certain amount of leets is being produced with the stock of leets-capital and the fully employed labour force. Part of the leets-output is consumed and part saved. The part which is being saved is added to the heap of leets-capital and squeezed up to employ the labour becoming available. The pre-Keynesian theory that saving governs investment is put back into place.

Now the neo-neoclassicals could go merrily on teaching their pupils to draw production functions in terms of 'capital' and labour and account for the distribution of income between work and property by the marginal productivity of leets and labour.

Perhaps the United States can afford a profession like this—it is just a way of consuming the surplus—but these doctrines have been disseminated also in India and other so-called developing countries where economic problems are important and urgent.

How has it been possible to get generations of students to accept these meaningless incantations? The trick is ingenious. The argument is put into mathematics. K is a quantity of capital—integrate it, differentiate it, and do all kinds of beautiful and intricate mathematical operations with it. Now the general run of students cannot understand what is going on; they think it must be because they are not clever enough and they are silent. The clever ones, however, learn to do these tricks; then they have a vested interest in thinking them important. They will devote their lives to teaching them to new generations. So the system perpetuates itself.

Of course mathematics can be very useful. But good mathematicians avoid fudging. If you want to prevent yourself from being bamboozled, I can offer a very simple tip—never allow your professors to write K on the blackboard without asking in what units it is expressed. Perhaps it will make them cross—but if they get cross instead of giving an answer you will know that you are on the right track.

In itself, of course, the definition of capital is a purely formalistic question but its implications are not unimportant. With the aid of their leets the neo-neoclassicals have restored the defense of laisser faire, emasculated the General Theory and re-established the doctrine that the free play of the market guarantees not only efficiency but social justice.

I feel very sad about all this. The new light that seemed to be dawning with Keynes has been clouded over. Economics is back where it was, a branch of theology. Meanwhile the problems in actual economic life are developing to a new stage. For some time after the war the mere fact of preventing a slump was a great triumph. Modern capitalism seemed to be a new economic system. The Marxist economists were disconcerted to see the level of real wages growing in all the industrial economies. An economics that consisted of mere incantations was quite appropriate. But now three great and menacing problems are looming into public consciousness.

First of all, the management of modern capitalism is carried out by national governments. Each government is concerned to prevent unemployment, keep inflation in check, balance its foreign payments and maintain a steady rate of growth of statistical GNP. (In West Germany they have actually put this into law.) The most convenient way to carry out these objectives is to run a surplus on the balance of trade, as the Germans have found. But unfortunately the balances of trade of all nations taken together are zero. The external relations of the trading community are all the more chaotic because the internal economies are controlled by national policy. The international problems of modern capitalism explode from time to time in a financial crisis which is smoothed over by financial reforms, but the real problems lie below the surface; they cannot be solved by financial gadgets.

Then the whole question of the Third World, where hunger and misery are growing as development fails to keep up with the growth of numbers, begins to overshadow the success of modern capitalism and threaten it self-satisfaction.

Lastly, the internal problems of the successful economies are causing disquiet. The economists have relapsed into the slogans of laisser faire—what is profitable promotes growth; what is most profitable is best. But people have begun to notice that the growth of statistical GNP is not the same thing as an increase in welfare. The existence of dismal poverty in the richest nations the world has ever seen is a disgrace. The costs of so-called growth in polution and destruction of amenities are reaching a critical level. Above all—the Keynesian policy of maintaining prosperity by government investment has been carried out by the arms race and cold and hot wars.

Here are the problems that *ought* to concern economists. Full employment is not enough—we should be asking 'What is employment for?'

The economists have abdicated and leave sociology and psychology to take up the tale—but they cannot find the answers by themselves. It is still necessary to understand how the economic system works. There is a great opportunity for a new generation of economists to make an important, an indispensable contribution to the critical questions to which enlightened opinion is everywhere demanding an answer.

This is no time for students to spend their precious years learning nothing except to repeat incantations.

14

MARGINAL PRODUCTIVITY

WHEN I was an undergraduate in the 'twenties, earnest, and simple minded, I was troubled about social justice. It seemed that what we were reading about the Economics of Welfare confirmed the feeling that inequalities of income were wrong. A classmate said: Oh no, what it means is that if you just put in your marginal product, you get what is fair. I do not think our teachers were consciously inculcating this doctrine. They did not quote J. B. Clark: 'What a social class gets is, under natural law, what it contributes to the general output of industry.'[1] But the general tendency was in that direction. Marshall, in his day, had had the same experience:

> From Metaphysics I went to Ethics, and found that the justification of the existing conditions of society was not easy. A friend, who had read a great deal of what are called the Moral Sciences, constantly said: 'Ah! if you understood Political Economy you would not say that.'[2]

Nowadays, of course, no one would put it so crudely. Nowadays the hidden persuaders are concealed behind scientific objectivity, carefully avoiding value judgments; they are persuading all the better so.

As a matter of fact in the orthodox teaching the theory of distribution has nothing whatever to say, one way or the other, about the distribution of income. The theory purports to be concerned with the distribution of the product of industry between the factors of production. It says nothing about how the factors are distributed amongst the people. The theory purports to explain the differences between skilled and unskilled wages, not how the chance to acquire skill is limited. It purports to explain rent per acre, not the size of estates; the rate of interest, not the possession of capital. (Rent is

[1] *Quarterly Journal of Economics*, April 1891, p. 313.
[2] Pigou, A. C. (Ed.) *Memorials of Alfred Marshall*, p. 10.

The Indian Economic Review, April 1967.

admitted to be an anomaly. The landlord is not considered to be contributing to the general output of industry, but interest is the 'reward of waiting', so that is all right.)

In its proper sphere, as an analysis of the determination of the division of the product of industry between wages, rent, and profits, what has the orthodox theory to offer? Its main point, I think, is to find an explanation of factor prices in purely physical, technical conditions, independent of the manner in which an economy is organised. This is borne out by the fact that, nowadays when it has to be admitted that imperfect competition and unemployment reduce its relevance in a capitalist setting, the claim is often made that the true application of the theory, in its pure form, is to the problems of socialist planning.

Yet the very essence of the theory is bound up with a particular institution—wage labour. The central doctrine is that 'wages tend to equal the marginal product of labour'. Obviously this has no meaning for a peasant household, where all share the work and the income of their holding according to the rules of family life; nor does it apply in a Yugoslav enterprise, where the workers' council has to decide what part of net proceeds to allot to investment, what part to a welfare fund and what part to distribute as wages; nor in a Soviet enterprise, where output and wage bill are both decreed by the plan. The situation in terms of which the theory is conceived is that of an employer who can take on more or fewer hands as he pleases. He will not take on an extra man if to do so would add more to his costs than to his proceeds, or dismiss a man if it would deprive him of proceeds more than it saved him of costs. In a perfect market for both products and factors, the marginal cost of labour to the employer is equal to the wage rate, and marginal proceeds to the value of the product. In those conditions, therefore, he employs such an amount of labour that its marginal product is equal to the wage. This is the nub and essence of the whole argument. The freshman's error, that the employer offers the man a wage equal to his marginal product, is sometimes proclaimed by those who are by no means freshmen, but that was never properly a part of the orthodox theory.

Who is this employer? He is a capitalist (or a manager working for capitalists) who provides the means of production for the workers to operate. The employment he offers is therefore limited by the amount of productive capacity at his command. Capital, we know, raises a lot of difficulties, so the argument begins with land. The

employer has a certain area of land under his control and he pays workers to cultivate it. The market also presents difficulties, so we imagine all transactions made in kind. The wage is so much corn per annum. We neglect equipment and working capital, so that labour and land are the only factors of production. Land and labour are all alike, and there are no economies of scale. With given methods of production, output per man falls off after a certain point as the number of men employed per acre rises. The marginal principle shows that the higher the wage, the smaller the number of men employed. When the wage is too high to permit all available labour to find work, men offer themselves for less corn, and when it is so low that more labour is demanded than is available, competion for hands drives it up. Thus the wage settles at the level corresponding to the marginal productivity of the available labour force when employed on the available land.

Here then we have the wage determined by technical conditions alone. And Euler's theorem permits us to prove that in these conditions rent per acre corresponds to the marginal productivity of land. Now we can throw out the institutional relations between employer and employed and show that exactly the same distribution of the product would occur if workers employed themselves and rented land. Each would take on such an area that the marginal product of a little more would be less than the rent, and of a little less would be greater. Rent would be equal to the marginal product of the available land when worked by the available labour, and Euler's theorem would show that the wage was equal to the marginal product of labour.

This was not intended to apply to any particular kind of society that has ever existed in fact. It is intended, rather, to show that the laws of distribution are independent of the form of society in which they operate because they are based on technical relationships—in this case the relationship between production per head and the intensity of cultivation of land. At the same time it purports to show how the operation of free competition leads to the optimum use of the factors of production; the marginal productivity of labour is the same on each area of land, so that output could not be increased by moving a unit of labour from one area to another. Thus the maximum possible output is being produced from given resources.

In attempting to advance from this base to a theory of distribution

between wages and profits in manufacturing industry, the marginal analysis meets three obstacles of ascending difficulty.

The first concerns imperfect competition. The normal situation of a capitalist firm is to have productive capacity for more goods than it can sell and to be using the various arts of salesmanship to extend its market. Sometimes output is limited by capacity, but then capacity will soon be expanded; a strong seller's market never lasts for long. Prices are not normally determined by marginal costs, but by prime costs plus a mark-up. The marginal net product of labour (after allowing for raw materials, power and maintenance of plant) is equal to the wage plus profit.

It is not legitimate to say: Let us first assume perfect competition, and bring in the complications later; for an economy in which text-book perfect competition was possible would be different from our own in important respects; we do not know what contradictions we may be letting ourselves in for by assuming it. Indeed, it usually has to be buttressed by a range of further assumptions, such as that plant is perfectly durable, that there is no interest on working capital, and so forth. Very drastic assumptions are useful to hack out a new path, but it hardly seems worthwhile making them in order to stroll up a well-trodden blind alley.

The second obstacle concerns the wage bargain. It is an essential step in the primitive land-and-labour analysis (and a concealed assumption in latter-day orthodox models) that full employment is assured by the real-wage rate finding the level at which the demand for labour absorbs the available supply. But the wage system was evolved precisely to exploit fully the possibilities of specialisation; a necessary pre-condition for specialised production is the institution of money—that is, some vehicle for generalised purchasing power. The labour contract is made in terms of a money-wage rate, not in terms of a share of the product. Nowadays Finance Ministers all over the world are pointing out to Trade Unionists that raising money-wage rates pushes up prices and does them no good. The same principle holds on the other foot. In competitive conditions, a cut in money-wage rates reduces costs, and therefore prices, more or less proportionately, and so leaves real wages practically unchanged. If prices are sticky, real wages fall, but then there is a slump in the wage-good industries, and greater, not less, unemployment.

But often the later-day marginalists will say that they are prepared to leave the theory of employment to Keynes; they are not concerned

with how full employment is achieved, but with what the level of real wages *would* be *if* full employment obtained, for a given labour force with a given stock of capital.

Let us consider what this means. First, what is a given stock of capital? In this context, clearly, it is the actual equipment and stocks of commodities that happen to be in existence today, the result of recent or remote past history, together with the know-how, skill of labour, etc., that makes up the state of technology. Equipment is not like the 'free gifts of nature', which have to be taken as they are and made the best of. It is designed for a particular range of uses, to be operated by a particular labour force. There is not a great deal of play in it. The description of the stock of equipment in existence at any moment as 'scarce means with alternative uses' is rather exaggerated. The uses in fact are fairly specific, though they may be changed over time. But they *can* be less or more fully utilised, at any moment, by offering less or more employment to labour. This is a characteristic of the wage economy. In an artisan economy, where each producer owns his own equipment, each produces what he can and sells it for what it will fetch. Say's Law, that goods are the demand for goods, was ceasing to be true at the time that he formulated it.

With a given stock of means of production in existence, a given level of money-wage rates, and given price-policy of firms, there is a particular level of prices corresponding to each level of employment. Therefore corresponding to each level of employment there is a particular pattern of real-wage rates and gross profits and a particular flow of demand for goods. For that level of employment to be sustained, demand must be such as to absorb the output. In particular, expenditure on gross investment must be sufficient to provide the excess of gross receipts over the expenditure on consumption, or putting the same thing the other way round, there must be a sufficient excess of expenditure for consumption over the wage bill to provide the excess of gross profit over gross investment. In short, there must be enough investment to absorb saving. The orthodox theory has to hand over to Keynes and Kalecki the short-period theory of distribution at the same time as it hands over the short-period theory of employment.

It is true that, at a given level of employment, we can specify the marginal product of labour in any line as the output that would be lost if a unit of employment was withdrawn; and it is true that if we neglect interest on working capital and wear and tear of plant as

elements in prime cost, we can say that if perfect competition in the text book sense were ruling, then the value of the marginal product of labour in each line would be equal to the wage. This is merely describing a pattern of relative prices that is compatible with text book perfect competition. It does not specify a particular technically determined level of real wages corresponding to full employment, for (provided that sufficient means of production are in existence for regular industry to employ the available labour force) full employment can obtain with various proportions of gross investment to consumption; moreover, a given proportion of gross investment is associated with different levels of real wages according to the extent of the excess of consumption over the wage bill.

In the simplest case, where all wages are currently consumed week by week as they are received, the gross profit on the sale of consumption goods, taken as a whole, is equal to the wage bill for gross investment, *plus* consumption out of profits. The greater is the volume of expenditure from unearned income, the higher are profit margins and the lower the real-wage rate. (Text book perfect competition then requires that pressure on capacity has pushed up marginal cost correspondingly higher in relation to average prime cost).

All this is old familiar stuff—it would not need repeating but for the slap-happy style in which the so-called mathematical economists nowadays construct models and 'test' them in computers without taking the trouble to make them internally consistent.[1]

The relation of real wages to the level of employment is not of merely doctrinal interest. In the United Kingdom today it is considered to be urgently necessary to increase investment. One of the difficulties in doing so is the inflationary pressure that arises from an increase in the share of gross profits in gross income. How are the workers to be asked to accept 'wage restraint' unless there is a restraint on profits? In the United States, unemployment is the problem. If it could be relieved by tax cuts, generating purchasing power, would not a general cut in profit margins be still more effective? These are the questions that all the rigmarole about marginal productivity is designed to prevent us from discussing.

However, the orthodox theory is not really concerned with this

[1] *E.g.*, R. M. Solow, 'Substitution and Fixed Proportions in the Theory of Capital', *Review of Economic Studies*, June 1962.

purely short-period analysis. The main argument is not about what happens with a stock of capital that is already congealed into hard objects but about the long-run adaptation of capital into different forms in response to differences in factor prices. Here we come to the third form of obstacle. What does a quantity of capital mean when it is not a stock of means of production specified in physical terms?

Let us contemplate an imaginary equilibrium situation, with a uniform rate of profit confidently expected on investment in all lines and being actually received on all past investments. The amounts of productive capacity are correctly adjusted to demand in each line and all goods are being sold at prices which yield the appropriate amount of profit on all the capital directly or indirectly involved in producing them. Given the state of technical knowledge, the equilibrium stock of physical capital goods is then specified; the flows of output and the level of prices relative to money-wage rates are determined; all this is entailed by the proviso that conditions of long-period equilibrium obtain with the given rate of profit.

Now compare another position with the same technical conditions and a different rate of profit. The composition of output may be different (for instance, at a higher rate of profit the real-wage rate is lower, and if the rate of accumulation of capital is the same in the two positions there must be more consumption from unearned income) and different methods of production may be in use (for instance, with a higher rate of profit and lower real wages, more labour-intensive techniques may be eligible). The stock of capital goods will then be different in whatever way is appropriate.

How is the difference conceived to come about? The basis of the analysis is that employers in each economy have always had correct foresight about future prices and wages. They have therefore been able to choose such outputs and such techniques that they could not have made more profit by investing in any other way. The rate of profit, so to say, has to be given in advance, and the stock of capital adjusted to it.

There is no point in trying to distinguish marginal productivities as between two positions of equilibrium with different rates of profit. Each has its own future and its own past. No one is making a marginal adjustment between one and another. In general the pattern of prices and the physical composition of the stock of capital will be quite different in the two positions, and it is vain to attempt to

find a unit of 'jelly' in which the two stocks can be measured.[1] But it may be that in one position, with one uniform rate of profit ruling, there are two techniques of production (for all or part of the output) which are equally eligible—at the ruling prices, one requires a larger investment per man employed than the other, and produces an output per man just sufficiently larger to yield profit at the ruling rate on the extra capital. Here we can distinguish a marginal product of labour in a different sense from that used above. In the short-period case we measured marginal product by the output that would be lost, physical capital remaining the same, if a unit of employment were withdrawn. Here we compare two methods of production, with the rate of profit the same but the physical capital different. A given value capital offers less employment in the more mechanised technique. The less mechanised technique offers more employment, produces more output per unit of capital and (since both are equally profitable) the additional output just pays the additional wage bill. Thus there is a sense in which the marginal product of labour is equal to the wage. Once more this is merely spelling out the implications of the concept of equilibrium that we started with. We are not an inch nearer to finding a theory of what determines the distribution of the product of industry between wages and profits.[2]

On the other hand the analysis of the choice of techniques is relevant to problems of planned development. In particular it shows that in a wage economy employment will not be offered when marginal productivity does not exceed the effective subsistence minimum, so that for over-populated countries, cooperative self-help in the style of the Chinese communes presents the only hope of getting started.

But what about the basic model with land and labour as the only factors? Why has it let us down? The reason is that it was a fudge in the first place. Labour cannot produce with land alone. Any process of production requires some pre-existing products. All output is the result of 'production of commodities by means of commodities'. Even if we abstract from implements and raw materials, it is still

[1] They can however be compared in terms of 'labour embodied'. See Sraffa—*Production of Commodities by means of Commodities*, Cambridge University Press 1960, p. 68.

[2] Professor Solow's *Capital Theory and the Rate of Return* is partly intended to answer, or rather to brush off, criticism on these lines. What he proposes is to give a highly idiosyncratic meaning to 'marginal productivity of capital' according to which it is bound to be equal to the rate of profit, whatever the rate of profit may be. This does not seem to get us much further.

necessary to admit that the workers must eat every day. Someone has to finance the process of production from the moment when work begins till the harvest is reaped. The 'wages fund' is not a fusty old classical fallacy, but the irreducible core of the stock of capital. A robin needs no capital. He picks up food every day from his territory. The nest needs no finance for the hen feeds herself as she builds it. For humans, if processes of production were so short that the wage could be paid out of the product day by day, capitalism could not have come into being, and there would be no wages.

In our primitive model, when the landlords employ workers, the marginal product of labour covers both the wage and profit on working capital. When peasants finance themselves and hire land, their income is not a wage. Let us introduce an embryonic capitalist into the story who provides finance, lending corn for the wage fund to the landlord in the first case and the means of subsistence to the peasants in the second. Then the rate of interest will vary with the amount of finance available and the degree of competition among lenders. The rate of interest and the time-pattern of production determine the share of profit in the excess of proceeds over rent. The marginal product of labour is equal to the wage only when the rate of profit is zero.

It is easy enough to understand why the orthodox school shied away from the promising start which Ricardo had made in finding a theory of distribution applicable to a capitalist economy, but how were they able to keep going so long up a blind alley?

In my young days the trick was worked by concentrating on micro problems. It was somehow taken for granted that the normal rate of profit for the economy as a whole was at a level sufficient to cover the 'discount of the future'; this normal level of profit was the supply price of capital to any one industry; then we could go merrily ahead working out theorems about increasing and diminishing returns, internal and external economies, or joint and composite demand, subject to conditions of perfect competition, filling the shelves of the shop, as Clapham complained, with empty boxes.[1]

Nowadays micro theory is more complicated. Administered prices, product differentiation, oligopoly and the costing margin dominate the scene, and 'price equals marginal cost' has dropped from view. All the same, 'wage equals marginal product' is as flourishing as ever. Now it is enshrined by the cult of the Cobb-

[1] *Economic Journal*, September 1922.

Douglas production function. Statistics for the long-run development of the advanced industrial economies, though very imperfect, are now good enough to offer scope for interpretation. In the typical case we see the value of output per man-hour rising over time, and the value of capital per man employed (by whatever rough measure can be used) rising more or less in step, so that there are no clear indications of marked changes in the capital to output ratio; the share of wages in the value of output is also fairly constant through time. It follows that the rate of profit on capital has not changed noticeably. Now, on a production function such as the theory postulates, a higher wage rate is associated with a lower rate of profit. Wages rising while the rate of profit is constant indicate continuous technical progress. Every observation is on a different production function. Similarly with international comparisons. Very large differences are found between real-wage rates, without any marked divergence in rates of profit. Each country, as we should expect, has its own technical conditions. How to find the shape of a curve from one point on it is the mystery which this cult celebrates.

If all the money, hard work and intellectual ingenuity that are being poured into this pursuit were devoted to interesting questions —but no, interesting questions lead to dangerous thoughts.

15

SOLOW ONCE MORE

THESE lectures provide an elaboration of the neoclassical parables (as Professor Samuelson calls them) 'which pretend that there is a single thing called 'capital' that can be put into a single production function and along with labour will produce total output'. The parable in its modern form—the 'one-commodity economy'—grew out of controversies about the meaning of a 'quantity of capital', but basically it is not concerned with capital theory; it is a doctrinal exercise providing an account of pre-Keynesian orthodoxy. Neoclassical teaching in the 1920's (as I know from my own experience as a student) was mainly concerned with problems of the relative prices of commodities. The outlines of macro-theory were extremely vague. Yet for practical purposes there was an orthodox doctrine (though not often sharply stated) concerned with employment and output as a whole. It had two departments. One dealt with a stationary state, with given resources. The stock of capital in existence at any moment could give employment to all available labour at an appropriate real-wage rate. Unemployment was due to the Trade Unions keeping wages too high (the distinction between real and money wages was imprecise) so that excessively capital-intensive techniques were being used. Thus the essential characteristic of the implied assumptions was indefinite substitutability between labour and 'capital' which could be put into effect instantaneously in response to changes in 'factor prices'. The other branch of the theory was more explicit —it was that the decisions of households in regard to saving govern the rate of accumulation of capital goods. It used to be, as Marshall put it, 'a familiar economic axiom that a man purchases labour and commodities with that portion of his income which he saves just as much as he does with that which he is said to spend'.

When capital goods and the flow of output consist of various distinct kinds of hard objects, with distinct patterns of relative prices,

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A review of R. M. Solow, *Growth Theory, An Exposition.* The Radcliffe Lectures, delivered at the University of Warwick, 1969. Oxford 1970. *Kyklos*, December 1971.

and when economic decisions have to be taken on the basis of expectations about unforeseeable future conditions, it is not quite easy to say what these two doctrines are really asserting. Keynes tried to interpret them in order to show that they were irrelevant to the problem in hand—the influence of effective demand on the level of activity in an industrial economy. The one-commodity world provides a setting in which they can be deployed.

In order to provide a vocabulary (not to mock European agriculture) let us suppose that output consists solely of butter, which can be put to stock and used for further production, and let us suppose that the only consumable is ghi, into which butter can be transformed without extra cost. There is a homogeneous labour force. Land is free and does not come into the argument.

In the first lecture, Professor Solow postulates that the supply of labour grows at a constant rate, n. Translated into our terms, saving (adding butter to stock) is a constant proportion, s, of net output of butter. Output of butter per unit of labour employed is fixed, and so is the requirement of the stock of butter per man employed (allowing however, for a margin of excess capacity). Thus, v, the capital to output ratio, stock of butter per unit of output of butter, is fixed in physical terms.

With these assumptions, he poses Harrod's problem, The proportion of saving to output nv is required for steady growth. When s exceeds nv, surplus capacity is growing and when it falls short, unemployment is growing.

Professor Solow has evidently heard a rumour that a post-Keynesian model has been proposed, in which saving comes mainly out of profits, so that s, the overall saving ratio is influenced by the share of profits in net income. He wants to introduce something similar into his pre-Keynesian model. When s exceeds nv, growing excess capacity causes competition for labour and so has a tendency to raise butter-wage rates and reduce the share of profits. Thus, if saving from wages is less than from profits, s tends to fall as time goes by. Contrariwise, when s is less than nv, it tends to rise.

The other resort is one that he has used before, to make v a function of s/n. But he cannot do this in his first lecture, with fixed technology.

In the second lecture, v varies with employment per unit of the stock of butter. Professor Solow states: 'It comes naturally to an economist to draw a curve' (p. 17). I would have hoped that it comes

more naturally to an economist to remember the assumptions that he made last week; then (given the stock of butter in existence) output per unit of employment was a horizontal straight line up to full capacity. However, now we have been presented with the familiar well-behaved production function in labour and butter, and the well-worn story is repeated. When s exceeds nv, v is rising by a process of 'capital deepening', and contrariwise. Here we see the great virtue of the butter assumption. We do not have to bother about the difference between a long-period production function in terms of capital per head and a short-period utilisation function for labour applied to a stock of specific equipment. Nor does a change in the long-period ratio of capital to labour require any transformation of old plant into new forms. Fresh butter, saved this week, is simply dumped on top of the pre-existing stock. It hardly seems necessary to put the argument into algebra.

Next, technical progress is introduced. The stock of butter required per unit of output of butter remains constant while output per unit of labour rises. Thus with a constant amount of employment in terms of labour time, the stock of butter in units of butter is rising through time at a steady rate, while the employment in efficiency units of labour is rising at the same rate.

The third lecture introduces a vintage model. Technical progress is embodied in successive rounds of investment. Output per head for a group of workers depends upon the age of the equipment that they are operating—a later date of installation corresponding in a regular way to higher output per head.

Now, with a conjurer's flick of the wrist, Professor Solow changes the assumptions (p. 50) while continuing to keep the audience distracted with his patter.

Hitherto s has been a proportion of net output. A proportion $(1-s)$ of net output has been turned into ghi and consumed. The underlying concept is that the owners of butter do not treat the part of gross investment required to keep the stock intact over any period as part of that period's income. We may suppose that there are entrepreneurs unremarked at the back of the stage (as Morishima puts it) like the black-clad property-men of the Kabuki theatre, who manage gross investment and pay out wages and net profits to households. But now the households manage the whole affair; s has become the proportion of gross saving in total output.

Once gross investment is given, the vintage model can be quickly

disposed of, for it fixes the amount of dated butter replaced in each period, and so determines the length of service of each vintage. The wage rate at any moment is equal to the output per man of the vintage which it is *just* not worth while to use. In spite of fine words about the engineering specifications of different techniques (pp. 39–40), the investment of each period is still just a lump of butter. In the former type of technical progress, physical butter was in a constant ratio to labour in efficiency units, while labour in efficiency units per man employed was growing at the growth rate given by technical progress. Now butter in efficiency units per man employed is growing at the growth rate. Professor Solow prefers to return to the former case (p. 57), as it does not make any difference to the argument. We can grant him that.

Now there is a surprise in store; into the one-commodity, no-price economy, money is going to be introduced. But first Professor Solow makes a strange observation: 'If the only asset available is real capital, *or titles to real capital*, then every act of saving, i.e. every decision to add to wealth, is a decision to buy real capital' (p. 59, my italics). It seems that he is adding to his pre-Keynesian armoury what we used to call the buckets-in-a-well theory, that was, the argument that savings placed on the Stock Exchange generate a demand for capital goods equal in value to the purchase of consumption goods being forgone. However, it seems that 'titles to real capital' was just a slip and we need not make a fuss about it.

But what is money? Butter is the unit of account; if a medium of exchange is needed, fully backed paper certificates of butter in stock could easily be devised. Why is not butter also a store of value, a supply of finance and the embodiment of rentier wealth? It seems that any other kind of money must be otiose.

But we suddenly meet with a price level in terms of money (p. 60). It obeys the rules of a very simple-minded Quantity Theory. The sole function of money is to finance a budget deficit. There is a government which needs more butter than it gets by taxation and it acquires what it needs by 'using the printing press'. But who holds money? To sell its bonds, the government would have to offer a rate of interest at least equal to the butter-rate of profit plus the rate of rise of the price of butter in terms of money—and then a bit more, for, after all, butter is butter. And where does the government get the funds to pay interest? There was nothing in the original pre-Keynesian theory quite as queer as this.

The last two lectures are announced to deal with questions of economic policy. Now we must be careful. 'It is a common vice of present-day economic argument to jump from a highly abstract piece of analysis straight to prescriptions for policy, without going through the intermediate stage of examining how far the assumptions in the analysis fit the facts of the actual situation.' I made this reproach to Harrod's *Economic Dynamics* more than twenty years ago. But, Harrod's book, all the same, was pointing towards a question of the greatest interest and importance. Professor Solow's lectures are so tightly wrapped up in a circular argument that they cannot point anywhere at all.

In his introductory remarks, he promised a parable which would interpret some information that is available about modern industrial economies, for instance, that output per man employed and capital per man generally rise more or less in step with each other, so that capital to output ratios do not change very much over long spells of historic time.

The statistics to be interpreted are collected in dollars; the ratios are ratios of values; in the world of butter there are no prices. The statistics refer to economies in which accumulation is the result of the investment plans of firms and governments, not of a predetermined savings ratio (whether net or gross). They refer to economies where wages are paid in money; real-wage rates and relative shares are a function of the relation of money prices to money wages. And they reflect the creation and transformation of successive stocks of specific physical capital goods. How can rules for policy be deduced from a parable that explains nothing but itself? I do not think I will attend the rest of the course.

16

CAPITAL THEORY UP-TO-DATE

THE lectures which Professor Solow gave in Holland (published in 1963)[1] opened with the remark: Everybody except Joan Robinson agrees about capital theory. He did not say what it was that they agreed, and a few years later the 'reswitching' controversy brought some important differences of opinion to light. Now, fortunately, we have a clear exposition of what Professor Solow must have meant. Professor Ferguson, in *The Neoclassical Theory of Production and Distribution*, asserts that belief in neoclassical theory is a matter of faith. 'I personally have the faith' he declares, so that we can learn from him what it is that the neo-neoclassicals believe neoclassical theory to be, But first let us trace the history of the 'reswitching' affair.

1

RESWITCHING

In the course of investigating the meaning of a production function for output as a whole, I set up what Professor Solow later correctly described as a pseudo-production function, showing the possible positions of equilibrium, corresponding to various values of the rate of profit, in an imagined 'given state of technical knowledge'. The analysis showed that there is no meaning to be given to a 'quantity of capital' apart from the rate of profit, so that the contention that the 'marginal product of capital' determines the rate of profit is meaningless. (In the present argument 'land' as a separate factor of production is not taken into account.) Incidentally, I found that over certain ranges of the pseudo-production function the technique that becomes eligible at a higher rate of profit (with a correspondingly lower real-wage rate) may be less labour-intensive (that is, may have a higher output per man employed) than that

[1] Robert M. Solow, *Capital Theory and the Rate of Return* (Amsterdam, 1963).

A review of C. E. Ferguson, *The Neoclassical Theory of Production and Distribution* (London and New York, 1969). Canadian Journal of Economics-Revue canadienne d'Economique, III, no. 2 May-mai 1970.

chosen at a higher wage rate, contrary to the rule of a 'well-behaved production function' in which a lower wage rate is always associated with a more labour-intensive technique. (I attributed this discovery to Ruth Cohen—a private joke.)

I had picked up the clue from Piero Sraffa's Preface to Ricardo's *Principles* and my analysis (errors and omissions excepted) was a preview of his. When his own treatment of the subject was finally published in *Production of Commodities by Means of Commodities* (in 1960) the 'Ruth Cohen case' (which I had treated as a *curiosum*) was seen to have great prominence; the striking proposition was established that it is perfectly normal (within the accepted assumptions) for the same technique to be eligible at several discrete rates of profit. It was from this that the soubriquet 'reswitching of techniques' was derived. (The difference between my treatment and Sraffa's was accidental. I put the main emphasis on differences in the amounts of 'labour embodied' in the equipment appropriate to different techniques while Sraffa illustrates his point with a case in which two commodities require the same labour applied in different time-patterns. The backward switch, from a lower to a higher output per head with lower wages, is connected with the inter-relations of the time-patterns of the techniques; his examples gave more scope for it than mine.)

The neo-neoclassicals took no notice; they went on as usual drawing production functions in terms of 'capital' and labour and disseminating the marginal productivity theory of distribution. In 1961 I encountered Professor Samuelson on his home ground; in the course of an argument I happened to ask him: When you define the marginal product of labour, what do you keep constant? He seemed disconcerted, as though none of his pupils had ever asked that question, but next day he gave a clear answer. Either the physical inputs other than labour are kept constant, or the rate of profit on capital is kept constant.

I found this satisfactory, for it destroys the doctrine that wages are regulated by marginal productivity. In a short-period case, where equipment is given, at full-capacity operation the marginal physical product of labour is indeterminate. When nine men with nine spades are digging a hole, to add a tenth man could increase output only to the extent that nine dig better if they have a rest from time to time.[1] On the other hand, to subtract the ninth man would

[1] See D. H. Robertson, 'Wage Grumbles', 1930, republished in *Economic Fragments*.

reduce output by more or less the average amount. The wage must lie somewhere between the average value of output per head and zero, so that marginal product is much greater or much less than the wage according as equipment is being worked below or above its designed capacity.

In conditions of imperfect competition, under-capacity operation of plant is normal (except in an acute seller's market) and, in industry as a whole, it seems that, on average, wages are usually about half of value added. The marginal product of labour, in the short-period sense, is therefore generally about twice the wage.[1]

In long-period equilibrium, with a constant rate of profit, the stock of equipment and the amount of employment have been adjusted to each other. When competition prevails in the long-period sense of free entry to all markets, so that a uniform rate of profit tends to be established throughout the economy, the wage is equivalent to what Marshall called the marginal *net* product of labour—that is the value of average output per head *minus* a gross profit sufficient to pay for replacement and net profit at the going rate on the value of capital per man employed, when all inputs are reckoned at the prices appropriate to the given rate of profit. The wage is determined by technical conditions and the rate of profit, as at a particular point on a pseudo-production function. The question then comes up, what determines the rate of profit?

But this was going too far. Professor Samuelson retreated behind what he called a surrogate production function.[2] It was a special case (as Piero Garegnani promptly pointed out)[3] of a pseudo-production function with labour-value prices. When, for any one technique, the capital to labour ratio and the time-pattern of inputs are uniform throughout all the processes of production, prices are proportional to labour-time. The value of capital in terms of product, for that technique, is then independent of the rate of profit. When each technique in the 'given state of knowledge' has this character and the time-patterns are all alike, the order of techniques in terms of output per head is the same as the order in terms of value of capital per man for each technique at the rate of profit that makes that technique eligible; a higher output per man is associated with a higher wage and

[1] Cf. A. M. Okun, *Potential GNP. Its Measurements and Significance*, Cowles Foundation Paper 189.

[2] 'Parable and Realism in Capital Theory: The Surrogate Production Function,' *Review of Economic Studies*, 29 (June 1962), 193–206.

[3] *Ibid.*, 202 n.

lower rate of profit. When a pseudo-production function of this type is set out as a relationship between 'capital' and output, it looks just like a well-behaved production function.

Professor Samuelson believed that in this he had provided for the 'neoclassical parables' of J. B. Clark 'which pretend there is a single thing called "capital" that can be put into a single production function and along with labour will produce total output.'[1]

At first the neo-neoclassicals were happy to accept his parable. (This was the period of Professor Solow's lectures and of the first draft of Professor Ferguson's book, in which, he tells us, he relied upon the surrogate production function to protect him from what he calls Cambridge Criticism.) For some years they remained cooped up in this position, repelling all attacks with blank misunderstanding. Then, growing bold, they descended to the plains and tried to prove Sraffa wrong.

This rash enterprise was not successful; Professor Samuelson very handsomely admitted that he had been mistaken.[2] But he mistook his mistake. The trouble was not merely that he had ignored Garegnani's warning and treated labour-value prices as the general case. The real mistake was to suppose that a pseudo-production function, which relates the rate of profit to the value of capital at the prices corresponding to that rate of profit, provides the 'neoclassical parable'. Neoclassical 'capital' is a physical quantity which is independent of prices.

2

Capital

The neo-neoclassicals' concept of capital is derived from Walras, but they have transformed it into something quite different. In a Walrasian market, when dealing begins, there are particular supplies of factors already in existence each measured in physical terms—man-hours, acres, tons, pints, and yards. In the neo-neoclassical concept of capital all the man-made factors are boiled into one, which we may call *leets* in honour of Professor Meade's *steel*.[3] But leets, though all made of one physical substance, is endowed with the capacity to embody various techniques of production—different

[1] *Ibid.*, 194.

[2] 'A Summing Up' in 'Paradoxes of Capital Theory: A Symposium', *Quarterly Journal of Economics*, 80 (Nov. 1966), 568–83.

[3] J. E. Meade, *A Neoclassical Theory of Economic Growth* (London 1961).

ratios of leets to labour—and a change of technique can be made simply by squeezing up or spreading out leets, instantaneously and without cost. A higher output per man requires a larger amount of leets per man employed. In Walrasian competitive equilibrium there can never be increasing returns from one factor applied to a given quantity of another. This rule is observed by leets. There is a well-behaved production function in leets and labour for each kind of output, including leets. Moreover, leets can absorb technical progress, without losing its physical identity, again instantaneously and without cost. Then to simplify still further, output is also taken to be made of leets; the whole Walrasian system is reduced to a 'one-commodity world'.

This is the conception in which Professor Ferguson has re-affirmed his faith.

Many economists, nowadays, who are interested in practical questions, are impatient of doctrinal disputes. What does it matter, they are inclined to say, let him have his leets, what harm does it do? But the harm that the neo-neoclassicals have done is, precisely, to block off economic theory from any discussion of practical questions.

When equipment is made of leets, there is no distinction between long and short-period problems. The answer to Dennis Robertson's question is simply fudged. Nine spades are a lump of leets; when the tenth man turns up it is squeezed out to provide him with a share of equipment nine-tenths of what each man had before.

There is no such thing as a degree of utilisation of given equipment rising or falling with the level of effective demand. (Professor Solow pretends that his production functions are drawn in terms of concrete capital goods, but the fact that the short-period utilisation function is identical with the long-period pseudo-production function gives him away.)

There is no room for imperfect competition. There is no possibility of disappointed expectations—indeed, there is no difference between the past and the future, for the past can always be undone and readjusted to a change in the present situation.

There is no problem of unemployment. The wage bargain is made in terms of product and there is perfect competition both between workers for jobs and between employers for hands. Unemployed workers would bid down wages and the pre-existing quantity of leets would be spread out to accommodate them. The neo-neoclassicals have reconstructed the vague doctrines of the neo-

classicals from which was derived the dogma which Keynes had to attack in the great slump of the 'thirties, that unemployment can be caused only by wages being too high.

In long-period analysis, the neo-neoclassics are prone to confuse a comparison of positions of equilibrium (as in a pseudo-production function) with a 'Wicksell process' of accumulation without technical progress. 'A given state of technical knowledge' consists simply of a production function in terms of leets and labour. Accumulation consists of adding some leets to the pre-existing stock and squeezing it into a new quantity per man employed. This entails raising the wage rate and reducing the return per ton of leets. Thus a process of raising the capital to labour ratio means creeping along the production function, moving step by step from lower to higher ratios of leets to labour. (It is notable that when Professor Samuelson conceded defeat in the 'reswitching' controversy, he did so in this form. He seemed to suppose that if the process of accumulation hit a backward switch, where a lower rate of profit is associated with a lower value of capital per man, the economy would suddenly find itself able to consume part of its capital without reducing its productive capacity.)

This brings into play the other aspect of pre-Keynesian theory. Saving consists in a decision not to consume a part of the current output and this causes investment to make a corresponding addition to the stock of 'capital'. The neo-neoclassicals have succeeded in tying themselves up again in habits of thought from which Keynes had had 'a long struggle to escape'. (However, when it comes to offering advice on questions of national policy many of them propound quite simple-minded Keynesian views.)[1]

3

Wages and Profits

The main function of the concept of leets is to provide a theory of the distribution of the product of industry between wages and profits.

At any moment, with a given quantity in existence of leets regarded as capital equipment, the wage in terms of leets regarded as product is at the level compatible with full employment of the available labour force. Then, with a few extra assumptions, such as

[1] Cf. R. M. Solow, *The Nature and Sources of Unemployment in the United States* (Wicksell Lectures, 1964).

that there is no charge for interest on the part of working capital which represents the wage fund, it is shown that the wage is equal to the marginal product of the available labour force, that is, the amount of product per week that would be lost if one less man were employed and the stock of leets squeezed up appropriately. If the wage were less than this, competition for hands would drive it up. If it was greater, less men would be employed and competition for jobs would drive it down. The wage being equal to the marginal product of labour, it is shown by Euler's theorem that the product minus the wage is the marginal product of a ton of leets multiplied by the quantity of leets in existence.

Now, capital in the world we live in has two aspects. It consists of the stocks of equipment and materials which (with education and training) permit workers to produce marketable goods and it consists of the command over finance which permits employers to organise the production of goods which they can sell at a profit. In the 'one-commodity world' the price of a ton of leets-capital in terms of leets-output is unity. The two aspects of capital are fused. A ton of leets is both a piece of equipment and a sum of purchasing power. Then the return to a unit of leets, leets over leets, is the rate of profit on capital. Thus labour and capital each receive a 'reward' equal to their marginal productivity. As J. B. Clark himself put it: 'What a social class gets is, under natural law, what it contributes to the general output of industry.'[1]

Here, indeed, we find the origin of the concept of leets. First came the dogma that the rate of profit that the owners of capital enjoy is equal to the productivity of capital equipment, and that saving continues to cause capital to accumulate so long as its marginal product exceeds the rate of interest which represents the 'discount of the future' in the minds of its owners. Then the question is asked, what is this 'capital' that has a marginal product? Leets had to be invented to give an answer to that question.

Of course, all this is not intended to be taken literally. Even Professor Ferguson admits that capital equipment actually consists of a variety of hard objects that cannot be squeezed up or pressed out, without cost, to accommodate less or more workers. Leets is only a parable, as Professor Samuelson claimed. But as soon as they give it up, their argument comes unstuck.

[1] J. B. Clark, 'Distribution as Determined by a Law of Rent', *Quarterly Journal of Economics*, 5 (April 1891), 313.

Professor Ferguson, for instance, incorporates a 'vintage model' in his system. The vintage model is taken over from Harrod's conception of an economy realising the 'natural' rate of growth given by technical progress.

Gross investment, in each period, is embodied in equipment for the latest, most superior technique. The conditions for equilibrium growth are that technical progress should be raising output per head at a steady rate and that it should be neutral in Harrod's sense, so that a constant rate of profit on capital is compatible with a constant capital to output ratio and constant relative shares of wages and profits in net output. A constant share of gross investment in total output then produces growth of output per head at a steady rate.

On any one equilibrium path, the rate of profit on capital is constant through time, but there may be different paths (with the same sequence of technical innovations) with different rates of profit. Thus there is a kind of pseudo-production function relating the rate of profit to the value of capital in terms of product and the share of gross investment in output.

The level of wages in terms of product rises in step with output per head (this follows from the condition that the rate of profit and the share of wages in output are constant) and the equipment for each technique is scrapped when the wage absorbs its whole output so that its quasi-rent is reduced to zero. A higher share of profit entails a wider gap between the wage rate and output per head with the latest, best, technique. Thus it entails a longer service life of equipment, therefore a higher proportion of older, more inferior, techniques in use at any moment, and lower average output per head. There is then a presumption that the pseudo-production function relating the rate of profit to the capital to output ratio will be well-behaved (a lower output per man being associated with a lower value of capital per man) though there still might be some 'Cambridge' tricks in it. But what determines the rate of profit?

Professor Ferguson follows Professor Solow's argument that a very small *extra* investment over and above that required by the equilibrium path yields a return equal to the rate of profit. That is true, whatever the rate of profit may be. And he shows that the marginal product of labour in the short-period sense is equal to the wage; the 'last man' is employed in the equipment that is just about to be scrapped. This is true because, for a given pseudo-production function, both the wage relative to output per head with the latest

technique and the age of the least productive equipment are determined together by the rate of profit. Evidently they are so used to thinking in terms of leets (for whatever he may say, Professor Solow's capital is made of leets) that they forget that, when capital is embodied in specific equipment, the short-period marginal physical product of labour is not the same thing as the value of the net product allowing for profit at a particular rate. They describe the competitive equilibrium position corresponding to a given rate of profit without offering any explanation of what the rate of profit is.

There have been three types of theory of the distribution of the product of industry between wages and profits. In classical theory (of which von Neumann provides the most systematic account) the real wage per man is a technical datum; the rate of profit on capital emerges as a residual. In Marx, the rate of exploitation (the ratio of net profit to wages) is the result of the balance of forces in the class struggle. For Marshall, there is a normal rate of profit and the real wage emerges as a residual; an extension of Keynes' General Theory into the long period finds a clue to the level of profits in the rate of accumulation and the excess of consumption out of profits over saving out of wages.

When the neo-neoclassicals reconstituted orthodoxy after the Keynesian revolution they eschewed all these and went to Walras, who does not have a theory of profits at all.

4

Econometrics

The strangest part of the whole affair is that many neo-neoclassicals seek to identify leets-capital with the dollar value of capital as it appears in statistics. Professor Ferguson concludes his account of 'reswitching' thus: 'The question that confronts us is not whether the Cambridge Criticism is theoretically valid. It is. Rather the question is an empirical or econometric one: is there sufficient substitutability within the system to establish neoclassical results?'[1] And he states in the Preface: 'Until the econometricians have the answer for us, placing reliance upon neoclassical economic theory is a matter of faith.' Statisticians, though with a very coarse mesh, can catch evidence of the capital to output ratio in terms of dollar values, and the shares of wages and profits in value added, over a particular

[1] *The Neoclassical Theory of Production and Distribution*, 266.

period in a particular economy, and so they can offer an estimate of the *ex-post* overall rate of profit being realised. They cannot say what expectations of profit were in the minds of the managers of firms, or whether alternative schemes were on the drawing boards of engineers, when the investment decisions were taken that brought a particular stock of capital equipment into existence. Still less can they say what decisions would have been taken if present and expected prices and wage rates had been different from what they were. Professor Ferguson expects too much.

Consider a run of figures for a prosperous period of development in a modern industrial economy which conform more or less (as they often seem to do) to what Kaldor calls the 'stylised facts'. The capital to output ratio and the wage and profit shares are fairly constant over time, while the dollar value of output per man employed and the dollar value of capital per man have a strong upward trend. This would lend itself to interpretation as an approximation to the story of accumulation on a Harrod path, as in the vintage model, with neutral technical progress and a fairly steady overall average rate of profit (fluctuations in effective demand being smoothed out).

This will not do for the neo-neoclassicals. They want to separate out increases in the quantity of 'capital' from the effects of technical progress. To find this distinction, they puzzle themselves with their leets. Leets can absorb technical progress without any investment being required. An 'invention' raises the output per head of a set of workers equipped with a given quantity of leets. But output also consists of leets, so that if the share of saving in income is constant, leets per man employed begins to rise as a result of the invention. Is this to be attributed to accumulation or to the invention? To attribute the growth of leets per man to saving, it would be necessary to define as saving, refraining from consuming so much of additional leets as to keep leets per man constant.[1]

In any case, the statistics are in dollars, not in tons of leets. Whether technical progress is embodied in new types of equipment or affected by a rearrangement of existing equipment or comes from 'learning by doing' by workers without any change in equipment at all, the figures would be the same. The difference would appear only in the amount of gross investment required to keep the economy growing.

[1] Cf. T. K. Rymes, 'Professor Read and the Measurement of Total Factor Productivity', *Canadian Journal of Economics* (May 1968).

Output of capital equipment must be reckoned not in tons of any metal or in lists of items (a bus is a bus and a lathe is a lathe) but in terms of productive capacity. Overall, wages in terms of product are rising in step with output per head, and the rate of profit is constant. The capital to output ratio, overall,does not change much, either way. For embodied technical progress, therefore, the cost per unit of productive capacity is rising at the same rate as output per head.

Equally, the value of equipment absorbing disembodied progress (if there is such a thing) would rise at the same rate. Profit per man employed rises with output per head (since the real wage rises at the same rate) and no depreciation is required. Capitalise the profits at a rate of interest equal to the overall rate of profit and the value of the equipment rises at the same rate as output per head.

Professor Jorgenson uses just this procedure to account for the rise in the value of capital shown in his statistics but then he attributes its growth entirely to accumulation and maintains that no technical progress has occurred in U.S. industry since 1945.[1] More often a set of statistics is used to draw up a production function in terms of 'capital' and labour and to separate the growth of the value of output per head into the part due to the increase in the quantity of 'capital' and the 'residual' due to technical progress. This requires the statisticians to find out from the record of what actually happened, what the growth of output *would have been* if the value of capital had grown as much as it did without any technical progress having taken place. (It must have needed an even tougher hide to survive Phelps Brown's article on 'The Meaning of the Fitted Cobb-Douglas Function'[2] than to ward off Cambridge Criticism of the marginal productivity theory of distribution.)

No doubt Professor Ferguson's restatement of 'capital' theory will be used to train new generations of students to erect elegant-seeming arguments in terms which they cannot define and will confirm econometricians in the search for answers to unaskable questions. Criticism can have no effect. As he himself says, it is a matter of faith.

[1] D. W. Jorgenson and Z. Griliches, 'The Explanation of Productivity Change', *Review of Economic Studies*, 34 (July 1967), 249–83.

[2] *Quarterly Journal of Economics*, 71 (November 1957), 546–60.

16a

CAPITAL THEORY UP-TO-DATE: A COMMENT ON MRS. ROBINSON'S ARTICLE*

By C. E. FERGUSON: *Texas A. and M. University*

'*I have long since abandoned the illusion that participants in this debate actually communicate with each other.*' Robert M. Solow.[1]

I feel distinctly honoured that Mrs. Robinson read my recent book[2] and wrote a review article on one-half of one chapter of it.[3] One could not hope for a more distinguished or less unbiased reviewer.

Despite the admonition in the lead quotation, I should like to address a few comments to her review in the hope of establishing some ground for mutual communication. As a *caveat* I should add that 'I still have the faith', although that ill-begotten clause did not convey adequately what I have faith in.

1. My book was intended chiefly to be an exposition and extension of the *microeconomic* theory of production, cost, and factor demand (i.e. a theory applicable to single firms or single entrepreneurs). I assumed a production function relating physical output to the physical inputs of heterogeneous labour, heterogeneous machines, and heterogeneous raw materials. As a first approximation, I further assumed that the *definition* of the output required the various raw materials to be used in fixed proportions. Thus, attention was directed to the first two heterogeneous categories of inputs.

Assuming variable proportions,[4] each physical input has a well-

[1] Robert M. Solow, 'Substitution and Fixed Proportions in the Theory of Capital', *Review of Economic Studies*, XXIX (1962), 207–18.

[2] C. E. Ferguson, *The Neoclassical Theory of Production and Distribution* (Cambridge, 1969).

[3] Joan Robinson, 'Capital Theory Up to Date', *Canadian Journal of Economics*, III (1970), 309–17. In addition, Mrs. Robinson reviewed the book in *Economic Journal*, LXXX (1970), 336–9.

[4] Chapters 2 and 3 of Ferguson, *The Neoclassical Theory of Production and Distribution*, are devoted to fixed-proportion production functions.

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Professor Ferguson has kindly allowed me to include his comment in this volume.

defined marginal physical product. If profit maximization is also assumed, which does not seem to be objectionable to any of the participants in this debate, each entrepreneur will hire units of each physical input until the *value* of its marginal physical product is equal to its market-determined and parametrically-given input price. In essence, this is what I called the neoclassical, or the marginal productivity, theory of input pricing.[1]

Following the leads of J. B. Clark and Hicks, I extended this well-established microeconomic theory by analogy to an aggregate economy. This, I take it, is where the controversy arises. Capital is not merely *leets* that are used with homogeneous labour to produce *leets*.[2] Rather, commodities are produced by means of commodities and labour. Thus capital valuation is not independent of distribution; the neoclassical system is undetermined and some factor price must be given exogenously.[3] So goes the marginal productivity theory of distribution at the most highly aggregated level, or so Mrs. Robinson would have it go.

However, it does not. Neoclassical theory, whether aggregate or microeconomic, is general equilibrium theory. The marginal product equations are merely input demand functions in inverse form. Taken alone, there are more unknowns than equations; hence the marginal product functions determine nothing. But there are market-clearing equations for inputs and all sorts of equations for the commodity markets. In addition, there may be added a time preference function or, alternatively, some type of demand-for-wealth equation. Taken together, the system is not underdetermined.[4] There may be a capital valuation problem; but as I shall later point out, this does not damage the corpus of neoclassical theory.

[1] Ferguson, *The Neoclassical Theory of Production and Distribution*, contains numerous embellishments based on monopoly or monopsony, which are derivative from Joan Robinson, *The Economics of Imperfect Competition* (London, 1933). One of these should not have been there. Indeed, pp. 181–5 should be totally ignored inasmuch as input demand functions cannot be derived when input prices are variable to the firm.

[2] I see no more justification for assuming homogeneous labour than homogeneous capital. If one did not, what would happen to the Wicksell-Robinson daiagrams?

[3] See Joan Robinson, *The Accumulation of Capital* (London, 1956), or C. E. Ferguson and Donald L. Hooks, 'The Wicksell Effects in Wicksell and in Modern Capital Theory', in *History of Political Economy* Vol. 3, No. 2, Fall, 1971.

[4] On this score, I am particularly indebted to Robert Solow for pointing out an ambiguity that appeared in the first version of this manuscript.

There seem to be many areas of discord. I shall attempt to cover some of these briefly and in more or less random order.

2. In commenting on my book, Mrs. Robinson wrote that 'we can learn from him what it is that the neo-neoclassicals believe neoclassical theory to be'.[1] In my exposition I erred in at least two ways. First, I implicitly imputed my view of neoclassical theory to all neoclassical theorists. Second, and worse, I implicitly assumed that readers would not take the 'Clark parable' as the ultimate statement of neoclassical theory.[2] Parables, whether of the Clark or Biblical variety, are only intended to emphasize tendencies. Very few Fundamentalists believe that Adam literally plucked an apple off a tree.

To avoid possible confusion, let me state what I (possibly alone) believe neoclassical theory to be. First, and most important, it is a microeconomic theory of pricing—a theory of how all input and output prices get to be what they are because of the equilibrium adjustments of firms and markets. As a by-product, this yields the marginal productivity theory of input pricing. Such general equilibrium models have little empirical usefulness unless some simplifying assumptions are made.

Second, therefore, neoclassical theory deals with macroeconomic aggregates, usually by constructing the aggregate theory by analogy with the corresponding microeconomic concepts. Whether or not this is useful is an empirical question to which I believe an empirical answer can be given. This is the 'faith' I have, but which is not shared by Mrs. Robinson. Perhaps it would be better to say that the aggregate analogies provide working hypotheses for econometricians.

'Aggregation by analogy' is most easily achieved within the framework of the Clark real-homogeneous capital model; and it has the further (desirable?) characteristic that the marginal productivity theory of input pricing has its analogue in the marginal productivity theory of distribution. This model describes a leets-labour-leets world in which none of us believe. But it also offers some *parables* that many of us believe are important to those who are interested in empirical work at the aggregate level.

3. Aggregation by analogy also leads to much more 'realistic' or 'complicated' models in which some of the 'parable relations' do not

[1] Robinson, 'Capital Theory Up to Date'.

[2] Even a very perceptive Cambridge Critic apparently took me literally, See G. C. Harcourt, review of Ferguson, *The Neoclassical Theory of Production and Distribution*, *Journal of Economic Literature*, VIII (1970), 809–11.

necessarily hold. In these models the 'unobtrusive postulate'[1] does not appear; a higher value of capital per man does not necessarily correspond to a higher real wage rate. The only relation (under debate) these models imply is equality between the rate of interest and the rate of return.[2]

4. The paragraph above raises another issue. In light of the *general* neoclassical model, which is readily to be found in the works of Samuelson, Solow, and others,[3] why have the Cambridge Critics concentrated solely upon the 'J. B. Clark neoclassical fairy tale'? There are probably numerous explanations, only two of which I shall suggest. First, the empirically oriented Critics have probably chiefly read the neoclassical empirical studies. These rely upon Cobb-Douglas or CES production functions, which do at least imply the 'unobtrusive postulate'. That is, they yield all the neoclassical relations and the marginal productivity theory of distribution. There is no capital valuation problem and all Wicksell effects are non-negative. Second, the theoretical Critics seem to wish to build a strawman they can easily destroy rather than to attack the more formidable foundations of neoclassical theory.[4]

It is almost inconceivable, yet almost inevitable, to say that the Critics have imputed total ignorance of the Wicksell effects to neoclassical economists. Since Mrs. Robinson and others made such a to-do about the Effects,[5] they have certainly been well known. Both the price and real Wicksell effects can be negative, or they can be offsetting with the negative effect dominating. In these cases, the Cambridge Criticism is valid in the sense that there is not a one-to-one

[1] L. L. Pasinetti, 'Switches of Technique and the "Rate of Return" in Capital Theory', *Economic Journal*, LXXIX (1969), 508–31. To the extent of my reading of neoclassical authors, Pasinetti's 'unobtrusive postulate' has never been postulated by anyone. In one-commodity models, the question simply cannot arise. In two- or multi-sector models, whatever happens to the value of the capital stock in terms of a consumption numeraire just happens.

[2] Robert M. Solow, 'On the Rate of Return: Reply to Pasinetti', *Economic Journal*, LXXX (1970), 423–8.

[3] This is not the place for documentation. However, I might cite Paul A. Samuelson and Robert M. Solow, 'A Complete Capital Model Involving Heterogeneous Capital Goods', *Quarterly Journal of Economics*, LXX (1956), 537–62, and Robert Dorfman, Paul A. Samuelson, and Robert M. Solow, *Linear Programming and Economic Analysis* (New York, 1958).

[4] To paraphrase Solow, some of the Critics appear to write their comments just as oysters make pearls—out of sheer irritation.

[5] For relevant bibliography, see G. C. Harcourt, 'Some Cambridge Controversies in the Theory of Capital', *Journal of Economic Literature*, VII (1969), 369–405, or Ferguson and Hooks, 'Wicksell Effects'.

correspondence between factor and commodity market.[1] Further, the *aggregate* marginal productivity theory of distribution may not hold.[2] But neoclassical theory, conceived as a general approach to economic analysis, does not live by marginal productivity alone.

5. The Cambridge Critics seem to equate the *aggregate* J. B. Clark marginal productivity theory of distribution with the entire corpus of neoclassical theory. Such is not the case. While the Clark-Hicks aggregate marginal productivity theory of distribution is a special case of general neoclassical theory, it is neither a necessary nor sufficient criterion by which to judge it. The criterion, I would suggest, is whether the rate of interest is equal to the rate of return.[3]

6. The last point of issue I wish to discuss here is the long run *versus* the short. Some Critics[4] charge that neoclassical theory is concerned only with the Keynesian long run 'in which we are all dead'. They emphasize a short run in which there are output and factor price rigidities, less than full employment of all resources, and zero or severely limited factor substitutability. At any moment in time this is apt to be an accurate characterization of the economy. But is this what capital theory is all about?

For myself only, I answer *no*. Capital theory concerns trends or tendencies, or how the present situation might change given a set of current disequilibrium phenomena. Capital theory had its origins in the stationary state and, I think, has its best current representations in what Mrs. Robinson calls 'Golden Age' models. To be sure we live in a living present in which there are fixed proportions or very limited factor substitutability, discontinuous marginal product functions, and all sorts of price rigidities and market imperfections.

[1] Murray Brown, 'Substitution-Composition Effects, Capital Intensity Uniqueness and Growth', *Economic Journal*, LXXIX (1969), 334–47 has shown, in effect, that if all factor-price frontiers are linear, the price Wicksell effect is zero and the real Wicksell effect is positive. This is, of course, the 'normal' case treated by neoclassical theorists (not linearity, but a positive real Wicksell effect). For some extension, see C. E. Ferguson and Robert F. Allen, 'Factor Prices, Commodity Prices, and Switches of Technique', *Western Economic Journal*, VIII (1970), 95–109.

[2] On a disaggregated level, it does. See Ferguson, *The Neoclassical Theory of Production and Distribution*.

[3] This statement needs some modification and elaboration. First, there are many maturity structures of interest rates. The rate of return on social saving obviously cannot equal all of these. Second, an equally important test is the equality between the real wage rate and the marginal product of labour. Finally, one should distinguish between the logical consistency of neoclassical theory and its empirical relevance. Mrs. Robinson, of course, would have it that the theory is logically inconsistent and empirically irrelevant, The chief object of this note is to argue the opposite view.

[4] See especially Harcourt, review of Ferguson.

In the planning horizon, however, entrepreneurs can make investment decisions that change factor proportions in accord with the prevailing or expected factor price ratios. Because of real or price Wicksell Effects, the results of these independent decisions may have an 'aggregate' impact that is sometimes different from what is to be expected on the basis of simplistic neoclassical theory. This is what the Cambridge critics have brought forward. As a neoclassical theorist I can only reply that the relevant question is what is relevant: should we make our predictions on the basis of what Mrs. Robinson has called perverse technical behaviour or on the basis of the relations that have repeatedly been observed?

7. In the short run I am willing to accept any kind of rigidities the Critics wish to impose. In the long run I believe that the leets-labour-leets world of investment decisions made in light of known or expected factor prices is an adequate characterization of the economy. If 'rational' behaviour occurs, the rate of return will equal the rate of interest; and neoclassical theory is validated by the behaviour of people none of whom any of us control.

A REPLY

It is natural for Professor Ferguson to dislike being teased about his 'faith', but I fear that this comment will not save him. It is nothing but a repetition of several confusions that are only too sadly familiar in this tedious and unnecessary debate.

The main confusion is between a Walrasian supply-and-demand system and 'production of commodities by means of commodities'. For Walras, there is an arbitrarily given stock of specific capital goods which is somehow already in existence. In the other system, only the techniques of production are specified in advance; the stock of capital goods is brought into being by profit-seeking investments. In Walrasian general equilibrium, the prices of commodities are determined by supply and demand and prices of 'factors' are derived from them. In the other system, wages and prices have to be known before the appropriate stock of capital goods can be chosen. (The composition of the labour force in respect to skill, etc., is also assumed to be adjusted, in an equilibrium position, to the requirements of production.) Professor Ferguson, indeed, agrees that 'some factor price has to be given exogenously'. But here he is only making a pun.

In one sense, a 'factor' is a piece of productive equipment such as a blast furnace or a field of wheat. In another traditional usage the 'factors of production' are 'land, labour, and capital'. Professor Ferguson's whole argument consists in solving, to his own satisfacfaction, the problem of relative prices with given 'factors' in the first sense and then proclaiming that he has solved the problem of the distribution of the total net output of industry between wages and profits. (This is where faith comes in.)

When the 'factor price' that is 'given exogenously' is the overall rate of profit on capital, then all prices and wage rates are settled according to the technical relationships in the system of production of commodities by means of commodities. Then, of course, the micro-equilibrium conditions can be specified for perfect and imperfect competition. Professor Ferguson takes the case where 'each entrepreneur will hire units of each physical input until the *value* of its marginal physical product is equal to its market-determined and parametrically-given input price' (his italics). Here, evidently, the selling price of the product and the purchase prices of the services of the 'factors' are given to the individual firm. But then he jumps from value products from the point of view of individual firms in a perfect market to real products from the point of the economy as a whole. The argument merely consists in a play upon words.

A second prevalent source of neo-neoclassical misunderstandings is the nature of a pseudo-production function. A book of blueprints representing a 'given state of technical knowledge' is not something which exists in nature. In real life techniques are blueprinted only when they are going to be used. The co-existence at a moment of time of a number of techniques that would be eligible at different rates of profit is conceived only as a logical device to disentangle the ambiguity of 'substitution between labour and capital'.

Each point on a pseudo-production function is intended to represent a possible position of equilibrium. Time, so to say, is at right angles to the black-board on which the curve is drawn. At each point, an economy is conceived to be moving from the past into the future with the rate of profit and the technique of production shown at that point.

We can run an eye up and down the curve, observing backward and forward switchpoints and changing values of capital, *comparing* possible equilibrium positions, not tracing *movements* that could actually take place. Professor Ferguson seems to think of a process of

accumulation as pushing an economy from technique to technique along the pseudo-production function. Presumably it is for this reason that he defiantly maintains that his faith is unshaken by 'the Wicksell Effects'. And it is evidently the reason why he now attaches so much importance to Professor Solow's slogan that 'the rate of interest is equal to the rate of return', for this is connected with the concept of a pseudo-production function. At a switchpoint two techniques are yielding the same rate of profit at the same level of real wages. The technique which has the higher value of capital per man, at the ruling rate of profit, has a correspondingly higher value of output per man. The 'rate of return' on this additional value of capital is the rate of profit (which neoclassicals prefer to call the rate of interest). Professor Solow's proof of this proposition amounts to proving that a switchpoint is a switchpoint. Professor Ferguson maintains that this is the essence of the neoclassical theory of distribution. If so, he is welcome to it.

But he does not really want to leave it at that. He thinks that there is something in this slogan that throws light on 'relations that have been repeatedly observed'. It seems that he is no longer asking the econometrists to find out whether 'there is sufficient substitutability within the system to establish neoclassical results'. Now he wants them to tell him whether the rate of interest is equal to the rate of return. I think that they had better first ask him to say what these magnitudes would look like when they are different.

All this sophistry, of course, is just a smoke-screen. The point of the neo-neoclassical argument is to restore the pre-Keynesian view of modern capitalism according to which accumulation is governed by society's desire to save, full employment is guaranteed except when the workers are so foolish as to demand more than the equilibrium level of wages, and the rate of interest (or is it the rate of return?) guides investment into the form that maximizes welfare for society as a whole. The old defence of laisser faire was badly knocked about by the great slump. The new one is being still worse knocked about by the arms race, inflation, pollution, the persistence of poverty in the rich nations and growing misery in the Third World. The object of Professor Ferguson's rigmarole is to prevent his pupils from thinking that economics has anything to do with the problems of the economy that they are living in. It is strange that he should be the one to say that 'the relevant question is what is relevant'.

Postscript

I am very much interested in the paragraph added with the aid of Professor Solow, as I have long wondered what he intended his theory of profits to be. We can now see that it is a mixture of the two systems; the prices of commodities and specific factors are in Walrasian static equilibrium while at the same time there is a general rate of interest equal to the 'reward of waiting' as in Pigou's ultimate stationary state. Professor Ferguson certainly needs all his faith: *Credo quia impossibile.*

Post-Postscript

I drafted this reply before the sixth paragraph and the last sentence of the preceding one were added to the Comment. I supposed that the author was admitting that 'some factor price must be given exogenously'. This view he now attributes to me and repudiates. I comment in the postscript on the view which, with the aid of Professor Solow, he has substituted for it.

17

CONTINUITY AND THE 'RATE OF RETURN'

In the controversy between Professor Solow and Dr. Pasinetti[1] about the meaning of the *rate of return*, a subsidiary question was raised about the meaning of *continuity* in the spectrum of techniques embodying a 'given state of technical knowledge'.

The problem can be explained in terms of Professor Solow's own metaphor.[2] There are a number of islands, each with its own real-wage rate and corresponding rate of profit. On each island a technique is in use that maximises profits, taking account of the relative prices of the consumption good and of capital goods corresponding to that island's wage rate. Continuity in the dimension of engineering specifications is meaningless, but since we assume a homogeneous consumption good, the real-wage rates can be treated as a series of numbers. However, we are not required to imagine a difference in the wage rate between one island and the next that is indefinitely small. This is not a point of realism (there is nothing realistic in the whole argument), it is a matter of logic. The basic concept is that, on each island, the technique has been selected in the light of the wage rate ruling there. The wage rate is a signal to which the choice of technique is the response. Differences in wage rates must be perceived to have an effect. Thus, where wages differ from one island to another, the difference does not influence the choice of technique if it is less than the minimum perceptible amount.

Where there are switch points in the spectrum, there are a number of islands with the same wage rate. At one wage rate, say, Beta and Gamma techniques are equally profitable. Thus, there may be Beta-Gamma islands where the two techniques are used side by side in various proportions. There are also islands with different wage rates using the same technique. If the next switch point is Alpha-Beta, evidently Beta technique is eligible at the Beta-Gamma and at the Alpha-Beta wage rate. Between switch-point groups of islands,

[1] In Notes and Memoranda, *Economic Journal*, June 1970.
[2] Given at a seminar at Cambridge, England.

Economic Journal, March 1971.

where the wage is the same and techniques different, there are groups where the wage is different and the technique the same. The more dense is the spectrum of techniques, the smaller the difference in wage rate that makes another technique eligible. Thus, the denser is the spectrum of techniques, the narrower is the range of wage rates at which one and the same technique is in use. The densest possible spectrum is one in which there are no two adjacent wage rates with the same technique. Then, over any stretch of the spectrum, there is only one wage rate for each technique, and only one technique for each wage rate. Here, between two adjacent wage rates, there is no third which would be perceptible and so no intermediate mixture of techniques. There is an Alpha wage rate, a Beta wage rate and a Gamma wage rate, but no Alpha-Beta or Beta-Gamma wage rate. (There might be the same technique in separate stretches of the spectrum, as in the 'reswitching' case.) This interpretation of continuity supports Dr. Pasinetti's view against Professor Solow's.

Professor Solow identifies the 'rate of return' with the rate of profit at a switch point. It is true that on a Gamma-Beta island, where Gamma plants have been installed side by side with Beta plants, capital per man employed for each technique can be calculated at the same rate of profit. Output per man employed with a Beta plant is higher; therefore, with the same wage rate, net profit per man is higher; therefore the cost of capital which equalises the rate of profit is higher for Beta than for Gamma in the same ratio as its net profit. (This is true whether the switch point is forward or backward —it has nothing to do with what the cost of capital would be at a slightly different rate of profit.) This might suggest the idea that net investment to an amount equal to the difference in cost of the plants (added to the amortisation of a Gamma plant) could be made, so as to replace a Gamma by a Beta plant. The return on such an investment would be equal to the ruling rate of profit. (This investment on any island could be imagined to go only to the point of substituting Beta for all the Gamma plants there—beyond that, further investment would require a change in the rate of profit and so a different rate of return.) But all this is beside the point. No investment is going on in any of the islands. The whole apparatus of the argument is a comparison of stationary states. (It can be extended to comparisons of steady growth paths, but it certainly cannot deal with 'deepening' capital.)

In the case where each island has a different wage rate and a

different technique there are no switch points, and Professor Solow's definition of the rate of return has nothing to bite on.

A more conventional treatment of continuity would permit us to say that however small the difference between two adjacent wage rates, there is always one technique that is eligible at both, with the appropriate pair of rates of profit and patterns of prices. A difference in the wage rate, however minute, brings a different set of prices into play. The limit which is approached, as the difference in wages is reduced, is a situation with one technique and one set of prices. Again there is no room for Professor Solow's rate of return.

The meaning of continuity in the 'one-commodity economy' is quite different. There, say, corn is the only output and seed-corn the only capital good. Different techniques are simply different ratios of corn per man employed; corn per head is then a dimension in which there may be continuity. The gradation can be as fine as we please, because there the wage rate is determined by the quantity of corn per man, instead of the eligibility of a technique being determined by the wage rate. Moreover, in the corn economy the only price is unity —corn for corn. There is no pattern of prices for the real-wage rate to determine. Here the rate of profit and the rate of return are identically the same, in value and in physical terms, varying continuously with the quantity of corn per man employed. So here there is nothing to discuss.

The difference between these two concepts arises from the difference in the arguments in which they occur. The 'one-commodity economy' was invented to provide the neoclassical parable in which the rate of profit corresponds to the 'marginal product of capital' while the spectrum of techniques was analysed in order to show that the 'marginal product of capital' is a meaningless expression. Professor Solow's attempt to mix the two up together obscures them both.

18

THE MEASURE OF CAPITAL: THE END OF THE CONTROVERSY

THE meaning of capital as a factor of production has been in dispute ever since the concept was first formulated. In the pre-Keynesian orthodox tradition there were two distinct concepts—one of capital as a list of machines, stocks, etc., all specified in physical, engineering terms, embodying particular techniques of production; the other, of a fund of 'waiting' embodying the savings accumulated over the past history of the economy.[1] In one department, associated with the name of Walras, the return on 'capital' was made up of the rentals of particular machines, derived from the demand prices for commodities which they could help to produce; in the other, associated with the name of Marshall, there was a 'normal rate of profit' which, in long-run competitive conditions, would be received on the value of investments being made in all the various lines of production. After Keynes, it was recognised that accumulation results from the decisions of profit-seeking firms and public authorities and that the relation of money prices to money-wage rates reflects the level at which gross margins are set.

These distinctions seem to have been lost in the revival of orthodoxy after the Keynesian revolution. In particular, the econometrists did not pay any attention to them. A convention was adopted of interpreting statistics of the performance of industry, for instance in the United States since 1945, in terms of a production function with labour and capital as inputs, and discussing the remuneration of these factors in terms of their marginal productivity.[2] This seems to have been widely held to justify the argument, associated with the name of J. B. Clark, that the 'marginal productivities' of labour and capital from the point of view of the economy as a whole ('land' being given)

[1] Cf. L. Robbins, 'On a Certain Ambiguity in the Conception of Stationary Equilibrium', *Economic Journal*, June 1930.

[2] *E.g.* R. M. Solow, 'Technical Progress and the Aggregate Production Function', *Review of Economics and Statistics*, August 1957.

Economic Journal, September 1971.

provide a satisfactory account of the determination of the distribution of the product of industry between rent, wages and profits, or, as Ricardo put it, between the classes of the community.

The statistics in themselves are certainly valuable. The rate of accumulation, the capital to income ratio and the share of wages in the value of net output are relationships of the greatest interest, whatever difficulties there may be in presenting them accurately. But what they have to do with a production function has never been explained comprehensibly and the method of measurement of the quantities of the inputs has never been satisfactorily specified.

'Labour,' obviously is not a homogeneous input and the meaning to be attached to the concept of 'the marginal productivity of labour' in an industrial economy is by no means clear, but in principle 'labour' is measured in a physical, technical unit—a man-hour of work. In what unit is 'capital' to be measured? The figures in the time-series are collected in the first instance in terms of dollars; however they may be deflated or adjusted, the amount of capital in the statistics is a sum of value. How can this be made to correspond to a physical factor of production?

Attempts to answer this question followed two main lines. The first was in terms of a parable. Imagine that there is a physical substance which has the characteristics of capital in a well-behaved production function, and that the price of a unit of this stuff in terms of final output never changes. This was first suggested by Professor Swan, with his sets of Meccano.[1] He appears to have offered this concept in a satirical spirit, saying that it 'would deceive no one', but it was taken, apparently, quite seriously by a number of writers.[2]

From this point the argument went off at a tangent. One of the notions that had been taken over from the old orthodoxy was that of substitution of capital for labour 'in a given state of technical knowledge'. This was interpreted in terms of a pseudo-production function or factor-price frontier, showing what techniques, each with its appropriate stock of capital goods, would be eligible at various levels of the rate of profit and of real wages. After the so-called 'reswitching' debate, Professor Samuelson admitted that it came as a shock to him to find that, in terms of a pseudo-production function set out on

[1] See 'Economic Growth and Capital Accumulation', *Economic Record*, November 1956.

[2] Cf. J. E. Meade, *A Neo-Classical Theory of Economic Growth* (London 1962). The most recent elaboration of the parable is by R. M. Solow, *Growth Theory: An Exposition* (Oxford, 1970).

quite acceptable assumptions about technology, a lower rate of profit (with a higher real wage) is not necessarily associated with a less labour-intensive technique, so that the principle of substitution does not work.[1]

This all arose from a misunderstanding. The presumption that 'more capital' must be associated with a higher real wage was drawn from the notion of capital as a stock of machines, and of prices derived from supply and demand. In this setting, to have more machines with the same labour force must entail higher wages and lower rentals. The pseudo-production function is set out in terms of the other system of prices. At each point, a different rate of profit is conceived to be ruling (with the corresponding level of real wages) and the prices of all capital goods are governed by their costs of production including an allowance for profits at the normal rate. In this system a 'quantity of capital' cannot be identified with the value of the stock of capital goods, since the identical stock of physical capital will, in general, have different values at different rates of profit. Nor is there any presumption that the relative values of different stocks of capital should be such that, at every point, a more mechanised technique, providing a higher rate of output per man employed, is always eligible at a lower rate of profit.

Professor Samuelson took a false step when he tried to identify the quantity of capital-stuff in the parable with the value of capital on a pseudo-production function.[2] To postulate a well-behaved pseudo-production function (as he tried to do by confining the argument to the case of labour-value prices) did not really make the argument any better, nor did the discovery of 'reswitching' make it much worse.

The whole trouble arose from mixing up two concepts of capital. But neither concept has anything to do with the interpretation of actual statistics. The time-series over a prosperous period for modern industry show a process of accumulation going on with, on the whole, rather small variations in the overall ratio of value of capital to value of output and rather small variations in the share of wages in net output. That is to say, they show a more or less constant overall *ex-post* rate of profit on capital. The rising ratio of 'capital' to labour is evidently not associated with a movement along a pre-existing production function, but with increasing productivity. Clearly a

[1] See 'Paradoxes of Capital Theory: A Summing Up', *Quarterly Journal of Economics*, November 1966.

[2] For the history of this affair see Joan Robinson, 'Capital Theory Up-to-Date', *Canadian Journal of Economics*, May 1970.

pseudo-production function has nothing to do with the point. It purports to compare different rates of profit with the same technology, while here we are evidently presented with the same rate of profit and changing technologies. The 'reswitching' argument that made Samuelson lose faith in his parable was just as irrelevant as the parable itself.

The second line of argument about the meaning of capital in a production function was to seek for an index of physical capital to which the concept of marginal productivity could be applied.[1] In conditions of perfectly competitive equilibrium, it is argued, the individual entrepreneur has adjusted the proportions of the factors of productions that he employs in such a way that the marginal product of each is equal to its cost. Then the marginal products of the factors in output as a whole can be derived from their prices.

No one, presumably, would claim that the statistics of modern industry depict an economy in equilibrium with perfect competition and correct foresight. But even in the purest of pure theory the argument does not hold. Micro-marginal-productivity analysis requires the postulate that each entrepreneur seeks to produce a given output at minimum possible cost or to ensure the maximum possible return on a given investment. When he contemplates using any particular capital good—say a machine of given specification—he must consider its cost in terms of his own product in order to decide whether it is to be preferred to some other method of production. To make his calculation he must know the pattern of prices of many kinds of machines and other inputs, wage rates and the prospective prices of his own products. In short, the rate of profit in the economy as a whole has to be known before the micro-marginal productivities can be calculated.

Professor Leontief confused the issue by maintaining that his input-output tables correspond to a picture of Walrasian equilibrium:

> How does this system operate? How does it solve its problems? It solves them by a trial-and-error method. A competitive economy can be viewed as a gigantic, natural computing machine which tirelessly grinds out problems automatically fed into it. It allocates labour, capital, and natural resources among all the different branches of production. It determines automatically which industry should expand and

[1] See L. R. Klein, 'Macroeconomics and the Theory of Rational Behaviour', *Econometrica*, 14 (1946).

> which contract its output, which corporation should invest and which go out of business.[1]

This is evidently misleading. The input-output matrix may be filled in with sums of money depicting the flows of actual transactions among businesses and between businesses and households. In that case all the prices are already in the picture—competitive prices, monopoly prices, profitable prices or disappointing prices, just as they happened to be. Or each row of the matrix may depict the output of a near-enough homogeneous product, distributed between its uses as an input, in physical units—tons, pints or yards. Then, to sum up the columns, composed of a variety of products, a consistent set of prices has to be found. There is one possible set of prices corresponding to each rate of profit (or share of wages in the value of output). The rate of profit cannot be derived from the physical matrix. It must be supplied from outside it. Moreover, there is no scope for substitution between factors of production in an input-output table. It purports to show the proportions of inputs actually used to produce an actual output. When the requirements for an increase in any output are calculated, the assumption is made that inputs will be needed in those same proportions. This is a useful first approximation, say for a planning authority, but it does not give any support to the concept of substitution or to a marginal-productivity theory of prices.

All these confusions were recently swept away by Professor Franklin Fisher.[2] Working within the conventions of micro-marginal-productivity theory, he made a careful examination of what would be involved in an index of physical capital and showed that it cannot be found. He concluded that there is no such thing as a quantity of aggregate capital; in a later note, he summed up the argument by saying that 'aggregate production functions are not generally even good approximate descriptions of the technical possibilities of a diverse economy. . . .'[3] On his authority, the pursuit of the will-o'-the-wisp of an index of physical capital should be called off.

This leaves the question where it began. 'Capital' in the statistics is a sum of money. Estimates of the dollar value of capital represent

[1] *Input-Output Economics* (New York, 1966), p. 5.
[2] 'The Existence of Aggregate Production Functions', *Econometrica*, October 1969.
[3] *Econometrica*, March 1970, p. 405.

equipment, stocks and work in progress committed to industrial production, reckoned at dollar prices. A piece of equipment or a stock of raw materials, regarded as a product, has a price, like any other product, made up of prime cost plus a gross margin. These costs (direct and indirect) are composed of wages, rents, depreciation and net profit. The amount of net profit entering into the price of the product is, obviously, influenced by the general rate of profit prevailing in the industries concerned. Thus the value of capital depends upon the rate of profit. There is no way of presenting a quantity of capital in any realistic manner apart from the rate of profit, so that to say that profits measure, or represent or correspond to the marginal product of capital is meaningless.

At this stage in the argument, however, Professor Fisher was still in some doubt. The sentence quoted above ran on. Although aggregate production functions are meaningless, yet 'the question of what lies behind their apparent success at explaining factor shares is not a trivial one'. That is to say, the fact that Cobb-Douglas functions can be fitted to the time-series of statistics must have some significance.

This question was taken up more than twelve years ago by Professor Phelps Brown.[1] He pointed out that the evidence from time-series cannot, in the nature of the case, detect a production function. The figures 'can describe the relations between historical rates of growth of labour, capital [that is, in terms of value] and the product, but the coefficients that do this do not measure marginal productivity'. 'Any coefficients,' he says, 'found to agree with actual distribution shares, do so only by coincidence.'

Professor Fisher has since found out what the coincidence was. He carried out an investigation by means of a simulation model and came to the conclusion that a Cobb-Douglas fits any series of figures in which the share of wages in the value of output is fairly constant.

> Whether such argument or such results have much bearing on a real world in which underlying relationships are more complicated and aggregation takes place over labour and output as well as capital is necessarily a somewhat open question. The suggestion is clear, however, that labour's share is not roughly constant because the diverse technical relationships of modern

[1] 'The Meaning of a Fitted Cobb-Douglas Function', *Quarterly Journal of Economics*, November 1957.

economies are truly representable by an aggregate Cobb-Douglas but rather that such relationships appear to be representable by an aggregate Cobb-Douglas *because* labour's share happens to be roughly constant.[1]

It seems then, that the controversy is over. We must agree (though mumpsimus will continue in the textbooks) that marginal productivity of capital in industry as a whole has been shown to be a meaningless expression. We must look somewhere else to determine the laws which regulate the distribution of the produce of the earth among the classes of the community.

[1] 'Aggregate Production Functions and the Explanation of Wages: A simulation experiment.' *The Review of Economics and Statistics*, vol. LIII, no. 4. November, 1971.

ESSAYS 1935

19

Introduction

These essays were written while Keynes' *General Theory* was going through the press. They were published (with some other pieces) in 1937 and re-issued by Basil Blackwell in 1947, under the title *Essays in the Theory of Employment.*

Keynes read the drafts and I cut out anything that I could not persuade him was correct; it can be taken that he accepted my amendment to his definition of full employment. It is certainly absurd to suppose that he was not aware of the prospect of inflation setting in when near-full employment is maintained for a run of years. He wrote in 1944 to an author who had submitted an over-formalistic analysis of the problem:

> 'I do not doubt that a serious problem will arise as to how wages are to be restrained when we have a combination of collective bargaining and full employment. But I am not sure how much light the kind of analytical method you apply can throw on this essentially political problem.'[1]

In the Foreword to the second edition (1947) I wrote:

> There have been considerable developments since these essays were written, both in theory and in experience. From the point of view of theory, they belong to the period of the first impact upon economic thought of Keynes' *General Theory of Employment, Interest and Money*. From the point of view of experience, they belong to a period when the existence of unemployment overshadowed all economic problems. I think that they are most easily to be understood in the light of their historical setting, and that any attempt to bring them up to date by shifts of emphasis would be confusing. At the same time I believe that they are not without relevance to the dominant problems of the

[1] E. A. G. Robinson, 'John Maynard Keynes: Economist, Author, Statesman', *Economic Journal*, September 1971.

present day. I have therefore not made any substantial changes in the text of the first edition.

The essays selected for inclusion in the present volume deal with problems which are quite topical in 1972 but it is certainly necessary to remember the historical situation when they were written. At that time there had been no experience of continuous near-full employment. I certainly would not want to maintain now that there is some particular level of unemployment (say, a statistical record of 3 per cent) at which money-wage rates will remain constant.

At that time, there were no ex-colonial nations clamouring for 'development'. Disguised unemployment, as I conceived it, had nothing to do with the question of surplus labour in what is nowadays called an under-developed economy.[1]

The main argument of Keynes' *General Theory* is set out in terms of a short-period situation with given productive capacity and given expectations about the immediate future. Discussions of, for instance, the value of the multiplier connecting an increase in total output to an increase in investment, ought properly to be conducted in terms of comparative statics—if investment were higher by so much, the marginal propensity to consume being the same, output would be greater by so much—but it was expressed in terms of changes—if investment this year rose by so much, output would rise by so much. This way of arguing was excusable in the situation of a deep slump when there was unused productive capacity in every industry, so that it was natural to assume perfectly elastic supply of every type of output and a very rapid response of employment to an increase of demand.

The essays concerning exchange rates are written in the same convention. I did point out (see pp. 222-3 below) that the time which it takes for a devaluation to affect the balance of trade is a matter of great importance, but I was not able to include it in the formulae in terms of the four elasticities. Moreover, I analysed the affect of a change in the exchange rate with constant money-wage rates, as was natural at the time. The extension of this kind of argument to the analysis of the effects of devaluation in a near-full employment situation has been extremely misleading.

The sermon, which also seems to be topical in its general implications, has to be re-interpreted to fit the problems of today.

[1] Cf. Gunnar Myrdal, *Asian Drama*, p. 965.

20

FULL EMPLOYMENT

I

BEFORE discussing the definition and the characteristics of full employment it is necessary to say something about the factors which influence changes in money wages. A problem which has caused much perplexity is presented by the relationship, as it exists in the minds of employees, between changes in real wages and changes in money wages. As to what actually occurs there is no dispute. A cut in money wages will always be resisted by Trade Unions with whatever force they may command; while a rise in prices, such as occurs when there is an increase in effective demand, does not normally lead to the demand for a rise in money wages sufficient to prevent real wages from falling. Even when Trade Unions are strong enough to prevent money wages from falling, they frequently submit to a fall in real wages, brought about by a rise in prices and accompanied by an increase in employment. Now, any one Trade Union, by allowing its money wage to fall, can in normal circumstances secure an increase in employment for its members, at the expense of a fall in their real wage rate; yet a cut in money wages is usually accepted only under duress. Thus it appears that a fall in real wages, accompanied by an increase in employment, is more universally and more strenuously resisted if it is offered in the form of a cut in money wages than if it is brought about by a rise in prices. If Trade Unions are regarded as thinking in terms of real wages their conduct appears highly inconsistent.

The explanation offered by Mr. Keynes[1] is that the Trade Unions are concerned, in effect, solely with *relative* real wage rates and, within wide limits, pay no attention to the *general* level of real wages. While another school of thought, of which Professor Pigou[2] is an exponent,

[1] *General Theory of Employment, Interest and Money*, p. 14.

[2] *Theory of Unemployment*, p. 294. Mr. Champernowne ('Unemployment, Basic and Monetary', *Review of Economic Studies*, June 1936) adheres, on the whole, to the Pigovian school, but much of his argument is vitiated by a failure to distinguish between real wage rates and real earnings. Real wage rates fall as employment increases, but the 'representative' worker (*loc. cit.*, p. 202) must represent both the employed and the unemployed, and the representative worker's real income will normally rise, not fall, as employment increases.

holds that the Trade Unions conceive themselves to be stipulating for a real wage rate, but that, owing to a habit of thinking too much in terms of money, they fail to realise (except after a lapse of time) that a rise in prices brings about a fall in real wages. Each of these explanations appears to offer an interpretation of Trade Union psychology which is both dubious and unnecessarily complicated. It seems simpler to say that since Trade Unions, in the nature of the case, can only deal in terms of money wages, they concentrate their attention upon them, and demand a rise, and resist a cut, whenever they feel strong enough to do so. In any actual situation the effect upon employment of a change in money wages is obscure and difficult to diagnose, and the suggestion that a cut in wages will do them good is naturally regarded by the Trade Unions with the utmost suspicion. Their business is to secure the best terms they can for their members and to prevent employers from taking advantage of their monopsonistic position[1] *vis-à-vis* the workers. To carry out these functions they must be on the alert to demand a rise in wages whenever there is a favourable situation for doing so.

On this view, a constant upward pressure upon money wages is exercised by the workers (the more strongly the better they are organised) and a constant downward pressure by employers, the level of wages moving up or down as one or other party gains an advantage.

In any actual situation employment is likely to be increasing and wages rising in some industries at the same time as they are falling in others. The present discussion is confined to a simplified case in which there is perfect mobility of labour, so that the extent of unemployment and the pressure upon money wages is the same at any moment in all trades and all localities.

The effect upon bargaining power of a fall in real wages, in itself —that is to say, the effect of a rise in the cost of living relatively to money wages which is not a symptom of an increase in employment —is double-edged. On the one hand, a fall in the standard of life and a reduction in reserve resources weakens the bargaining position of workers; on the other hand, indignation both cements the bonds of Trade Union organisation and makes the demand for higher wages more insistent.[2] Thus a rise in the cost of living, in itself, may lead

[1] See my *Economics of Imperfect Competition*, p. 282.

[2] Similar contradictory tendencies are seen at work in the determination of women's wages. It is commonly said that women's wages are relatively low because they have no family obligations. In itself the carefree state of women should improve their bargaining position, since unemployment for them is less to be dreaded than it

either to a rise or to a fall in the level of money wages according to the strength and policy of the Trade Unions.

An increase in effective demand given the state of Union organisation and the general conditions of the labour market, will be favourable, for several reasons, to a rise in money wages. First, a man who is secure of his job suffers a loss of real wages when effective demand increases and the cost of living rises; he consequently becomes more anxious than before to demand a higher money wage. A man who is out of work or who holds a precarious job would prefer not to open the question of money wages and to allow the increase in employment to take its course. As unemployment falls off, men of the first type increase, and of the second type decrease, in numbers and influence. A Trade Union which takes the interests of both types into account will therefore be gradually moved in the direction of demanding higher wages as unemployment falls off. Second, the existence of unemployment weakens the position of the Trade Unions by reducing their financial resources and awakening the fear of competition from non-union labour. Thus even a Union which at the moment represents only employed workers will be more restrained in its action the greater the amount of unemployment outside. Third, the strategic and moral position of Trade Unions is strengthened when profits are rising and real wages falling. Conversely when effective demand declines. Thus movements of the level of employment are the chief influence determining movements in the level of money wages.

It is idle to attempt to reduce such questions as Trade Union policy to a cut-and-dried scheme of formal analysis, but it is plausible to say, in a general way, that in any given conditions of the labour market there is a certain more or less definite level of employment at which money wages will rise, and a lower level of employment at which money wages fall. Between the two critical levels there will be a neutral range within which wages are constant.

It is sometimes argued that movements in money wages tend in the long run to eliminate unemployment, for a fall in money wages,

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is for men. But the fact that their needs are less reduces the incentive to organise, makes their demands less insistent, and deprives them of the backing of general public opinion, with the result that their bargaining power is generally weaker than that of men. The relatively backward state of women's organisations is not wholly to be accounted for in this way, but is also partly due to the fact that a woman does not normally look forward to spending her whole life in industry, and so has less incentive to demand improvements in the conditions of employment, and, we are told, to the lack of co-operative spirit characteristic of the female sex.

by reducing the demand for money, tends to lower the rate of interest, and so to increase employment.[1] But the most that can be hoped, in a community where Trade Unions exist, from a policy of maintaining a constant supply of money and allowing wages to find their own level, is that employment shall be maintained inside the neutral range within which money wages are constant, which is by no means the same thing as the point at which unemployment is tending to disappear.

When employment stands above the upper critical level, then, if conditions are such that a general rise in money wages sets up no reaction to reduce effective demand, there will be a progressive rise in wages with a constant level of employment, for prices and profits will rise with money wages and all the circumstances which led to a first rise in wages will remain in force and lead to a second.[2] But the existence of unemployed workers anxious to find jobs exercises a drag upon the Trade Unions, and the rise in money wages will be slight and gradual. An increase in employment, in this situation, will strengthen the Trade Union position and tend to speed up the rise in money wages, but so long as unemployment remains appreciable the upward movement cannot become overwhelmingly powerful. Thus there is no paradox in the fact that effective demand may increase, and real wages fall, in a situation in which the Trade Unions are both able and willing to prevent a fall in money wages, or even to procure a rise. The connection between movements in money wages and movements in real wages is largely accidental. There is a certain level of employment, determined by the general strategical position of the Trade Unions, at which money wages rise, and at that level of employment there is a certain level of real wages, determined by the technical conditions of production and the degree of monopoly. In demanding a rise of money wages the Trade Unions

[1] *General Theory*, p. 263. It is by no means a corollary of this argument that the level of employment would tend to be higher in a community in which there were no Trade Unions to resist a fall in wages when unemployment occurs. For without Trade Unions monopsony is more powerful, the ratio of real wages to real profits is smaller, thriftiness is greater and the level of employment with a given rate of interest consequently lower. This effect will tell strongly against the influence of low money wages in increasing employment.

[2] Our formal scheme, in terms of the critical levels of employment, involves a high degree of simplification, for the movement in wages will not only depend upon the absolute level of employment but also upon recent changes in it. It is reasonable to say, however, that the upper critical level is such that, so long as employment stands appreciably above it, a small fall in employment will give only a temporary check to the rise in wages, and that when employment has continued for some time at its reduced level the tendency for rising money wages will resume its force.

are not taking a view upon how much unemployment they want to have, but merely seizing advantage of the fact that unemployment is low. The paradox of Trade Union policy only appears when we regard the Trade Unions as thinking in terms of the real wage corresponding to a given level of unemployment, instead of regarding movements in the cost of living as merely one element in their bargaining position. The economists have created a puzzle for themselves by inventing the answer of the Trade Unions to a question which they do not ask.[1]

2

Under conditions of perfect competition with no labour organisation and perfect mobility, there is no difficulty in defining full employment. In these conditions the two critical levels coincide at the point of full employment. So long as any unemployment exists money wages are falling, and when full employment is reached they rise abruptly. The movement of money wages then serves to indicate the existence of unemployment. But when workers are prevented, even by tacit agreement, from under-bidding each other for jobs this criterion fails.

It would, indeed, be permissible, from one point of view, to say that there is no 'involuntary' unemployment as long as unemployed individuals are not so anxious to find work that they are prepared not to offer themselves at cut wage rates. But this use of terms would be extravagant. From a common-sense point of view it would be absurd to say that there was no involuntary unemployment in Great Britain in 1933 because at that date money wage rates were stable, or that there was no unemployment in coal mining in 1936 because a demand was then made for higher money wages. If the term 'involuntary unemployment' is confined to the sense of a degree of unemployment so severe as to break through the feeling of loyalty and the Trade Union regulations which forbid money wages to be cut, then some other term must be found to correspond to the common-sense notion of unemployment. But the term 'involuntary unemployment' is obviously suitable for the latter purpose, and it seems most satisfactory simply to say that the amount of involuntary unemployment is the amount of work which, in existing conditions, the population is willing but unable to perform. No absolutely precise measure of this

[1]A Trade Union policy conceived in terms of real wages is discussed below, p. 197.

quantity can be found, but for all practical purposes a common-sense definition will suffice. In this sense unemployment may exist even when money wages are rising.

Mr. Keynes describes the point of full employment in terms of the level of real wages. In his view, as effective demand increases and real wages fall, a point is reached at which the real wage rate is so low that workers refuse to supply labour at a lower rate. At this point the expansion of effective demand must come to an end, because beyond it labour refuses to go. This conception involves certain difficulties. On the one hand, the individual breadwinner without private means can never be in a position to refuse to work because real wages are too low to be worth the effort. He must earn what he can get or starve altogether. Even if he could retain his right to the dole after refusing a job at the ruling wage rate, he would find that the real dole had fallen as much as the real wage. On the other hand, a Trade Union will threaten to withdraw its labour, not when any particular level of real wages is reached, but whenever the general situation (in which the level of real wages is only one element) appears to offer a favourable opportunity for doing so.

It is true that pin-money girls may not be lured into the labour market by the offer of a wage that will buy less than so many pins, it is true that if workers are free to decide their hours of work they may refuse to work an additional hour unless the additional earnings seem worth the effort, and it is true that the same individual may work with greater or less intensity in different circumstances. But there is little support to be gained from these facts for Mr. Keynes' point of view. For it is commonly found that hours become longer and the number of workers in a family greater as real wage rates fall. In short the supply of labour from a given population is likely to have a negative, not a positive elasticity, in response to changes in real wages, up to the point at which the maximum limit of physical capacity is reached. We may simplify our argument, without sacrificing any point of principle, if we postulate that the supply of labour has zero elasticity so long as real wages stand above the level at which physical efficiency is impaired by a low standard of life. In this case there is a certain stereotyped length and intensity of working day and a certain number of individuals who desire to have jobs.[1]

[1]If the supply of labour is not perfectly inelastic the amount of labour available to be employed varies with the rate of real wages. If the elasticity is negative the amount of available labour increases as the amount of employment increases and real wages fall. Full employment obtains when an increment of employment, if it

When all these individuals are in employment there is no longer anyone whose interest lies in refraining from asking for higher money wages when a further rise in prices takes place. The fear of blacklegs disappears, and the position of the Trade Unions is extremely strong. There is no need to postulate a critical psychological point at which the real wage ceases to cover the disutility of labour. It is true that as real wages fall the demand for higher money wages is strengthened, and it is true that, as effective demand increases, the threat of a Trade Union to withdraw its labour becomes more powerful. But this is merely a matter of degree. The demand for higher money wages is made with growing success as employment increases and when full employment is reached it becomes overwhelmingly strong. The point of full employment is the point at which every impediment on the side of labour to a rise in money wages finally gives way.

Moreover, when full employment obtains, the attitude of employers to a rise in money wages is radically changed. In this connection it is necessary to distinguish between a state of affairs in which the level of effective demand happens to be exactly that which gives full employment, and a state of affairs in which effective demand is prevented from expanding only by the fact that full employment has already been reached. In the first case the demand for labour is exactly equal to the supply. In the second case there is a *scarcity of labour*, in the sense that the demand for labour at the ruling money wage rate exceeds the available supply. The extent of the scarcity may be measured, in a rough way, by the extent to which employment would have increased if the supply of labour were unlimited.

Now, when there is a scarcity of labour, employers themselves have an incentive to raise wages. On the assumption of perfect mobility, full employment will be reached in all trades at the same time, and when there is a scarcity of labour each employer will be in a situation in which he could increase his profits if he were able to secure more workers, even at a somewhat higher wage. But more workers are only to be had by tempting them away from other employers. A strong convention prevails that it is a dastardly act for one employer to lure away labour from another by the offer of higher wages, and so long as this convention holds in full force the attitude

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were attained, would be associated with a fall in real wages insufficient to induce an equal increment in the available supply. When the elasticity is positive the available supply of labour falls as real wages fall, and, in a sense, unemployment decreases faster than employment increases. But these complications introduce no difference in principle from the simple case in which the elasticity of supply is zero.

of employers to a rise in wages is no different when there is full employment from their attitude when there is unemployment, but in the face of a considerable scarcity of labour the convention is likely to break down, and employers, each following the dictates of self-interest, will begin to bid up money wages. When labour is scarce not only are Trade Unions very powerful, but employers themselves throw their weight into the scale of rising wages. Conditions of full employment obtain when no one employer can increase his staff without reducing the staff of some other employer.

3

It is clear that, when the point of full employment has been reached, something must occur to prevent employment from expanding any further, but it is not immediately obvious how this comes about. At first sight it appears that there is nothing to prevent, for instance, the rate of interest from being set so low, or inventions from occurring so fast, that the appropriate amount of employment lies beyond the limit set by the available supply of labour.

There is no corresponding problem in connection with the limit set by capital equipment. For if equipment is limited, prices rise faster than money wages as output expands, and real profits increase as real wages fall. Saving from profit incomes exceeds saving from wage incomes: thus, as output expands, the ratio of saving to consumption increases, and it will increase faster the more inelastic is the supply of output from given equipment. In the limit, if no increase in the output of consumption goods is technically possible, prices (and consequently profits) will rise to whatever point is necessary to prevent consumption from increasing.[1] But when the limit is set by labour, instead of by equipment, this check upon the expansion of effective demand does not operate.

If employers are in a position to maintain the convention against raising money wages, the situation is very similar to that in which output is limited by the capacity of plant. In this case, if, for instance, the inducement to invest is increased when full employment already obtains, output is held in check merely by the impossibility of finding

[1] There appears to be no warrant for Mr. Hicks' view (*Economic Journal*, June 1936, p. 247) that an indefinitely great rise of prices will develop in a state where capacity is limited but available labour unemployed. It is true, as Mr. Hicks says, that when effective demand increases and the supply of money is constant, the rate of interest will rise if the supply of consumption goods is less than perfectly elastic, so that prices rise. But it will rise even if supply is perfectly elastic and prices are constant.

additional workers. The price of capital goods rises, but their cost is unchanged. An increased monopsony profit therefore falls to the investment entrepreneurs.[1] If part of this profit is spent, prices of consumption goods also rise above their cost, and the rise of prices, for all goods, will proceed to the point at which increased saving out of profits is equal to the increased value of the constant output of capital goods. In short, the increased inducement to invest automatically brings about a reduction in the propensity to consume, due to increased maldistribution of income, which keeps the total demand for labour unchanged. But when Trade Unions are strong, and when self-interest breaks through the class loyalty of employers, this check upon output also fails to act.

It is therefore necessary to inquire what mechanism there is, in the general case, which prevents the economic system from overshooting the point of full employment. To illustrate this problem let us suppose that, when full employment already obtains, the rate of interest is reduced and is maintained continuously at the lower level. Our discussion will be confined to the simplified case in which there is perfect mobility of labour and no element of monopsony in the labour market.

The reduction in the rate of interest raises the price of capital goods, and under the incentive of increased profits a demand for labour is set up in the capital-good industries,[2] but every available man is already employed. This must lead immediately to a rise in money wages in the industries engaged upon capital goods.[3] Expenditure from these wages increases the money demand for consumption goods, but in consumption-good industries also full employment already obtains. An equal rise in money wages in the consumption-good industries is necessary to prevent a transfer of labour into the

[1] Similarly, when special rates are paid for overtime, monopsony profit increases. For the marginal net productivity of labour is at least equal to the overtime rate, and is consequently greater than the average wage rate (cf. *Economics of Imperfect Competition*, p. 301).

[2] To avoid unnecessary complexities it is convenient to assume that the change in the rate of interest has no reaction upon the amount which individuals desire to save out of a given income. When this assumption is not fulfilled the demand for labour in consumption industries also will be altered.

[3] A clear-cut distinction between capital-good industries and consumption-good industries is not found in reality. Any industry is engaged in investment in so far as its current output is not currently consumed, and goods partake of the nature of capital goods to the extent that their price is affected directly by a change in the rate of interest. In this respect all goods can be arranged in a continuous series. But for verbal simplicity it is convenient to talk as though industries could be divided into two self-contained groups. The fact that the two groups are not completely self-contained makes no difference of principle to the argument.

capital-good industries. Each individual employer in the consumption-good industries finds that the demand for his product is increased and is reluctant to lose labour. The rise in money wages therefore communicates itself to all industries.

The manner in which the situation develops will depend, first, upon the way in which the change in wages is communicated from industry to industry, and second, upon the way in which the expectations of entrepreneurs adapt themselves to the changes in wages. Let us assume for the moment that the changes in wages are instantaneous, so that a rise in wages in the capital-good industries is transmitted to the consumption-good industries without any actual transfer of labour between the two groups. In this case no increase in investment, reckoned in wage units, can take place.

The expectations of entrepreneurs may be divided into two types: expectations as to the future course of money wages, and expectations as to the effect of a given change in money wages upon future prices. Let us first suppose that entrepreneurs always expect that to-day's wage rates will remain in force in the future, and consider the effect of expectations of the second type.

As soon as a rise in money wages occurs the entrepreneurs engaged upon the production of capital goods find that their costs have risen, and the incentive to invest thereby tends to be reduced. But the prices of the commodities which the capital goods are designed to produce have risen in the same proportion. Thus, if entrepreneurs adjust their expectations of the future earnings of capital goods instantaneously to the change in wages the marginal efficiency of capital is unaffected and remains the same as it was before the rate of interest fell. Thus there is no possibility of the marginal efficiency of capital being reduced to equality with the rate of interest, either by an increase in the rate of investment (reckoned in wage units) or by a rise in cost of capital goods relatively to their expected earnings, and no equilibrium is possible.

But it is natural to suppose that entrepreneurs react more quickly to a rise in the cost of capital goods than to the change in prospective earnings due to a rise in the price of consumption goods, for the change in cost presents itself to them more immediately. A speculative builder becomes aware of a rise in the cost of building more rapidly than of a rise in house rents, even though the two proceed at the same rate. An all-round rise in money wages will thus reduce the marginal efficiency of capital for a certain time after it has taken place,

the length of time depending upon the rate of adjustment of expectations. If the pace of adjustment is given there is one rate of rise in wages which will preserve equality between the marginal efficiency of capital and the reduced rate of interest. But if, at any moment, the marginal efficiency of capital is greater than the rate of interest, the competition of entrepreneurs for labour must at that moment be driving money wages upwards. Thus the rate at which money wages rise will necessarily be whatever is required to maintain equality between the marginal efficiency of capital and the rate of interest. The more rapidly are the expectations of entrepreneurs revised the more rapid will be the rise in money wages. Expectations will be revised more rapidly as experience teaches the entrepreneurs that a rise in costs in their own industries is accompanied by a rise in prices in others. Thus the rate of rise in money wages will accelerate as time goes by. In the limit, as we have seen, if expectations are revised instantaneously money wages must rise indefinitely fast.

We have so far considered expectations in the minds of investment entrepreneurs as to the effect of a rise in wages, which has already occurred, upon the future prices of consumption goods. We must now consider expectations about the future course of wages themselves. It is possible that the rise in money wages may set up an expectation that they will fall again in the future. Such an expectation would partially or completely offset the effect upon the inducement to invest of the initial reduction in the rate of interest. Thus an expectation that wages will fall in the future retards their rise in the present. But since there is nothing in the situation actually to bring about a fall in wages the expectation of a fall will weaken as time goes by, and as the inducement to invest recovers the competition for labour will once more set in. Experience will soon teach the entrepreneurs that when labour is scarce a rise in wages is likely to lead to a further rise, and when their education has reached this point each rise in wages will enhance the inducement to invest and so precipitate a further rise. Thus there is an additional reason to expect that the upward movenent will be slow at first but continuously accelerating.

On the assumption that changes in money wages are communicated instantaneously from industry to industry, equilibrium is preserved, with rising wages and prices, at the point of full employment, and the rate of investment (reckoned in wage units) does not increase when the rate of interest falls. If wages are not adjusted instantaneously there may be some transfer of labour between

industries. Let us suppose that wage bargains can only be altered by discrete steps and at discrete intervals of time. When the rate of interest falls the inducement to invest is increased and employers in the capital-good industries offer a rise in wages in order to attract more labour. The employers in consumption-good industries may be supposed to lag behind, and for one bargaining period they must submit to losing part of their labour force to the investment industries. Investment reckoned in wage units will therefore increase. The additional investment incomes will be partly spent upon a now diminished supply of consumption goods, and profits will rise to the point at which there is an addition to saving equal to the addition to investment. But the original rate of output of consumption goods was in equilibrium with the original rate of investment. Now investment has increased and the profitability of the original output of consumption goods has been raised. Entrepreneurs producing consumption goods are therefore under an incentive to attract back into their industries the labour that they have recently lost. If they succeeded in attracting it back again investment would fall off, and the surplus profits due to a scarcity of consumption goods would disappear. But now investment would have been forced back below the level at which the marginal efficiency of capital is equal to the reduced rate of interest, and the investment entrepreneurs would once more endeavour to tempt labour away from the consumption entrepreneurs. Thus we may either imagine that there is a perpetual tug-of-war between the two groups, each suffering a contraction when the other succeeds in expanding,[1] or we may suppose that the investment entrepreneurs, after snatching an initial advantage, retain it by keeping the wages that they offer always a little ahead of those offered in the consumption-good industries. In either case a continuous rise in money wages must occur, each successive bargaining period leading to an increase in the bids of the rival industries for labour.

We have so far ignored the effect of contracts fixed in terms of money. As money wages and prices rise the purchasing power of incomes fixed in terms of money is continuously reduced, and real profits are swollen to a corresponding extent. If the expenditure of

[1] This analysis bears a superficial resemblance to that of Professor Hayek (*Prices and Production*, Lecture III). But his attempt to discuss the course of the trade cycle upon the assumption of full employment leads to many difficulties, and it appears impossible to find any genuine point of contact between his argument and the above.

entrepreneurs is increased by less than the expenditure of rentiers is reduced, some labour will be released from the consumption trades and can be absorbed in the investment trades.[1] Moreover the labour supply may be augmented by rentiers who are forced to start earning to supplement their vanishing real income. It is conceivable that the labour made available in these ways might be sufficient to meet the increase in demand in the capital-good industries set up by the initial fall in the rate of interest. In that case the level of money wages would come to rest after a certain point. In other words, the rise in money wages may reduce the propensity to consume of the community, and may increase the amount of labour corresponding to full employment, and this may occur to a sufficient extent to allow such an increase in investment (reckoned in wage units) as will reduce the marginal efficiency of capital to equality with the rate of interest, even if money wages become constant. Against this possibility must be set the fact that after prices have been rising for a certain time an expectation is likely to be set up that they will rise further in the future. This, as we have already seen, will further enhance the inducement to invest, since it will lead to a rise in the present price of all durable goods over and above the rise initially caused by the fall in the rate of interest. But it will also have the effect of reducing the incentive to save, since the amount of consumption, sacrificed in the present by an act of saving, is greater than the amount of purchasing power made available by it in the future. The purchasing power of money over perishable goods is expected to fall in the future, and purchasing power over durable goods has fallen in the present.[2] Thus it is far more likely that, on balance, the propensity to consume will be increased than that it will be diminished. In so far as it is increased the competition for labour of the consumption trades becomes hotter and the pace of the rise in money wages all the more violent.

4

Our analysis has been conducted upon the unreal assumption of perfect mobility of labour between trades and localities, but it is clear that the main conclusion, that conditions of scarcity of labour are calculated to lead to a rapid and accelerating rise in money wages, is likely to hold good on more realistic assumptions. The general

[1] It is this phenomenon which provides the most precise meaning which can be attached to the much abused phrase 'forced saving'; cf. *General Theory*, p. 80.

[2] In short, the 'real' rate of interest has fallen.

upshot of our argument is that the point of full employment, so far from being an equilibrium resting place, appears to be a precipice over which, once it has reached the edge, the value of money must plunge into a bottomless abyss. But our discussion has been based upon the assumption that the initial cause of an increase in effective demand retains its force when money wages rise. This assumption must now be revised.

A rise in prices and incomes leads to an increase in requirements for money balances in the active circulation. This tends to reduce the amount available for inactive balances and so causes the rate of interest to rise.[1] The case which we have been considering, for the sake of illustration, in which a reduction in the rate of interest is maintained in the face of a considerable rise in money wages is not a case which can normally occur. Before the value of money has bounced more than once or twice against the wall of the cliff as it falls, a rise in the rate of interest draws taut the rope that holds it and brings it to rest. The rise in interest checks investment and continues to the point at which sufficient unemployment occurs to prevent a further rise in wages. Most often the movement of wages is reversed by the reaction, and the laborious task of hauling the value of money up again begins to be carried out. The rope which holds the value of money is a limitation on its supply. This may be due to natural causes (as in a primitive metallic system), to legal restrictions, or to the deliberate policy of the monetary authorities.

This safeguard acts even in a closed system. In an open system it is reinforced by the effect of rising money wages upon the balance of trade. A rise in wages in any one country will weaken its international competitive position, lead to a decline in exports and increase in imports and so tend to cause unemployment. The release of labour from the industries producing tradeable goods will have a direct effect in checking the rise in money wages, and the decline in the balance of trade will have an indirect effect, by raising the home rate of interest.[2] If the monetary authorities refuse to allow the exchange rate to depreciate, this rise in the rate of interest will be pushed to the point at which sufficient unemployment is caused to bring the rise in money wages to an end. Thus, in an open system, even the gradual rise in money wages which occurs before full employment is reached is held under strong restraint, unless the movement is world-wide.

[1] See *General Theory*, p. 171

[2] See p. 225.

But even if the monetary authorities are not actuated by the necessity of preserving stable exchanges they have strong motives to prevent an immoderate rise of prices, and legal restrictions upon the supply of money are primarily designed to force them to do so. Moreover, a lively sense of the horrors of inflation is sucked up with the milk of the mothers of bank presidents, and, indeed, the process of checking a rise in money wages is usually set to work long before the point of full employment is actually reached.[1] In the imagination of monetary reformers the ideal banking system controls its policy in such a way as to avoid unemployment. But in reality the first duty of banking authorities imposed upon them alike by law, tradition, and sentiment, is to prevent full employment from being attained. And in the normal course they carry out their duty with devotion and success.

It appears, then, that in normal circumstances the danger of a complete collapse in the value of money is not greatly to be feared, even when the level of unemployment is low. First of all, the reaction upon expectations will usually ensure that a rise in wages is at first very slow. Thus a chance increase in the quantity of money, or in the marginal efficiency of capital, which is reversed soon after it has occurred, will not precipitate an inflationary situation. There is sufficient stability in the system to prevent it from being pushed over the precipice at a touch. Second, a persistent impulse to an increase in effective demand, even if it is strong enough to carry the system to full employment, will be reversed before it has gone very far by a rise in the rate of interest.

These safeguards are normally strong, but on certain notable occasions in history they have failed to act. When a movement towards full employment occurs in a situation in which the government cannot balance its budget, then the rope snaps which holds the value of money, and the banking authorities can only gaze helpless over the edge of the abyss.

[1] When a precipitate rise in prices is once under way the task of the banking system is likely to be rendered more difficult by a violent fall in liquidity preference. When the expectation has once taken root that the purchasing power of money is likely to fall in the future every holder of money has a powerful motive to get rid of it, and in order to ensure a rise in the rate of interest the stock of money, measured in wage units, must be reduced much below its former amount. Moreover, once the expectation of a future rise in prices has increased the propensity to consume and raised the marginal efficiency of capital, the rise in the rate of interest which will be adequate to check investment and cause unemployment is very much increased. It is for this reason that it is easier to nip inflation in the bud than to fell the beanstalk once it has begun to grow.

The movement towards full employment may itself be due to a heavy budgetary deficit, which leads to an increase in effective demand. Or it may be associated with a collapse in the exchange rate due to external causes. A violent fall in the foreign exchange may lead to an increase in home employment and set up, for this reason, a tendency for money wages to rise. But it has also a more direct effect. The sudden rise in the price of imported goods will be followed by a rise in home prices and the cost of living will be violently increased. Even apart from an increase in employment this is likely to lead to a demand for higher money wages, for the cost of living is a powerful influence, though not the only influence, upon Trade Union policy.[1] A collapse of the exchange creates budgetary difficulties where there are government obligations fixed in terms of foreign currencies. The deficit may itself shake foreign confidence and cause the collapse of the exchange. Or a common cause, such as war-time activity, may be producing both a deficit and full employment. Thus it is no mere coincidence that a movement towards full employment, on several occasions, has occurred in conjunction with a heavy budget deficit.

The existence of the deficit robs the monetary authorities of their power. The government may be financing itself by borrowing from the public, and, if so, they will not countenance a determined effort to keep the rate of interest high. But more often, in such cases, they are driven to borrow from the central bank itself. Thus, since central bank assets form the basis of credit, the authorities are compelled willy-nilly to increase the supply of money,[2] and the rope frays and snaps in their hands.[3]

5

The foregoing discussion suggests some reflections upon the ideal

[1] If the rise in prices is sufficiently severe the standard of life will fall (unless money wages are raised faster than the exchange collapses) to the point at which physical efficiency is impaired. A reduction in the number of unemployed workers will then take place even if there is no increase in effective demand, for each employer, to maintain his output, will have to employ more men to make up for the reduction in output per man. This will reinforce the tendency for money wages to rise, and may even lead to conditions of full employment.

[2] The popular view that a budget deficit is the cause of inflation can therefore be justified. But it is unfortunate that this well-founded belief should have been so commonly extended into the opinion that any public policy calculated to reduce unemployment is 'inflationary' and should be avoided with care.

[3] The most notorious of all inflations is not exactly fitted by this account, for the Reichsbank in 1921 was acting upon a policy of 'meeting the needs of trade' and did not attempt to limit the supply of money. The bank itself cut the rope. But even if it had not done so, friction on the edge of the precipice would soon have worn it through.

policy for monetary authorities to pursue. Obstacles, perhaps insuperable, to the control of employment and prices are presented by the fact that a régime of private enterprise is subject to violent oscillations of sentiment, which must be counteracted by public policy if the system is to run smoothly.[1] A discussion of these obstacles lies outside the sphere of our present inquiry, but there are other problems which it may be useful to discuss, even upon the unrealistic assumption that these obstacles do not exist. We will consider, therefore, a community within which manipulation of the rate of interest, supplemented by public-works policy, is adequate to control the level of investment and consequently of employment.[2]

Let us first suppose that the object of policy is to maintain a high level of employment. In the real world, in which labour is not perfectly mobile between trades and localities, absolutely full employment will normally be unobtainable. And even if full employment were attainable, it would create, as we have seen, acute instability of prices, a slight miscalculation in the forward direction leading to a rapid and accelerating rise in money wages. Our authorities must therefore be presumed to leave some margin of safety and to aim at a level of employment somewhat short of full.[3]

If Trade Unions are powerful this will entail that employment lies above the upper critical level, at which money wages rise, and, supposing our authorities to obtain their objective, prices will move constantly upwards, though not in the violent manner characteristic of a very close approximation to full employment. The policy of maintaining a high level of employment will therefore entail a cumulative increase in the quantity of money, at whatever pace is sufficient to maintain the rate of interest at the required level. If this policy is followed in one country only, it will entail a cumulative fall in the foreign exchange rate. For a country largely dependent upon foreign trade changes in the outside world may, at frequent intervals, place the desired level of employment entirely outside the bounds of

[1] *General Theory*, p. 320.

[2] If a position is reached in which a level of investment adequate to promote the desired level of employment is unattainable, it may be postulated that measures will be taken calculated to increase the propensity to consume.

[3] A moderate amount of unemployment is not a very serious social evil so long as it is distributed very widely over the working population and so long as dole provisions are generous. It then amounts to an occasional enforced holiday on reduced pay, which may be a hardship for some individuals but will be almost welcomed by others.

possibility. But the effects of a rising level of wages, in itself, can be offset by a corresponding depreciation of the exchange.[1]

The benefits of a high level of employment (supposing it to be within the power of our authorities to obtain them) can thus be secured at the expense of two evils, a constant depreciation of wealth and incomes fixed in terms of money, and the sacrifice of exchange stability. In so far as the pursuit of such a policy tends to set up an expectation of rising prices in the future, this will, on our assumption that movements of opinion never get out of hand, lighten the task of the authorities in maintaining a high level of employment, by increasing the propensity to consume and increasing the inducement to invest. But an expectation of a falling exchange rate in the future creates serious difficulties, for it will set a premium upon foreign as opposed to home lending and so tend to drive up the home rate of interest.[2] Thus the policy of maintaining a high level of employment can be pursued in one country in isolation only if it is implemented by a high degree of control over foreign lending.[3]

A more common objective of policy is stability of the exchanges. This requires that so long as money wages are rising the rate of interest must be continuously raised in order to redress the balance of payments. The level of employment will therefore be forced continuously downwards until the point is reached at which money wages cease to rise. The policy required for exchange stability is a level of unemployment sufficiently high to prevent money wages from rising. This is, in general, the basis of the policy actually pursued by monetary authorities under the régime of the gold standard.[4]

A third objective of policy, which has been much canvassed, is stability of the price level. This conception raises the question of what exactly is meant by the price level. Stability of prices can only

[1] See below, p. 227. A movement in money wages is never likely to be so uniform in its effect, as between industries, as a movement in the exchange rate. Relative changes in employment and in real wages are therefore likely to result from this policy.

[2] See below, p. 223.

[3] The marked relative fall in the British rate of interest which has occurred since the gold standard was abandoned in 1931 only became possible after expectations of a further fall in the sterling exchange rate had disappeared. It was brought about partly by a certain degree of official control over foreign issues, and partly by a general political situation and uncertainty about the future course of world exchange rates, which strongly discouraged foreign lending. In stable conditions a mere embargo upon foreign issues would be insufficient to defend the home rate of interest against outside influences, for it would always be open to holders of home securities to transfer into foreign securities already in existence, or to lend at short term in foreign money markets.

[4] See below, p. 228, for a further discussion.

mean stability of a particular index number, and when one index number is stable others will be altering. In so far as stability of the price level is regarded as desirable on grounds of social justice, this objection is no mere quibble, but cuts at the root of the whole idea. For the same policy which will ensure a stable real income for one set of individuals will cause fluctuations in the real income of others, who spend their money on different commodities or on the same commodities in widely different proportions.[1] We will suppose, however, that circumstances in our community are such that this objection is unimportant and that an index number can be chosen which gives reasonably consonant results for all sections of the price level.

It is sometimes argued in favour of a policy designed to stabilise prices that it will ensure stability of employment. Now, it is true that a change in effective demand will lead to a change in prices. But prices will also alter if either efficiency or the level of money wages alters. Stable employment will be associated with stable prices only if efficiency is constant and employment lies within the neutral range, so that the level of money wages is constant.[2] Any rise in money wages must be offset by a sufficient reduction in effective demand to prevent prices from rising,[3] and an increase in effective demand will only be permissible if wages fall.

If efficiency is increasing as time goes by, whether because of improvements in technique or merely because of the gradual accumulation of capital, then, with constant money wages, there is a tendency for prices to fall. Stability of prices then requires that the level of employment shall be held sufficiently high to induce just that rate of rise in money wages which will offset the effects of increasing efficiency, and the level of employment must be made to fluctuate with the rate of industrial progress.

[1] A *reductio ad absurdum* of the index number idea is provided by the use of the Cost of Living Index, based on the consumption of a family with an income of 36s. a week in 1904, to regulate the bonus payable to First Class Civil Servants.

[2] Cf. Harrod, *The Trade Cycle*, p. 117, where a similar argument is put forward.

[3] The unreality of arguments conducted in terms of the price level is here clearly exposed. When a general rise in money wages occurs it is inconceivable that the authorities should be able to engineer a reduction in effective demand calculated to restore the price of each particular commodity to its former level and the judgment as to what is a sufficient reduction in effective demand to restore the average of prices will turn upon the index number which happens to be selected. The increase in unemployment required to keep any given index number stable in face of a general rise in wages will be greater the greater is the elasticity of supply of the commodities entering into it. If the elasticities are high and the rise in wages large there may be no decline in effective demand great enough to give the required result.

Thus a policy of maintaining stable prices (supposing that such a policy can be formulated in a practicable manner) is by no means equivalent to a policy of maintaining stable employment. Moreover, in so far as employment is the criterion, it is a high rather than a stable level which is desirable. It can, indeed, be argued that a moderate level of employment is the best objective, since the attainment of a high level at one time may make a low level harder to avoid at another,[1] but this is a question which must be debated on its own merits. To introduce the criterion of stable prices is merely to confuse the issue.[2]

In so far as stable prices are regarded as desirable for their own sake, as contributing to social justice, it must be recognized that justice to the rentier can be achieved only by means of the injustice to the rest of the community of maintaining a lower level of effective demand than might otherwise be achieved. We are here presented with a conflict of interests which *a priori* reasoning can do nothing to resolve. It is a conflict of which modern communities, learning from experience rather than from the teaching of economists, are becoming increasingly aware, and actual policies are largely governed by the rival influences of the interests involved.

A fourth criterion of policy might be found in promoting the best interests of wage earners. We are here presented with a fundamental dilemma. An increase in employment in the short period will normally be accompanied by a fall in real wages, because, with fixed equipment, an increase in output is accompanied by a rise in prices more than in proportion to any rise there may be in money wages.[3]

[1] *General Theory*, p. 327.

[2] The policy, which is sometimes advocated, of maintaining a constant level of money incomes is even more deleterious to employment than a policy of maintaining prices stable. For it would require that employment should be kept below the upper critical level even when there is an increase in efficiency. To examine the effects of a policy of maintaining constant the 'effective quantity of money' (MV) would merely be to explore the confusions which result from an application to actual problems of an over-simplified Quantity Theory of Money.

[3] In an open system it is possible that an increase in employment may occur without causing a fall in real wages. For if, when home investment increases, money wages rise and the exchange is held constant, the purchasing power of the wage earner over imports may be increased to an extent sufficient to offset the diminution in purchasing power over home produced goods. But, if a rise in money wages is not offset by a fall in the exchange rate, not only will the proportion of secondary employment falling abroad be increased, but the home rate of interest will have to be raised. The increase in home employment which it is possible to engineer in these circumstances will at best be extremely limited. (Cf. Kahn, 'The Relation of Home Investment to Unemployment', *Economic Journal*, June 1931, p. 175.) For the effect of an increase in employment brought about by means of an increase in the foreign balance see below, p. 232.

Thus we are presented with a choice between more employment with lower real wages and less employment with higher real wages.

It is important to observe that it is not always the same individuals who gain on the one tack and lose on the other. When effective demand increases, a man who is perfectly secure of his job feels only the loss from the fall in real wages, while a man who was formerly out of work feels only the gain from the increase in employment. We must therefore strike a balance between the interests of various groups of workers. If unemployment was shared equally amongst all individuals there would be, in any given circumstances, one level of employment at which the annual real income (from wages when in work and from the dole during spells of unemployment) of a representative worker would be maximised, and this level of employment might be regarded as the proper objective of a policy designed in the interests of labour. But, in fact, unemployment falls far more heavily upon some individuals than upon others, and there is no one level of employment which can be regarded as the most desirable for all of them.

It is clear, however, that weight must be allowed, upon some system or other, to a fall in real wages as against an increase in employment. In general it may be said that something appreciably short of full employment must be regarded as the optimum. In some circumstances there will be a fairly clear indication of the most advantageous policy. As employment increases from a low level the corresponding fall in real wages will at first be very slight, but after a certain point approximately full capacity will be reached in a number of industries and a further increase in employment will lead to a rapid rise in prices and fall in real wages. In such circumstances it would be reasonable to aim at a level of employment just short of the point at which a sharp fall in real wages sets in. Where no such clear indication exists, and in particular, in an open system, where the influence of the external position is important, our policy can only be based upon a rough and indecisive balance of contradictory considerations.

This argument applies to a strictly short-period point of view. It is also necessary to balance the present against the future. A high level of investment, though it may lead to a low level of real wages in the present, is calculated to produce a rising level of real wages in the future. Thus long-period considerations tell in favour of a higher level of employment than that indicated by the immediate effect upon

real wages, and from a long-period point of view the dilemma presented by the choice of an optimum level of employment is much less acute.[1]

The control of policy is, in a certain sense, divided between the Trade Unions and the monetary authorities, for, with given monetary conditions the level of the rate of interest is largely determined by the level of money wages. A sufficient rise in money wages will always lead to a rise in the rate of interest and so check an increase in employment.[2] Thus a combination of Trade Unions sufficiently strong to control the level of money wages would be faced with the problem of balancing a gain in employment against a loss in real wages, and they might be supposed to aim at establishing what appears to them to be the optimum level of employment, taking account of the interests of employed and unemployed workers, and allowing weight to future as against present benefits. The two critical levels of employment at which wages alter would then coincide at the optimum level of employment and the optimum level would be endowed with all the characteristics of full employment.[3] In practice, as we have argued, Trade Union policy is not conceived in these terms, and even if it is possible to distinguish, in reality, a clearly marked critical level of employment at which money wages rise, there is no reason to suppose that it corresponds to any definite conception of an optimum level of employment.

Moreover, Trade Union policy is only very loosely co-ordinated, and since the duty of each Union is to regard only the interests of its own members, gains and losses are very unevenly distributed between industries. Those Unions which are in the strongest position (either

[1] An increase in employment brought about purely by an increase in the propensity to consume has of course no beneficial long-period reaction upon the level of real wages.

[2] In arguing that a strong tendency for money wages to rise is in a sense inimical to employment, it is important not to lose sight of the fact that the existence of strong Trade Unions, by reducing monopsony, tends to promote a high level of employment. Cf. p. 179, note 1.

[3] If the Trade Unions acting in concert were to decide upon a certain minimum of real wages for employed workers, they would bring an increase in employment to an end when that minimum was reached. Mr. Keynes' psychological interpretation of full employment would then be the correct one, although the mechanism by which the limit was set to employment would be a rise in money wages, not a direct 'withdrawal of labour' (*General Theory*, p. 6). In stable conditions this policy would involve a gradual increase in employment as capital accumulations and improvements in technique raise the level of real wages corresponding to a given level of employment, a higher rate of real wages in the present being secured at the expense, not only of more unemployment in the present, but also of a slower rate of progress in the future.

because of better organisation or because of a more favourable situation in their industries) will secure the greatest rise in money wages when an upward movement occurs, and so secure less than the average fall in real wages. And it is by no means necessarily the case that those Unions which gain the greatest real wages will suffer the largest share in unemployment. Trade Union policy, as it works out in practice, cannot be reduced to terms of even an unconscious decision as to what is in the best interests of ' labour as a whole'.

21

DISGUISED UNEMPLOYMENT

1

An economy consisting of self-supporting families each working their own land must always enjoy full employment, since each individual is free to work as long as he considers the real reward he obtains a sufficient inducement for his efforts.

In any economy in which there is specialisation and exchange the principle of effective demand comes into play, and unemployment may occur. If, however, there are no debts, no form of money and no negotiable capital instruments,[1] the output of the community will be in neutral equilibrium. Saving can only be done by means of adding to the stock of durable goods (an increased amount of seed corn may be saved from the year's harvest so as to extend next year's crop). An increase in thriftiness is therefore necessarily accompanied by an increase of investment, and an increased desire to invest necessarily entails an increase in thrift. A communist economy without private saving is of this type.

Any community with an exchange economy and negotiable capital exhibits the main features of our own system, and in such a system there is no reason to expect that full employment will be the normal state.[2] On the contrary, full employment is only likely to occur in periods of abnormally rapid expansion, when inventions and discoveries are giving constantly renewed stimulus to investment. In a relatively stagnant state of society we should expect underemployment to be the rule. Yet unemployment, as we know it, is specifically the disease of an advanced industrial community. How can we account for the fact that, over the whole range of human history, unemployment in the modern sense is, comparatively speaking, a rare and local phenomenon?

The answer is to be found in the existence of disguised unemployment. In a society in which there is no regular system of unemployment benefit, and in which poor relief is either non-existent or 'less eligible' than almost any alternative short of suicide, a man who is

[1] *General Theory*, p. 239. [2] *Ibid.*, p. 347.

thrown out of work must scratch up a living somehow or other by means of his own efforts. And under any system in which complete idleness is not a statutory condition for drawing the dole,[1] a man who cannot find a regular job will naturally employ his time as usefully as he may. Thus, except under peculiar conditions, a decline in effective demand which reduces the amount of employment offered in the general run of industries will not lead to 'unemployment' in the sense of complete idleness, but will rather drive workers into a number of occupations—selling match-boxes in the Strand, cutting brushwood in the jungles, digging potatoes on allotments–which are still open to them. A decline in one sort of employment leads to an increase in another sort, and at first sight it may appear that, in such a case, a decline in effective demand does not cause unemployment at all. But the matter must be more closely examined. In all those occupations which the dismissed workers take up, their productivity is less than in the occupations that they have left. For if it were not so they would have engaged in them already. The wage received by a man who remains in employment in a particular industry measures the marginal physical productivity of a similar man who has been dismissed from it,[2] and if the latter could find an occupation yielding him a better return, he would not have waited for dismissal to take it up. Thus a decline in demand for the product of the general run of industries leads to a diversion of labour from occupations in which productivity is higher to others where it is lower.[3] The cause of this diversion, a decline in effective demand, is exactly the same as the cause of unemployment in the ordinary sense, and it is natural to describe the adoption of inferior occupations by dismissed workers as *disguised unemployment*.

In this connection it is convenient to make use of an alternative definition of unemployment. When full employment obtains, an increase in the output of investment goods can only occur if there is a decline in the output of consumption goods (any reasonable arbitrary division being made between the two clases). On the other hand, when less than full employment obtains, an increase in invest-

[1] The 'dole' is here used to mean any kind of relief payments.

[2] This is upon the assumption of perfect competition in the industry, but the existence of any degree of monopoly merely adds an *a fortiori* consideration.

[3] We are here confronted with the formal difficulty of distinguishing a divergence of marginal products of similar workers which is due to a decline in demand, from one which is due to ignorance, inertia, or bad management. But in principle the distinction is simple, for the first would disappear and the second would not if a revival of effective demand were to occur.

ment will normally lead to an increase in consumption, and a decline in thriftiness will normally lead to an increase in investment as well as in consumption. Thus we may say that unemployment is present when an increase in the output of capital goods (not offset by an increase in thriftiness) would lead to an increase in the output of consumption goods.[1]

Let us apply this criterion to disguised unemployment. If a revival of investment were to occur, dismissed workers would be called back from the hedgerows and the street-kerbs into their normal occupations. The wages they now receive represent a command over consumption goods which they prefer to the product of their former hand-to-mouth efforts. The output of consumption goods, as evaluated by consumers, has therefore increased. Hence, according to our definition, unemployment existed before the revival of investment took place, even though every individual worker was busy all day long. There has been no increase in employment reckoned by heads, but there has been an increase in employment reckoned in terms of output, because efficient methods of production have been substituted for inefficient methods.[2]

The level of consumption corresponding to a given level of effective demand will be higher the better are the opportunities of the unemployed for self-help (assuming that dole payments are in any case out of the question), for the product of their efforts, the equivalent of which they consume themselves, is a clear addition to the output of the regular industries. The increase in consumption brought about by re-employing them is therefore less the smaller is the difference between their productivity in regular industry and their productivity in hand-to-mouth occupations.

[1] It was suggested earlier (p. 183) that the criterion of full employment is that no one entrepreneur can increase his staff without reducing the staff of some other entrepreneur. This criterion gives the same result as the above, provided that the men employing themselves in inferior occupations are not reckoned as entrepreneurs.

[2] The notion of disguised unemployment throws light on an interesting, though highly academic, problem. It has always been felt that the definition of 'employment' was arbitrary, and that a man when he is shaving himself, or a woman when she is scrubbing her own floor, is 'producing utilities' just as much as when he is mining coal or she is serving at a counter. Wicksteed carried this line of argument to its logical conclusion, and held that we are producing utilities for ourselves even when we are lying in bed. On his view, everyone is 'employed' for twenty-four hours every day. The analysis of disguised unemployment makes it clear that while everyone is *occupied* for twenty-four hours a day, so that the total amount of occupation can never be increased, yet *employment* can be said to increase when part of a man's time is transferred from an occupation in which its productivity is lower to one where it is higher.

In some cases this difference may be slight. When there is an open frontier, with free access for all comers to good cultivable land, the difference in productivity between a man in employment and a man in disguised unemployment may be small. In the limiting case, where there is no difference in productivity, unemployment can never occur, for a man dismissed from industry can then take up an alternative occupation without any loss in real earnings,[1] and an increase in investment could only take place if consumption were to decline.

On the other hand, the less productive are the hand-to-mouth occupations, the nearer will the unemployed be to starvation, and the stronger will be the pressure upon society to institute some kind of dole system. The attitude of mind, prevalent even now in certain quarters, that unemployment is the result of a vicious idleness of disposition in the unemployed individuals, pandered to by the dole, is largely an anachronism which had some plausibility in an epoch when there was open access to the land, so that any active and laborious individual could make a livelihood, when he fell out of employment, not glaringly different from what he had obtained in his former trade.

The existence of disguised unemployment introduces a complication into the formal scheme of the General Theory of Employment. When it is possible for unemployment to become disguised, there is not a unique function relating total consumption to total investment, since a given rate of investment will be accompanied by a greater rate of consumption the more unemployment is disguised. In the normal way an increase in output is accompanied (in the short period) by a fall in real wages and an increase in real profits, in respect to the output which is already being produced. The increase in profits leads to an increase in saving, and it is for this reason that, even when there is no dole, an increase in output, in the normal way, can come about only if there is an increase in investment, But when unemployment becomes disguised there is an increase in output unaccompanied by an increase in saving. Some workers have found an occupation in which real earnings are low without there being any increase in profits and output expands without there being any increase in saving.[2]

[1] This approximates to the case of a community of self-supporting families, for this condition can only be fulfilled when no increase in productivity results from employment under entrepreneurs in specialised industries.

[2] From a certain point of view the phenomenon of disguised unemployment may be regarded as a special case of a change in relative wages. In general, when money

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The notion of disguised unemployment has some relevance even at the present day. Its effects may most conveniently be examined in two stages. We will consider what happens when an individual who is out of work takes up some hand-to-mouth occupation, first when he has no right to any form of relief, and, second, when having been drawing the dole (which is taken to stand for all forms of relief) he is now disallowed benefit.

To simplify the argument we will assume that the dole is financed entirely by borrowing, so that a reduction in dole payments is equivalent to a reduction in the central or local budget deficit—that is, to a decline in dis-saving. When this condition is not fulfilled, the dole being financed from rates and taxes, the situation is unaltered for at least one financial year; if, after a time, a decline in dole pay-

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wages are falling, for any reason, they are likely to fall unevenly, those workers who are in a relatively weak bargaining position suffering a relatively large cut in money wages. There will thus be a fall in the real wages of some workers and a rise in the real wages of others. Output will expand (or contract by less than it otherwise would have done) where relative wages fall, and contract by more than it otherwise would have done where relative wages rise. A change in relative wages will alter the distribution of profits between different groups of employers, relative profits rising where relative wages fall, and falling where relative wages rise. This will have a reaction upon the thriftiness of the community as a whole which may be in either direction and may, consequently, lead either to an increase or to a decrease in employment. Assuming for simplicity that all wage incomes are spent, the condition for a decline in thriftiness (and an increase in employment) is that saving out of profits declines by more in the contracting industries than it increases in the expanding industries (assuming that the savings of consumers are unaffected by changes in relative prices). This condition will be fulfilled in so far as (*a*) the entrepreneurs in the expanding industries are poorer, and therefore less inclined to save, than the entrepreneurs in the contracting industries, and (*b*) the short-period elasticity of supply is greater in the expanding industries, so that profits in them increase by less than profits in the contracting industries decline. There is no particular reason to suppose that this condition will in general be fulfilled, except, perhaps, in so far as workers are likely to be least strongly organised where employers are poorest; and haphazard changes in relative wages are as likely to reduce total employment as to increase it.

The condition for the increase in output in the industries where relative wages fall to be offset by *no* decline in output in other industries is that there should be no increase at all in saving out of profits in the expanding industries. This will occur only if the entrepreneurs engaged in those industries are too poor to save in the first instance and if the elasticity of supply is so great that their profits do not increase up to the point at which saving begins. It is clearly unlikely that this more stringent condition should be fulfilled by any ordinary change in relative money wages. But when we are discussing disguised unemployment we are supposing that unemployed individuals are restrained by loyalty, or by the strength of Trade Union organisation, from competing for jobs in regular industry by offering themselves at cut-wage rates, and that they take up occupations in which they are able to employ themselves. In such a case the entrepreneurs in the expanding industries, i.e. the unemployed men themselves, are extremely likely to be so poor as to spend the whole of their receipts. It is for this reason that the expansion of their output is not accompanied by any contraction in the output of regular industry.

ments leads to a reduction in taxation, some part of the increased net income of taxpayers will be devoted to consumption, so that less than the whole of any reduction in dole payments represents an increase of saving. This alters the magnitude, but not the direction, of the effect upon employment of changes in the amount of the dole. Our assumption that the whole of the dole represents dis-saving simplifies exposition without introducting any difference of principle. We will further assume that an unemployed man has no saleable wealth, no relations to help him, and no credit with his tradesmen.

In the first case, the individual we are considering has no source of expenditure at all and is faced by starvation. He takes up some occupation—planting potatoes if he can get an allotment, selling match-boxes in the Strand, hanging round railway stations to carry bags to hotels. Anything that he earns, in kind or in cash, he devotes to immediate consumption. Whatever he succeeds in producing is a clear addition to the total of output. As a first approximation we may say that from the point of view of the rest of society, taken as a whole, his activities make no difference to output, one way or the other. It may be that particular producers suffer from his competition.[1] The tobacconists will complain if he sells matches. But the money which he attracts from the customers of the tobacconists is spent at the grocer's. The total output of match-selling is not increased by his efforts, but the total output of society is increased by a value exactly equal to what he spends. He adds to demand exactly what he adds to supply, the grocers gain from his addition to demand just what the tobacconists lose from his addition to supply, and the output of society, excluding himself, is neither increased nor diminished. The dole-less individual, who is too poor to save, is a little world to which Say's Law applies with full force.

It is to be observed that it makes no difference to the argument whether the unemployed man eats up his own produce or sells it to others. If he sells matches and buys potatoes, the tobacconist loses what the greengrocer gains, and if he grows his own potatoes, neither is affected at all. In either case, the output of the rest of society is, on balance, unaffected by his activities.

This is a first approximation. There are certain ways in which his activities may alter the output of the rest of society, but their

[1] In so far as he is competing with other men already in disguised unemployment he is imposing a hardship upon them, and in so far as his output leads to a curtailment of theirs the whole of his output fails to be a net addition to the output of society.

effect is likely to be slight. First, it may be that the ordinary traders with whom he comes into rivalry are more disposed to saving than those on whom he spends his earnings.[1] If a decline in the profits of tobacconists reduces saving by more than an increase in the profits of grocers promotes it, then a transfer of custom (*via* the street seller) from one to the other will reduce thriftiness and increase output for the rest of society. But there is no *a priori* reason to expect that this effect will tell in one direction rather than another.[2] Second, charitable persons may feel inclined to buy more matches when they are offered on the kerb than when they are sold only in the shops, or commodities which are unobtainable in better times, such as the services of an outside porter, may attract expenditure from consumers on goods which they would otherwise forego. If, but only if, this expenditure is not offset by economising on other lines of consumption, a decline in thriftiness is induced by the hand-to-mouth efforts of the unemployed man. On the other hand, the outside porter may save the traveller from taking a taxi, and this economy may not lead him to an equivalent expenditure on something else.[3] It appears that the net reaction of the efforts of the unemployed man upon the thriftiness of the rest of the community can hardly be very great. Our first approximation is a good one, and these complications may legitimately be neglected in what follows.

We have seen that the self-help of a man who in any case does not draw the dole makes no appreciable difference to the rest of the community taken as a whole, though he may damage some sections and help others. The case of a man who is disallowed benefit is not the same. For, as we have seen, whatever he may now do for a livelihood adds to demand exactly what it adds to supply; thus whether he starves, grows potatoes, or sells matches, whether he now earns more[4] or less than he received as dole, it makes no difference.

[1] Or from whom he buys raw materials. The unemployed man may be obliged to purchase raw materials from the regular industries, but he can only do so from the proceeds of his sales. He cannot buy seed potatoes and eat the crop himself, since he has no resources to dis-save. The increase in demand, represented by his purchases of raw materials and consumption goods together, is offset by the increase in supply represented by the output which he places on the market.

[2] If a large part of the match-seller's earnings are devoted to paying rent, then, since a landlord is likely to save more than a tobacconist, it is probable that the effect of the match-seller's efforts will be to reduce the output of the rest of society.

[3] To put the same point in a formal manner: the efforts of the unemployed alter the composition of the aggregate of goods offered to consumers, and so may alter the eligibility of consuming rather than saving.

[4] This is not inconceivable. If self-help methods provide a better income than the dole, the unemployed man may forego benefit voluntarily, and the effect of this

Demand for the output of the rest of society is reduced by the amount of dole that he was formerly spending. Thus, when he is disallowed from benefit, the output of the rest of the community will decline.[1] The effect of discontinuing the dole to an unemployed man, and driving him to self-help, is to increase the total of unemployment, while causing a part of it to become disguised.

It is now plain that the institution of a dole where none was before cannot lead to a decrease of employment, according to our definition. If a dole is instituted, for which complete idleness is a qualification, the result will be an increase of employment and output in regular industries, combined with a decrease of disguised unemployment. It will cause unemployment to throw off the disguise, but, from the point of view of regular industry, the amount of unemployment will be reduced.

It should be conceded, however, that the introduction of the dole system must increase the amount of enforced idleness, of which there is none when all unemployment is busily disguised, and may, if efficiency in the occupations which disguise it is sufficiently high, lead to a decrease in the total of output. Thus, in some circumstances, it is possible to make out a case against the institution of a dole for which idleness is a qualification, though not in a country like our own, where the opportunities for self-help are exceedingly meagre and efficiency outside ordinary industry is very low.

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But the dole for which idleness is not a qualification is an unmixed benefit. An example of such a system is to be found in self-help schemes such as that instituted at Upholland. Here a community of unemployed men work at various trades for their own benefit. They continue to draw the dole to which they were entitled when they became unemployed, and with this imports into the community are paid for. Their own produce is not exported (i.e. sold to the outside world), but is divided up and consumed within the community. Our analysis enables us to see that the output of the rest of the world is

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is exactly the same as though he were disallowed. A more plausible case is one in which a man prefers the dole, so long as he is eligible, to an onerous or undignified line of life which earns him more money.

[1] In the limiting case, where no decline in saving accompanies a decline in output except the increase in dis-saving due to dole payments, one more man must be thrown out of work, and receive the dole, for every unemployed man disallowed benefit.

unaffected by the existence of such a community, because the dole of an unemployed man who enters Upholland continues to be spent upon the output of the outside world, while the whole produce of the workers within the scheme is a clear addition to the output of society. Further, we have seen that the distinction, rigidly drawn at Upholland, between working for home consumption and working for sale is somewhat artificial. Entrepreneurs engaged in the particular lines of production, for instance market gardening, developed at Upholland suffer from increased competition, for without Upholland a larger part of the dole would be spent upon vegetables. If exports from Upholland were allowed, this effect would be intensified and no doubt the outcry that would be raised by the employers (and perhaps the workers also) in these trades, and the abusive references to prison labour that they would permit themselves, would create so much unpleasantness that it is scarcely practical politics to advocate exports from Upholland.[1] But the fact remains that, so long as all receipts from exports were currently spent upon imports from the outside world into Upholland, the outside world as a whole would be no worse off. Certain trades would suffer from increased competition, and certain other trades would gain from increased demand. On balance, Upholland would gain from increased variety of consumption, and the rest of the world would be no worse off.

The Upholland scheme is not in itself a remedy for unemployment. It is no substitute for measures calculated to increase effective demand. But it provides a peculiarly efficient method of reducing the ill-effects of unemployment, for it allows the advantages of hand-to-mouth production, under unusually favourable conditions, to be obtained without imposing, upon the unemployed and the rest of society alike, the evils of cutting off the dole.

Under ideal conditions, the widespread institution of such schemes could remove the ill-effects of unemployment altogether, and could produce the level of consumption corresponding to full employment, or even improve upon it. Suppose that the entrepreneurship, provided by well-wishers of the unemployed, does not compare unfavourably in efficiency with the ordinary run of entrepreneurship produced by the pursuit of profit, and suppose that the

[1] In such cases, the interest of those who suffer by competition are more concentrated, and therefore more vocal, than the interests of those who gain by increased expenditure. If the firms who would gain by exporting to Upholland could be taught to cry as loudly as the firms who lose by the competition of exports from it, the necessity of an embargo on exports from Upholland would disappear.

schemes work on a large enough scale to approximate to the most efficient technical methods of industry. Then the productivity of a man in an Upholland community would not be much less than that of a man in ordinary industry. The level of consumption corresponding to full employment would be attained, provided that everyone thrown out of ordinary industry entered an Upholland community, if efficiency inside bore such a relation to efficiency outside that earnings within the community exactly made up the difference between the dole and an ordinary wage. A man who lost his job would then enjoy the same standard of life as a man who retained it, and an increase in investment would, at best, lead to no increase in the total of consumption.[1] If productivity in Upholland stood in a higher ratio to productivity in ordinary industry than the ratio of wage *minus* dole to wage, then the total of consumption would necessarily increase as ordinary employment declined, and the workers would actually gain by a decline in effective demand. This apparent paradox is merely due to the fact that workers are imagined to be drawing the dole on top of earnings not much less than those obtained in ordinary industry.

All this is far away from the conditions of Upholland as it actually exists. But our cloud-castle supplies an important warning which must not be neglected in the actual situation. As the scope of a scheme such as that at Upholland expands and its managers gain in experience, the efficiency with which its output is produced will increase. A day may not be far distant when, taking account both of the standard of consumption and the general amenities, the life of an unemployed man in Upholland may appear preferable to the life of an employed man outside. If things ever came to this pass, it is easy to imagine the protests that would be made against continuing dole

[1] This is true in the limiting case, where no change in saving or dis-saving accompanies a change in the output of industry except the change in dole payments. Take, by way of illustration, the dole equal to one-third of the wage. Now suppose that a man is called out of Upholland and set to work in an investment industry. His total consumption is unaltered, but whereas formerly only one-third of it was drawn from the consumption industries outside Upholland, now the whole of it is drawn from them. The multiplier for the outside world is equal to 3, and two men are put into work in the consumption industries, an increase in investment equal to one man's wage leading to a decrease in dis-saving of three men's dole. Now three men have been withdrawn from the production of consumption goods in Upholland, and, of these, two are producing consumption goods outside. Thus if their efficiency in Upholland is two-thirds of their efficiency outside the total of consumption is unchanged. Investment could then continue to increase, without a decline in consumption, up to the point at which all workers are reabsorbed from Upholland into ordinary industry. Full employment is then reached, and any further increase in investment would only be possible if consumption declined.

payments to men who were actually finding unemployment tolerable. But if the dole were discontinued, the whole merit, from the point of view of outside industry, of the Upholland scheme would disappear. The increase in efficiency which we have presumed to occur might be great enough to compensate the men within the scheme for the loss of dole payments which we have imagined to be the consequence. But there is nothing to compensate the outside industries for the loss of their export trade to Upholland. Unemployment outside would increase,[1] and profits decline. The case of Upholland without the dole is parallel with the case, examined above, of the man who was disallowed benefit and took to selling matches. The men in Upholland are less wretched than the matchseller. But this is no comfort to employers in the outside industries who suffer from the shrinkage of demand.

4

We may now consider, in the light of Upholland, the effects of the regulations surrounding eligibility for unemployment benefit. We have seen that, *provided he does not sacrifice his right to the dole*, an unemployed man does himself good, and on balance does others no harm, by occupying himself as usefully as he can. Yet the regulations surrounding the receipt of the dole militate strongly against useful occupation. Until recently an unemployed man was compelled to fill his time in keeping up the appearance of Genuinely Seeking Work. If he fulfilled this obligation conscientiously he had little time or energy for any other activity. Even now he cannot embark upon any occupation which commits him to spending a certain period of time in any definite way, for he is obliged to hold himself ready to accept a job, should one chance to offer, at a moment's notice. But there is another consideration which is by far the most important. The unemployed man is hedged in by restrictions on his daily activity which are due to fear of losing his right to benefit. The restrictions, in the nature of the case, are highly arbitrary. Under the regulations at present (1936) in force[2] a man may pursue a subsidiary occupation, provided that (*a*) it is not his

[1] In the limiting case one additional man would become unemployed for every one who lost benefit by entering Upholland (see p. 206, note). If this condition were fulfilled at all levels of output, the result would be that ordinary industry would come to a standstill while the whole working population was employed in Upholland communities.

[2] Unemployment Insurance Act, 1935, Section 35 (5).

usual trade, (*b*) it does not occupy what would be his working hours if he had work, and (*c*) it does not bring in an income of more than three shillings and fourpence a day. Thus an unemployed waiter is allowed to accept an odd job in the morning, and an unemployed shop assistant may work after six-thirty (provided that neither accepts three and fivepence for his services), but during normal working hours they must sit at home doing their best to appear 'capable of and available for' the work that they cannot find in their normal trades.[1] Such regulations restrict the disguising of unemployment within narrow limits. Moreover, the extreme complexity of the rules and the Gilbertian situations to which they give rise have a strong effect in discouraging any efforts at self-help, for the unemployed man, bewildered by the intricacy of the regulations with which he is faced, and discouraged by the prospect of 'coming up for trial' before the Court of Referees, is naturally inclined to pursue a policy of Safety First and to sit at home making sure of his right to benefit.[2]

Yet, as we have seen, the situation of the rest of the community is in no way impaired if an unemployed man succeeds in earning some money, whether less or more than three and fourpence. Anything, in kind or in cash,[3] that he may be able to secure is a pure gain to himself and no loss to others, provided that he does not sacrifice his right to the dole. It follows that regulations calculated to prevent him from doing himself any kind of good are harmful to him and not beneficial to the rest of society, while regulations that deprive him of the dole on a slight pretext are deleterious to the rest of society as

[1] The concession is made that the subsidiary occupation may actually be carried out during normal working hours provided that it *could* be performed outside them (Emmerson and Lascelles, *Guide to the Unemployment Insurance Acts*, p. 55).

[2] These regulations apply to eligibility for unemployment insurance. The regulations surrounding relief from the Public Assistance Committees appear to be still more arbitrary. Sir John Jarvis reports (*The Times*, June 16, 1936) that some unemployed men in Jarrow, working on a purely co-operative basis to make a sports ground for themselves, were informed that they would be disqualified for public assistance relief if the work continued, although men entitled to unemployment insurance were permitted to take part in the scheme. There was no element of profit in the scheme, and the workers engaged on it received no pay except a mid-day meal, and boots and trousers in which to work, provided by the Commissioner for Special Areas.

[3] It must be recalled that we are assuming throughout that an unemployed man spends all he earns. In practice some part of his cash earnings may be devoted to paying off debts. In that case the increase in supply, represented by what he sells, is not offset by an equal increase in demand. The grocers, to return to our first example, do not gain as much as the tobacconists lose. This consideration introduces a difference between the case where he earns cash and where he works for his own consumption. But it would be hard to defend the regulations at present in force on the ground that they compel the unemployed to incur the maximum amount of debts.

well as to himself. The administrative complications involved, the strong moral objection to scroungers, felt by workers as well as by taxpayers, and the difficulty of preventing employers from obtaining an illicit subsidy, may be regarded as sufficient justification for such regulations. But their economic effects can only be harmful.

22

THE FOREIGN EXCHANGES*

1

THE exchange rate is determined from day to day by supply and demand of home currency in terms of foreign currency. Each transaction is two-sided, and sales are equal to purchases. Any change in the conditions of demand or of supply reflects itself in a change in the exchange rate, and at the ruling rate the balance of payments balances from day to day, or from moment to moment.

The constituents of the demand for foreign currencies in terms of home currency (or the supply of home currency coming on to the exchange market) may be divided into four groups. Foreign currency may be required (1) in order to pay for goods or services purchased from foreigners (or to make gifts to them), that is, in order to discharge obligations in respect to visible and invisible imports, (2) in order to make loans or purchase securities abroad, (3) for speculative purposes, that is to say, in order to take advantage of an expected reversal in the future course of the exchange rate, (4) in order to remove funds from a country in which political, fiscal or business prospects appear threatening to one in which they seem relatively secure. A fifth group is represented by official exchange dealings, but, since our object is to discover the influences determining the exchange rate in the absence of official interference, we shall assume that no official dealings take place, except when special reference is made to them.[1]

Interest on foreign capital invested in the home country is most

[1]An exchange rate which is considered undesirably high can be corrected by direct intervention in the exchange market. But while the monetary authorities can always sell an unlimited amount of their own currency they can only buy as much as their holdings of gold or foreign assets permit. For this reason it is impossible to hold the exchange rate indefinitely above the level determined by a free market without resorting to complete control of all dealings.

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*The subject-matter of this and the following essay has been the battle-ground of innumerable controversies, and I have preferred (apart from one or two specific points) to make no references to other writers, rather than to weary the reader with continual acknowledgments and disagreements. It will be obvious that my main endeavour is to elaborate the hints thrown out by Mr. Keynes in his *Treatise on Money*, Chap. 21.

conveniently treated, in the traditional way, as an invisible import, since it represents a payment for the services of foreign funds borrowed in the past. Day to day fluctuations in the balances of professional exchange dealers may be included in the third group, that is, as speculative transactions, though they do not represent speculation in the popular sense, but are part of the routine business of the exchange market.

If gold is treated as a commodity,[1] and if exchange dealings as an instrument of official policy are ruled out of account, the first four groups cover the whole field. The third and fourth groups shade into each other, and the second shades into both, for exchange prospects and considerations of security influence foreign lending, while funds removed to a foreign country for security will normally be lent at interest, though they may be used to purchase gold or to make a deposit at a bank.[2] Thus the motives which govern the demand for currency for foreign lending are inextricably bound up with the motives which govern exchange speculation and the panic movement of funds. It is therefore most convenient to distinguish only two major categories in the balance of payments—payments in respect to imports and exports, which represent the income account or *balance of trade*, and payments in respect to lending and borrowing (covering the whole of the last three groups distinguished above) which represent the capital account or *balance of lending*.

Now since the balance of payments always balances it follows that, for any section of time, payments in respect to the balance of trade must be equal and opposite to payments in respect to the

[1] In some contexts it is convenient to treat gold movements in a different way (see *General Theory*, p. 335, and *Treatise*, p. 329). In accordance with our present scheme of analysis an increment to the stock of gold inside the country must be regarded as part of home investment and a decrement as disinvestment. This has the advantage of putting the gold-producing countries upon the same footing as the rest, and of putting a reduction in the stock of gold upon the same footing as a reduction in the stock of any other commodity. But no point of principle is involved. An increase in imports accompanied by an equivalent export of gold taken from stocks may be treated either as a decrease in the balance of trade (foreign investment) without any change in home investment, or as home disinvestment, without any change in the balance of trade. Exports of newly-mined gold are in either case treated in the same way as exports of any other commodity.

[2] It is sometimes supposed that an increase in the prospective earnings of capital in one country will lead to an increased desire on the part of foreigners to lend to it, for instance, that a boom on Wall Street 'attracts money' from Europe. But this cannot occur when home and foreign speculators take an equally optimistic view of prospects, for if they do the price of securities will be driven up to such a point as to compensate for the improvement in their prospective yield, and no movement of foreign funds will actually take place. Only if the change in opinion leaves foreigners more bullish than home speculators will it lead to an inflow of foreign funds.

balance of lending. Thus when, over any period, the inhabitants of a country have collectively a surplus of receipts from exports over payments for imports (or *positive* balance of trade)[1] they must, over the same period, on balance be lending (in the broad sense) to the inhabitants of foreign countries an exactly equal sum. Similarly a surplus of imports (or *negative* balance of trade) must be matched by an equal amount of borrowing. This is merely a truism, but it is a truism which provides the most convenient starting point for the theory of the exchanges.

The same truism can be reached by another route, which it may be instructive to turn aside for a moment to follow. A positive balance of trade is equivalent to investment, from the point of view of the home country, and it has the same influence as investment upon the level of effective demand in the home country. It represents a certain volume of demand for current home output without representing a supply of goods coming on to the home market (for the trade balance represents the home incomes earned by selling to foreigners *minus* that part of home incomes which is expended upon foreigners) and so gives rise to secondary employment. Thus the trade balance is one of the influences which determine the level of income, and consequently the level of saving, in the home country. Since the saving of a community, over any period of time, is equal to its investment for that period, saving is equal to home investment *plus* or *minus* the trade balance. New borrowing at home is equal to home investment, while lending is equal to saving. Therefore foreign lending is equal to the trade balance.

The truism, in the nature of the case, can throw no light upon the manner in which the equality is brought about. It can only tell us that if in fact there is a change in the balance of trade there must be an equal change in the balance of lending. In some circumstances, as we shall find, the two are directly bound together, but in general, though there are always cross-connections between them, they vary in response to independent sets of influences. If I take it into my head to buy a foreign security there is no reason why some compatriot of mine at the same moment should decide to curtail his purchases of imported goods.

[1] The movement of goods and performance of services do not normally synchronise with the payments which are made in respect to them (cf. Haberler, *Theory of International Trade*, p. 18). This fact is of significance in certain contexts, but in order to avoid a cumbrous degree of exactitude we shall speak in what follows of, for instance, an increase in exports relatively to imports as an increase in the balance of trade.

The volume of imports and exports is determined by tastes, techniques and resources the world over, and by costs and incomes at home and abroad, which in turn are determined by the levels of money wages and of effective demand. The balance of lending is determined (given wealth and incomes) by relative rates of interest at home and abroad, and by all those considerations which may be lumped together under the heading of 'the state of confidence'. A fall in the home rate of interest (or a rise in rates abroad) or the growth of dismal expectations about home affairs will increase the desire to lend abroad. It is by such diverse influences that the balance of trade and the desire to lend are determined, and equality between them is preserved not by any natural tendency for the two to vary consonantly, but by the mechanism of supply and demand. The theory of the exchanges may be regarded as the analysis of the manner in which movements of the balance of trade and the balance of lending are equated to each other.

2

A change in the desire to lend abroad will tend to alter the exchange rate. The reaction upon the balance of trade of an alteration in the exchange rate must be examined at some length. Suppose that, after a certain exchange rate has been in force for some time, the amount which the inhabitants of the home country desire to lend abroad increases. At the ruling exchange rate the demand for foreign currency exceeds the supply and the exchange rate consequently falls. This has the effect of making home-produced goods appear cheaper to foreigners and so increasing the volume of exports. If the physical volume of exports increases their home price cannot fall, therefore the value of exports in terms of home currency must increase. But the effect on imports is more complicated. Foreign goods are now dearer at home, and while the physical volume of imports purchased out of a given income will decline, total expenditure upon them may increase. Thus a decline in the exchange rate will not necessarily increase the balance of trade. If the value of imports (reckoned in home currency) increases by more than the value of exports, then a fall in the exchange rate will reduce the balance of trade.

The argument may be treated in terms of four elasticities: the foreign elasticity of demand for exports, and the home elasticity of supply (which is influenced by the home elasticity of demand for exportable goods), the foreign elasticity of supply of imports and the

home elasticity of demand for imports (which is influenced by the home elasticity of supply of rival commodities).[1] For brevity we may speak of the demand for imports as 'home demand', the demand for exports as 'foreign demand', and so forth.

The actual change in imports and in exports which will come about as the result of a change in the exchange rate will depend partly upon the reaction on the demand for imports, and on the supply of exports, of a change in the balance of trade itself. For instance, an increase in the balance of trade leads to an increase in home incomes, and consequently to an increase in expenditure upon imported goods; an increase in exports, or in home manufactures rival to imports, may lead to an increased importation of raw materials, while increased expenditure upon home-produced goods may raise the supply curve of exports. But these effects influence the magnitude, not the direction, of the change in the balance of trade consequent upon a fall in the exchange rate,[2] for the secondary effects follow from the change in home incomes due to the change in the balance of trade, and if the balance of trade does not alter the secondary effects cannot occur. It is therefore legitimate to discuss the initial effect upon the balance of trade in terms of the four elasticities, abstracting from the change in home incomes.

Let us first consider the export side of the balance sheet. As we have seen, a fall in the exchange rate leads to an increase in the value of exports in terms of home currency. The extent of the increase depends upon the elasticity of foreign demand (which must be reckoned in terms of foreign currency). The increase in the value of exports will be smaller the smaller is the foreign elasticity of demand (given the home elasticity of supply). In the limit, if the foreign demand is perfectly inelastic there will be no increase in the volume of exports and consequently no increase in their value.

Next consider the influence of home elasticity of supply. If home

[1] It assumed throughout this and the following essays that elasticities of supply are positive and of demand negative. Discussions of the magnitude of elasticities must be taken to refer to their numerical, not their algebraical value.

[2] This is not perfectly accurate, for qualitative differences between different types of goods and of expenditure from different types of income may introduce complications into the simple analysis here set out. For instance, suppose that the initial effect of a fall in the exchange rate is to increase the value of both exports and imports to the same extent, while export goods require a higher proportion of imported raw materials than the home goods whose output declines when expenditure upon imports increases. Then the initial effect of a fall in the exchange rate is to leave the balance of trade unaltered while the final effect is to reduce it. The increase in home incomes due to the increase in exports is then less than the reduction due to the increase in imports.

supply is perfectly inelastic the volume of exports does not alter, their foreign price is unchanged and the value of exports increases in proportion to the fall in the exchange rate. If home supply is perfectly elastic, the home price is constant and the price to foreigners falls in proportion to the fall in the exchange rate. If the elasticity of home supply lies between zero and infinity the home price of exports is raised by an increase in their volume, and their price to the foreigner consequently falls less than in proportion to the fall in the exchange rate.

If the foreign elasticity of demand is equal to unity, so that expenditure is constant in terms of foreign currency, the value of exports is independent of the home elasticity of supply and increases in proportion to the fall in the exchange rate. If the foreign demand has less than unit elasticity, the increase in the value of exports will be greater the smaller is the increase in their physical volume, that is, the smaller is their elasticity of supply. Thus, when the foreign demand has less than unit elasticity the maximum possible rise in the value of exports is that which is brought about when their elasticity of supply is zero. The value of exports then increases in proportion to the fall in the exchange rate. So long as the foreign demand has less than unit elasticity any increase in the physical volume of exports means that their value increases less than in proportion to the fall in the exchange rate. On the other hand, when the foreign demand has an elasticity greater than unity, an increase in the volume of exports leads to an increase in the foreign expenditure upon them, and the value of exports increases more than in proportion to the fall in the exchange rate. The increase in the value of exports is then greater the greater is the elasticity of home supply. In short, a high elasticity of home supply tends to reduce or to enhance the increase in the value of exports induced by a fall in the exchange rate according as the foreign elasticity of demand is less or greater than unity.

The minimum effect of a fall in the exchange rate upon the value of exports is produced when the foreign demand has zero elasticity. There is then no increase in exports. The maximum effect is produced when a perfectly elastic foreign demand is combined with a perfectly elastic home supply. The increase in the value of exports is then indefinitely great.

We must now consider the import side of the balance sheet. The value of imports in terms of home currency will increase or diminish according as the elasticity of demand is less or greater than unity.

If the foreign supply is perfectly elastic, so that the foreign price of imports is constant, then their home price will rise in proportion to the fall in the exchange rate; while if the foreign supply is less than perfectly elastic a curtailment of output will cause a fall in the foreign price, so that the home price rises by less than the fall in the exchange rate. It can be seen, therefore, that when the home demand has less than unit elasticity, the value of imports will rise by more, and when it has greater than unit elasticity, will fall by more, the greater is the foreign elasticity of supply.

A fall in the exchange rate produces the maximum increase in the value of imports when home demand is perfectly inelastic. In this case the physical volume of imports is constant, their foreign price is unchanged, and both their price and their value in home currency are increased in proportion to the fall in the exchange rate. The maximum decrease is produced when a perfectly elastic home demand is combined with a perfectly elastic foreign supply. In this case imports are reduced to zero.

We must now combine the two sides of our balance sheet. The relations between the various factors in the problem are complicated,[1] but some simple generalisations can be made. So long as the home demand for imports has more than unit elasticity, a fall in the exchange rate must increase the balance of trade, for the value of

[1] The general relationships can be expressed mathematically. Let I be the quantity of imports, E of exports, p the home price of imports and q the home price of exports. Let ϵ_h and ϵ_f be respectively the elasticities of home demand for imports and of foreign demand for exports, η_h and η_f the elasticities of home supply of exports and of foreign supply of imports. Consider the effect of a small fall in the rate of exchange in the proportion k. Let the home price of exports rise by δq. Then the fall in the foreign price of exports is:

$$q - (1 - k)(q + \delta q) = kq - \delta q, \; k \text{ being small.}$$

We now have $$\eta_h = \frac{\delta E}{E} \Big/ \frac{\delta q}{q},$$

and $$\epsilon_f = \frac{\delta E}{E} \Big/ k - \frac{\delta q}{q}.$$

In the same way, $$\eta_f = -\frac{\delta I}{I} \Big/ k - \frac{\delta p}{p}$$

and $$\epsilon_h = -\frac{\delta I}{I} \Big/ \frac{\delta p}{p}.$$

The increase in the balance of trade is $(E\delta q + q\delta E) - (I\delta p + p\delta I)$, which can be reduced to:

$$k \left\{ Eq \frac{\epsilon_f(1 + \eta_h)}{\epsilon_f + \eta_h} - Ip \frac{\eta_f(1 - \epsilon_h)}{\eta_f + \epsilon_h} \right\}.$$

imports falls, while the value of exports is at worst constant. If the home demand for imports has less than unit elasticity, the balance of trade will still increase if there is a sufficient increase in the value of exports, but if the elasticity of foreign demand for exports is not sufficient to compensate for a low elasticity of home demand, then a fall in the exchange rate will reduce the balance of trade.

Before proceeding further, the relative magnitudes of the values of imports and exports must be considered. For instance, if the elasticities are such that a fall in the exchange rate brings about an equal proportional increase in the value both of imports and of exports, then if imports were equal to exports in the first instance, so that the balance of trade was zero, it will remain zero when the exchange falls. If it was positive in the first instance, it will increase, for an equal proportional increase in exports and imports entails a larger absolute increase in exports if exports exceeded imports in the first instance. If the balance of trade was negative in the first instance it will be reduced by the fall in the exchange.[1] When the balance of trade is zero in the first instance, then if the elasticity of foreign demand for exports is greater than unity, a fall in exchange rate must increase the balance of trade, for the value of exports is increased more than in proportion to the fall in exchange rate, while, in the worst case, where home demand is perfectly inelastic, the value of imports is increased only in proportion to the fall in exchange rate. If the elasticity of foreign demand for exports is less than unity, the balance of trade will still increase provided that the elasticity of home demand is sufficient to compensate for the low elasticity of foreign demand for exports.

It is now clear that the balance of trade may increase with a fall in the exchange rate even if the elasticities of foreign and home demand are both less than unity. In the simple case, where trade is balanced in the first instance, and the elasticities of home and foreign

[1] The effect of inequality between Eq and Ip (in the notation of the foregoing footnote) can be shown most simply in the case in which the elasticities of foreign and home supply are both infinite.

When η_f and η_h are both equal to infinity, the increase in the balance of trade becomes:

$$k\{Eq\,\epsilon_f + Ip\,\epsilon_h - Ip\}$$

$$\text{or } kEq\left\{\epsilon_f + \epsilon_h\,\frac{Ip}{Eq} - \frac{Ip}{Eq}\right\}$$

It follows that, for the balance of trade to increase with a fall in exchange rate, it is a sufficient, though not a necessary, condition that the elasticity of foreign demand should exceed the ratio of imports to exports.

supply are both infinite, the balance of trade will increase or diminish according as the sum of the elasticities of home and of foreign demand is greater or less than unity, that is, according as the deficiency below unity of the one is more or less than offset by the excess above zero of the other.[1]

The repercussions of a change in the balance of trade upon the home demand for imports and supply of exports must be brought into account when the direction of the change has been discussed in terms of the four elasticities. The final change in the balance of trade, in either direction, will be smaller, the greater are the change in demand for imports and the change in supply of exports brought about by the changes in home activity and expenditure which are due to the initial change in the balance of trade. Further, since foreigners are impoverished or enriched by a decrease or increase in the balance of trade of the world with the home country, there is an additional secondary reaction upon the foreign demand for exports, which also tends to mitigate the change in the home balance of trade.

If, at a given exchange rate, the balance of trade falls short of the balance of lending the exchange depreciates. Under favourable conditions this leads to a sufficient increase in the balance of trade to prevent any further fall in the exchange rate. The most favourable conditions from this point of view are, as we have seen, those in which there is perfectly elastic foreign demand and home supply of exportable goods. These conditions prevail as between countries on the gold standard. In the home country gold is on sale at a fixed price, while transport costs are very low and do not rise, except in extreme circumstances, with an increase in the volume of the commodity handled. Supply is therefore perfectly elastic under normal conditions. In foreign countries demand is perfectly elastic at a fixed price. Any tendency for the exchange rate to fall will therefore lead to an indefinitely large export of gold. Similarly home demand and foreign supply are perfectly elastic, so that any rise in the exchange rate would lead to an indefinitely large import of gold. It is for this reason that movements in the exchange rate cannot occur (beyond the limits set by transport costs) so long as the gold standard is maintained.

[1] Cf. A. P. Lerner, *The Economics of Control*, p. 377. In this case not only are η_f and η_h both infinite, but also Eq is equal to Ip, so that the expression for the increase in the balance of trade becomes:

$$k\,Eq\{\epsilon_f + \epsilon_h - 1\}$$

which is positive or negative according as $\epsilon_f + \epsilon_h$ is greater or less than unity.

Other items in the trade balance have certain peculiar features of their own. Interest on foreign capital which is fixed in terms of home currency represents an export of which the value cannot increase in response to a fall in the exchange rate[1] (though, if debtors are distressed, the reduction in the burden upon them brought about by a rise in the exchange value of their currency may have an important effect in preventing default). For a country in whose total exports this item is an important element, the beneficial effect upon the balance of trade of a fall in the exchange rate is *pro tanto* diminished. From the point of view of a debtor country, interest payments fixed in terms of the creditor's currency represent an import which rises in value in proportion to a fall in the exchange rate,[2] and if such obligations are considerable (and default is not contemplated) exchange depreciation may be extremely dangerous to the balance of trade. Obligations fixed in terms of the debtor's currency represent, from the creditor's point of view, an export whose value rises in proportion to the fall in the exchange rate.[3] They tend, therefore, to make the reaction of depreciation upon the balance of trade favourable. From the debtor's point of view they represent an import which is unaffected by a fall in the exchange rate,[4] and so far as their influence goes, the reaction of depreciation upon the balance of trade is neutral.

A country whose main exports are manufactured goods in which it has no monopoly will normally enjoy a fairly elastic foreign demand, combined, except in boom conditions, with a highly elastic home supply. Its exports will therefore respond favourably to a fall in the exchange rate. On the other hand, if its imports consist mainly of food and raw materials which cannot be produced at home, the demand for imports is probably inelastic, while if it does not represent a predominant part of the world market the foreign supply will probably be highly elastic. The effect of depreciation upon imports is then unlikely to be favourable, and the benefit to the balance of trade of an increased value of exports may be cancelled out by an increased value of imports.[5] Moreover, if the balance of trade does

[1] Obligations to the home country fixed in home currency may be regarded from a formal point of view as an export for which the foreign demand is perfectly inelastic.

[2] They may be regarded as an import for which the home demand is perfectly inelastic.

[3] They may be regarded as an export of which the home supply is perfectly inelastic.

[4] They may be regarded as an import for which the elasticity of demand is unity.

[5] Great Britain in 1931 escaped from the dangers of this situation because her depreciation was mainly *vis-à-vis* rival manufacturing nations, while parity was maintained with countries responsible for a high proportion of her sources of raw materials.

tend to increase, the extent of the increase will be limited by the increased importation of raw materials which results from increased activity.

A country which is dependent upon the production of commodities (especially raw materials) of which it provides a predominant part of the world supply will normally find the demand for its exports relatively inelastic, for it has no rivals at whose expense its sales can be increased, and it is faced with the demand for each commodity as such. In this case an inelastic home supply will be a source of strength.[1] Countries of this type normally import manufactured goods for which the demand is likely to be relatively elastic, compared to the demand for foodstuffs. In respect to imports, therefore, the effect of depreciation upon the balance of trade is unlikely to be adverse.

In any given situation, with given wages, there will be, for any one country, a certain rate of exchange at which its balance of trade is at a maximum. This may be called the *optimum* exchange rate. It is the 'optimum' rate in a strictly limited sense, for a fall in the exchange rate is likely to raise the price of imports relatively to exports, thus reducing real income per unit of output in the home country,[2] so that the rate which maximises the trade balance is by no means necessarily the most desirable rate from every point of view. Moreover, a change in the exchange rate of one of the major countries produces so many reactions upon the rest of the world, and such far-reaching economic and political effects, that it would be absurd to treat it merely in terms of elasticities of supply and demand. But such treatment is a necessary part of the more general discussion of exchange problems, and it is to this narrow sphere that the present analysis is confined.

If the exchange rate stands at the optimum level, any chance fall will precipitate a progressive decline, for each fall in the rate reduces the trade balance and promotes a further fall. In the absence of control, the exchange rate is stable only so long as it stands above the optimum level. But the value of the optimum rate largely depends upon the length of the run which is being considered. From the point of view of very short-period reactions to a fall in the exchange rate, both the foreign elasticity of demand for exports and the home

[1] For instance, the remarkable steadiness of Australia's output of wool was an important factor in the benefit which she derived from depreciation in 1931. In default of a naturally inelastic supply monopolistic restriction schemes are widely resorted to by raw-material-producing countries.

[2] See below, p. 235.

elasticity of demand for imports are likely to be very low (apart from gold), even when over a longer run they would prove to be great, for the fall in the price of the one and rise in the price of the other takes time to produce its effect upon the decisions of purchasers, while, if prices are agreed in terms of the exporter's currency, the force of inertia (and prearranged contracts) delays the rise in the value of exports.[1] Thus it appears at first sight that from the point of view of a very short run the exchange rate can never be above the optimum, and that any country which has abandoned the gold standard must be in chronic danger, no matter how strong its long-period position, that the smallest increase in the balance of lending, will precipitate a sudden collapse in the exchange rate.

But against this danger there are two important safeguards. So long as any country in the world adheres to the gold standard there is one commodity for which even the short-run demand is perfectly elastic, while if there is a market in gold in the country whose exchange is falling the supply of this export will be highly elastic, though less elastic than when it is officially on offer at a fixed price.[2] Exports of gold will thus serve as a stop-gap, and prevent the exchange rate from collapsing at a breath.

Further, a fall in the exchange rate which is not expected to last will call professional speculators into action. Purchases of the depreciated currency, representing a form of foreign borrowing, will bridge the gap in the balance of payments and prevent the exchange rate from falling beyond the level at which it is expected later to come to rest. Thus time will be allowed for a moderate fall in the exchange rate to produce its effect upon the balance of trade, and a slight fall will not necessarily lead to an immediate collapse.

On the other hand, as is only too well known, if speculators read a slight fall as a sign that a further fall is to be expected, a violent increase in foreign lending (in the wide sense) will take place and the balance of trade will have no time to react to an initial fall in the exchange rate before a further fall takes place. In this case only official intervention can prevent a sudden collapse.

[1] If prices are agreed in terms of the importer's currency the short-period reaction of a fall in the exchange rate is favourable. For import prices fail to rise, so that inelastic home demand is innocuous, while, in the first instance, the value of exports rises in proportion to the fall in the exchange rate. When the Belga was devalued exporters were urged to continue to charge the same foreign prices and not to increase their output. The effect upon the balance of trade is the same, in such a case, as though home supply were perfectly inelastic.

[2] See Einzig, *Bankers, Statesmen and Economists*, p. 86.

What happens if there is no intervention, while foreign lending remains constant or increases as the exchange rate falls below the level of the short-period optimum? The rate is then sent hurtling towards zero. But on its way thither it must necessarily pass through a pessimum point (at which the balance of trade is a minimum) and come to rest somewhere below it. For a sufficiently violent rise in the price of imports must ultimately choke demand, and even if exports fail to react, in the flurry of the moment, the value of imports must somewhere begin to fall off.

3

A change in the desire to lend abroad can bring about a change in the balance of trade (and consequently in the actual rate of lending) only by way of its effect in altering the exchange rate. But a change in the balance of trade produces a direct effect upon the balance of lending. The rate of saving in the home country exceeds or falls short of the rate of home investment according as the balance of trade is positive or negative. In the normal way a part of the increase in the wealth of individuals in the home country represented by home saving will be used to acquire foreign securities or to make loans abroad. Thus, when the balance of trade increases, and home saving consequently increases, this in itself will lead to an increase in foreign lending. Similarly, when the balance of trade falls off, lending by the world to the home country is directly increased. To look at the same thing in another way, if the balance of trade falls off, there is an increase in the excess of the rate at which home securities (representing borrowing for home investment) are coming on to the market over the rate at which wealth at home is accumulating, while, at the same time, in the rest of the world there is an increase in the excess of the rate at which wealth is accumulating over the flow of new securities, and the world is inclined to buy home securities at a greater rate than before.

If the world capital market were perfect, so that owners of wealth, the world over, were completely indifferent as between home and foreign securities, then, when the home balance of trade falls off, the excess new savings of the world would be devoted to buying the excess of new home securities over new home savings, without any change in relative interest rates, and the rate of exchange would remain in equilibrium in spite of the fall in the balance of trade. This is normally the case as between different parts of the same country.

But the international capital market is not perfect, and, if foreigners are to be attracted to buy home securities at an increased rate, the home rate of interest must rise relatively to the foreign rate. If the home rate of interest does not rise sufficiently, foreign lending to the home country will fail to increase by as much as the balance of trade has fallen, and the rate of exchange will consequently fall.

4

We must now consider the effect of a change in the home rate of interest upon the rate of exchange. Suppose that a rise in the home rate of interest occurs, other things remaining the same. A rise in the home rate of interest produces its effect upon the exchange in three stages.

The first stage is represented by the additional foreign borrowing (or reduction of lending) which is produced by a rise in the relative rate of interest at home. The increment of borrowing may be divided into two parts, a small increase in the share of world savings devoted to the home country, which will persist (apart from unfavourable reactions upon confidence) so long as the rise in the relative home rate is maintained, and a larger, non-recurrent movement due to the transfer of funds, formerly held abroad, to the home country. Each transfer can only affect the exchange rate as it is made, and to maintain a given volume of transfers over an appreciable length of time the relative rate of interest would have to rise continuously. Thus the balance of payments is not in equilibrium to a given exchange rate and interest rate unless no transfers are taking place.[1]

There is here a close analogy to gold movements, which also

[1] Mr. Sayers ('Japan's Balance of Trade', *Economica*, February 1935, p. 52) suggests that the exchange is in equilibrium when no short-term lending or borrowing is taking place. For practical purposes short-term borrowing provides a useful index of the purely transfer element in the international movement of funds, though the two are not completely identical.

Equilibrium, in the sense that no transfer borrowing or gold movements are taking place, is not the same thing as full equilibrium. Full long-period equilibrium of the balance of payments does not obtain so long as any lending or borrowing is taking place at all. For so long as borrowing is taking place the invisible imports represented by interest payments are mounting up, and as time goes by persistent borrowing will lead, other things equal, to a gradually falling balance of trade. (If, as sometimes occurs, the borrowing corresponds to home investment which would not have taken place without it, other things are not equal, for increased capital equipment will have its reaction upon the other items in the balance of trade.) Full long-period equilibrium is reached only when investment and saving are equal to zero, and imports are equal to exports—a state of affairs which has never been attained in actuality. The present discussion is not concerned with these remote effects, and must be regarded as applying to a length of run within which the accumulation of interest payments is small relatively to current borrowing.

constitute a symptom of disequilibrium in the balance of payments. If the home authorities are subject to the legal obligations of the gold standard or, under influence of more general considerations, desire to maintain a given exchange rate it is the objective of their policy to establish equilibrium in the balance of payments at the exchange rate which they desire to establish, that is to say, to create a situation in which neither gold movements nor transfer lending are taking place at the desired exchange rate.

The second stage in the operation of the rate of interest is its effect upon the balance of trade. A rise in the home rate of interest will curtail investment and so lead to a decline in activity and incomes in the home country. Expenditure upon imports will therefore fall off. Foreign export industries will contract, and the consequent decrease of incomes and expenditure in the rest of the world will reduce the demand for goods exported by the home country. But a part of the reduction in foreign incomes will be subtracted from saving, and even if the supply price of exports in the home country is unaffected it is impossible that exports should be curtailed to the same extent as imports. Moreover, the supply price of a given volume of exports is likely to be reduced, for exportable goods are partly consumed at home and a reduction in home demand will increase the supply available for export, while services common to all industries, such as transport, are likely to become cheaper to the exporters when the total demand for them is reduced. Thus, in spite of the decrease in foreign demand, the volume of exports may actually increase. In short, a decline of effective demand at home tends to decrease imports relatively to exports and so to increase the balance of trade.

Equilibrium with the given exchange rate is reached when, at a constant rate of interest, the balance of trade, excluding gold, is brought to equality with the balance of recurrent lending, and no transfer of funds or movement of gold is taking place. But the position is only attained at the expense of unemployment at home, and any reduction in the rate of interest, by stimulating activity, would set up a tendency for the exchange to fall. The third stage is not reached until increased unemployment has brought about a fall in money wages in the home country.

The effect of an all-round reduction in money wages in the home country upon the balance of trade is precisely similar, apart from obligations which are fixed in terms of home currency, to the effect of a corresponding fall in the exchange rate, for both represent a decline in home incomes and prices measured in terms of foreign

currencies. The effect upon the value of imports and of exports in terms of foreign currency is the same for a fall in home wages as for a fall in the exchange rate, while the home purchasing power of a given amount of foreign currency increases equally in each case. Obligations fixed in terms of home currency introduce a difference between the two, for while these are unaffected by a fall in the exchange rate, the real burden of payments, and the real value of receipts, are increased by a fall in home wages.[1] There is a further difference between the effect of pressure upon the exchange rate and of pressure upon the level of money wages which is of the utmost practical importance. While a fall in the exchange will have an automatic and equal effect on the relationship of all home prices to foreign prices, a fall in money wages is never spread evenly over all industries and relative prices inside the home country are never unaffected by it. But for the purposes of our present formal treatment we will consider a case in which the unemployment caused by a rise in the rate of interest brings about an equal proportionate fall in all wages rates.

Just as, with given money wage rates, there is an optimum exchange rate, at which the balance of trade is at a maximum, so, with a given exchange rate, there is an optimum level of money wages. In circumstances in which a fall in the exchange rate would lead to an increase (in terms of home currency) in the value of imports greater than the increase in exports (apart from monetary obligations[2]), an equivalent fall in wages would lead to a decline in the value of exports greater than the decline in value of imports. In such circumstances it is a rise, not a fall, in the level of wages which would redress the balance of payments.[3] But we may suppose for our present purpose that the pre-existing level of money wages was above the optimum in this sense. A fall in money wages will then increase the balance of

[1] This applies equally to internal and external obligations, and the increase in the share of rentiers in the national income, brought about by a fall in money wages, may have some reaction upon the demand for imports, which would introduce a further difference between the effect on the balance of trade of a fall in money wages and of a corresponding fall in the exchange rate.

[2] A fall in the exchange rate will have a more favourable effect upon the balance of trade (reckoned in terms of home wage units) than a corresponding fall in wages where payments to foreigners fixed in terms of home currency are an appreciable element in imports, and a less favourable effect when receipts paid in terms of home currency are an appreciable element in exports.

[3] If the exchange has once been allowed to fall below its long-run optimum level, the authorities are landed in an extremely awkward situation. For, while a rise in the rate of interest will produce a beneficial effect upon the exchange at the first stage of its operation and, by reducing employment, at the second stage, its effect at the third stage will make matters worse than ever. In such a case curtailment of imports (by tariffs and so forth) and of foreign lending, combined with direct intervention in the exchange market, will provide the only remedy.

trade corresponding to a given level of effective demand at home. If the interest rate is maintained at its higher level after wages have fallen the exchange will tend to appreciate; the rate of interest may then be lowered and a recovery of employment allowed to take place.

It is in this way that a tendency for the exchange rate to alter can be offset by appropriate changes in the home rate of interest.

5

It is now obvious that there is no one rate of exchange which is the equilibrium rate corresponding to a given state of world demands and techniques. In any given situation there is an equilibrium rate corresponding to a given state of world demands and techniques. In any given situation there is an equilibrium rate corresponding to each rate of interest and level of effective demand, and any rate of exchange, within very wide limits, can be turned into the equilibrium rate by altering the rate of interest appropriately. Moreover, any rate of exchange can be made compatible with any rate of interest provided that money wages can be sufficiently altered. The notion of *the* equilibrium exchange rate is a chimera. The rate of exchange, the rate of interest, the level of effective demand and the level of money wages react upon each other like the balls in Marshall's bowl, and no one is determined unless all the rest are given.[1]

It will be observed that in the foregoing argument the operations of the gold standard are treated in the same terms as the workings of so-called free exchanges. The only difference between the two is that under the gold standard the authorities are committed to one particular exchange rate so that the equilibrium of the balance of payments must be preserved in face of changing conditions entirely by inducing changes in the level of incomes, and not at all by allowing variations in the exchange rate, while under free exchanges the authorities have some measure of latitude in their choice between the two methods of adjustment.

For a country in which money wages do not readily yield to the pressure of unemployment the gold standard can be maintained, in an era of rapid change, only by means of recurrent periods of severe unemployment,[2] and it is the realisation of this fact which has in recent years so much impaired the popularity of the gold standard.

[1] One more ball in the bowl is represented by expectations as to the future course of the exchange rate; see p. 223.

[2] The monetary history of Great Britain between 1925 and 1931 is the history of a struggle between the level of money wages and the rate of exchange. It was appropriate that the final collapse of the gold standard should have been brought about by a protest against cuts in pay.

23

BEGGAR-MY-NEIGHBOUR REMEDIES FOR UNEMPLOYMENT

For any one country an increase in the balance of trade is equivalent to an increase in investment and normally leads (given the level of home investment) to an increase in employment.[1] An expansion of export industries, or of home industries rival to imports, causes a primary increase in employment, while the expenditure of additional incomes earned in these industries leads, in so far as it falls upon home-produced goods, to a secondary increase in employment. But an increase in employment brought about in this way is of a totally different nature from an increase due to home investment. For an increase in home investment brings about a net increase in employment for the world as a whole, while an increase in the balance of trade of one country at best leaves the level of employment for the world as a whole unaffected.[2] A decline in the imports of one country is a decline in the exports of other countries, and the balance of trade for the world as a whole is always equal to zero.[3]

In times of general unemployment a game of beggar-my-neighbour is played between the nations, each one endeavouring to throw a larger share of the burden upon the others. As soon as one succeeds in increasing its trade balance at the expense of the rest, others retaliate, and the total volume of international trade sinks continuously, relatively to the total volume of world activity. Political, strategic and sentimental considerations add fuel to the fire, and the flames of economic nationalism blaze ever higher and higher.

In the process not only is the efficiency of world production impaired by the sacrifice of international division of labour, but the total of world activity is also likely to be reduced. For while an increase in the balance of trade of one country creates a situation in

[1] See below, p. 231, note, for an exceptional case.

[2] Unless it happens that the Multiplier is higher than the average for the world in the country whose balance increases.

[3] The visible balances of all countries normally add up to a negative figure, since exports are reckoned f.o.b. and imports c.i.f. But this is compensated by a corresponding item in the invisible account, representing shipping and handling costs.

which its home rate of interest tends to fall, the corresponding reduction in the balances of the rest tends to raise their rates of interest, and owing to the apprehensive and cautious tradition which dominates the policy of monetary authorities, they are chronically more inclined to foster a rise in the rate of interest when the balance of trade is reduced than to permit a fall when it is increased. The beggar-my-neighbour game is therefore likely to be accompanied by a rise in the rate of interest for the world as a whole and consequently by a decline in world activity.

The principal devices by which the balance of trade can be increased are (1) exchange depreciation, (2) reductions in wages (which may take the form of increasing hours of work at the same weekly wage), (3) subsidies to exports and (4) restriction of imports by means of tariffs and quotas. To borrow a trope from Mr. D. H. Robertson, there are four suits in the pack, and a trick can be taken by playing a higher card out of any suit.

Before proceeding any further it is necessary to make a digression, for it has sometimes been denied that the restriction of imports will increase home employment.[1] This view appears to arise from a confusion as to the nature of the classical argument for free trade. The classical argument states that (with certain well-known exceptions) the pursuit of profit will bring about the specialisation of resources and the distribution of trade between nations in such a way that the maximum of efficiency is achieved. Any arbitrary interference with the channels of trade will therefore lead to a decline in efficiency, and a reduction in the amount of output obtained from a given amount of resources. This argument, on its own ground, is unexceptionable. But in the nature of the case it can throw no light upon the division of a given total of employment between nations. It tells us that, with given employment, output per head will be higher when trade is free. It cannot tell us that when one country increases its share in world employment, at the expense of reducing output per unit of employment, its total output will be reduced. Still less can it tell us that employment in any one country cannot be increased by increasing its balance of trade. Indeed it is obvious to common sense that a tax upon imported goods will lead to an increase in the output

[1] See *General Theory*, p. 334. Mr. Keynes offers himself as a sacrifice. But (*pace* Sir William Beveridge) it was never the orthodox view that a tariff cannot lead to an increase in employment in the short period; see Pigou, *Public Finance*, p. 224.

of rival home-produced goods, just as a tax upon any commodity will stimulate the output of substitutes for it.[1]

The popular view that free trade is all very well so long as all nations are free traders, but that when other nations erect tariffs we must erect tariffs too, is countered by the argument that it would be just as sensible to drop rocks into our harbours because other nations have rocky coasts.[2] This argument, once more, is unexceptionable on its own ground. The tariffs of foreign nations (except in so far as they can be modified by bargaining) are simply a fact of nature from the point of view of the home authorities, and the maximum of specialisation that is possible in face of them still yields the maximum of efficiency. But when the game of beggar-my-neighbour has been played for one or two rounds, and foreign nations have stimulated their exports and cut down their imports by every device in their power, the burden of unemployment upon any country which refuses to join in the game will become intolerable and the demand for some form of retaliation irresistible. The popular view that tariffs must be answered by tariffs has therefore much practical force, though the question still remains open from which suit in any given circumstances it is wisest to play a card.

Exchange depreciation and a reduction in the level of money wages lead to an increase in the balance of trade, in the manner which has already been discussed,[3] provided that each stands above the optimum level.[4] A subsidy to exports will increase the balance of trade provided that foreign demand has an elasticity greater than unity,[5] while restriction of imports by quotas will increase the balance

[1] The argument is backed up by the contention that 'exports pay for imports', see, e.g., Beveridge and others, *Tariffs: the Case Examined*, chap. vi. It is admitted that in some circumstances imports may be curtailed without exports fallng to an equal extent, but this entails an increase in foreign lending, and it is argued that if foreign lending increases, home investment must decline (*loc. cit.*, p. 57). Now when the imposition of a tariff increases the balance of trade the increase in foreign lending which is required to prevent a rise in the exchange rate is brought about by a fall in the home rate of interest, and this is calculated to increase, not diminish, the volume of home investment. The flaw in the argument consists in overlooking the fact that an increase in home income will increase saving, so that increased foreign lending is not made at the expense of lending at home.

The classical, as opposed to the neo-classical, argument is usually set out upon the assumption that full employment is the normal state, and in the classical system of analysis the question of a beggar-my-neighbour increase in home employment does not arise.

[2] Beveridge, *op. cit.*, p. 110.

[3] See page 215. [4] See p. 222.

[5] When the foreign demand is inelastic a tax on exports (as in Germany in 1922) or restriction of output (as in many raw-material-producing countries in recent years) will increase the balance of trade (cf. p. 222), while at the same time reducing

of trade provided that home demand has an elasticity greater than unity. These four expedients are thus all limited in their scope. A tariff reduces the volume of imports, and tends to reduce their foreign price, even when home demand is inelastic. Total expenditure by home consumers upon imports, including tax payments, may increase, but the payment to foreigners must be reduced. Tariffs thus provide an expedient for increasing the balance of trade which can still be used when all else fails.

We must now consider the effect upon home employment of an increase in the balance of trade brought about by each of the four expedients. To simplify the discussion we may postulate that the funds necessary for a subsidy are raised, or the receipts from import duties expended, in such a way as not to interfere with the distribution of income or to alter thriftiness in the home country.[1] Each expedient must be supposed to produce its own full effect. For instance, it must not be supposed that the influence of a fall in the exchange rate on the balance of trade is counteracted by a rise in money wages, or that a tariff leads to a rise in the exchange rate.

A fall in the exchange rate, or in money wages, causes a primary increase in employment in export industries, and in industries producing goods rival to imports.[2] For a given increase in the value of exports (in terms of home wage units) the increase in employment will be greater the greater is the elasticity of supply, and for a given decrease in the value of imports it will be greater the greater is the elasticity of foreign supply and the greater is the elasticity of supply in the rival home industries.[3] It is possible that an increase in the balance of trade may lead to no primary increase in employment.

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the amount of employment in the export industries, and increasing the ratio of profits to wages in them. In these circumstances, therefore, an induced increase in the balance of trade may be accompanied by no increase, or even a decrease, in the level of employment.

[1] The manner in which funds are raised or receipts expended is, of course, of the utmost importance, but analysis of the effects of changes in fiscal policy on employment can easily be superimposed upon the analysis here set out. For instance if receipts from import duties are paid into a sinking fund, or used to relieve taxation on the rich in such a way as to increase their savings, there will be an increase in thriftiness which will counteract the effect upon employment of increased foreign investment.

[2] If the elasticity of demand for imports is less than unity, there will be a primary decrease in employment in these industries, since additional expenditure upon imports will be made at their expense, but in this case a given increase in the balance of trade must entail so much the greater increase in exports.

[3] This generalisation can be made applicable to the exports and imports represented hy foreign obligations if the elasticities concerned are treated in the manner suggested in the footnotes to p. 221.

For instance, suppose that the elasticity of home supply of export goods is zero and the elasticity of demand for import goods unity. Then a fall in the exchange rate will lead to a proportional increase in the value of exports, without any increase in their volume, and consequently without any increase in employment in the industries producing them, while the value of imports and the output of rival commodities will be unchanged.

In the case of a subsidy the primary increase in employment is in the export industries alone,[1] while in the case of a tariff the primary increase is in the industries rival to imports[2] and in the industries benefited by the expenditure of the receipts from duties.[3] In the case of quotas the primary increase is in the rival industries alone.

In each case, the increase in incomes due to the increased balance of trade will lead to secondary employment. Thus even when there is no primary increase in employment at all, total employment will increase as a result of the increased balance of trade. The lower are the elasticities of supply in the industries primarily affected the greater will be the increase in profits, relatively to wages, in them, and the smaller the increase in expenditure coming from them. Thus the secondary increase in employment is likely to be smaller the smaller is the increase in primary employment.

We must next consider the effect of the various expedients upon real income per unit of employment. Output per unit of employment normally falls off as employment increases. For a given increase in employment the decline in output per unit of employment will be greater in the case of subsidies, tariffs or quotas than in the case of exchange depreciation or a fall in wages, since advance is being made upon a narrower front. This is merely another way of stating the classical argument that the mal-distribution of resources due to an artificial stimulus of particular industries leads to a decline in output for a given level of employment.

The change in income per unit of employment will also be influenced by the effect of the various expedients upon the terms of trade. An improvement in the terms of trade, that is, a rise in the

[1] While there may be a primary decrease in employment in industries whose costs are raised as a result of the increase in output of export goods or whose receipts are reduced by the collection of funds for the subsidy.

[2] While there may be a primary decrease in employment in the industries whose costs are raised.

[3] In general, the more elastic is the demand for imports the larger will be the increase in the output of the rival industries and the smaller the proceeds of the duties. Cf. above, p. 232, note.

price of exports relatively to the price of imports represents an increase in incomes, per unit of employment, earned in export industries, relatively to the cost of imported commodities. If the total value of imports and of exports is more or less commensurate an improvement in the terms of trade will therefore bring about a rise in the average real income per unit of employment for the country as a whole.

A fall in money wages, which affects all industries equally, is equivalent, as we have seen, to an equal proportional fall in the exchange except in respect to obligations fixed in terms of home currency.[1] Abstracting from them for the moment, we may conduct our discussion in terms of exchange depreciation alone, the argument being made applicable to a fall in wages by means of reckoning prices and incomes in terms of home wage units.

A fall in the exchange rate, which stimulates the output of export goods and reduces the demand for import goods, leads to a fall in the world price of both types of goods, and a rise in the home price. Since the prices of both types of goods move in the same direction it is impossible to say out of hand what the effect will be upon the terms of trade.

The fall in the world price of export goods in the first instance will be greater the less elastic is the foreign demand for them, and the more elastic is the home supply; while the fall in the price of import goods will be greater the more elastic is the home demand and the less elastic is the foreign supply. It can be seen that if the elasticity of foreign demand for exports is equal to the elasticity of foreign supply of imports, while the elasticity of home supply of exports is equal to the elasticity of home demand for imports, the initial effect of a fall in the exchange rate will be to move both sets of prices to the same extent, so that the terms of trade are unchanged. Further, if the foreign elasticity of supply exceeds the foreign elasticity of demand in the same proportion as the home elasticity of demand exceeds the home elasticity of supply, the terms of trade are unchanged.[2]

In general, each country is more specialised in respect to the goods which it produces than in respect to the goods which it

[1] See p. 226.

[2] Using the notation of p. 218, note, the adverse change in the terms of trade is $\frac{\delta p}{p} - \frac{\delta q}{q}$, which is equal to $k\left(\frac{\eta f}{\epsilon h + \eta f} - \frac{\epsilon f}{\eta h + \epsilon f}\right)$. Thus the change in the terms of trade is adverse or favourable according $\frac{\eta h}{\epsilon h}$ is greater or less than $\frac{\epsilon f}{\eta f}$.

consumes, so that any one country plays a more dominant role in the world supply of those goods which it exports than it plays in the world market for those goods which it imports. In general, therefore, the world demand for the exports of one country is less elastic than the world supply to it of those goods which it imports. So far as the foreign elasticities are concerned, there is thus a strong presumption that a fall in the exchange rate will turn the terms of trade in the unfavourable direction.

Each country imports a large number of commodities which cannot be produced at home, so that the elasticity of demand for imports tends to be low. The elasticity of supply of exports will depend upon the particular types of goods in question, and upon the general state of trade. In slump conditions, such as prevail when the game of beggar-my-neighbour is most in vogue, the elasticity of supply of all commodities, except certain agricultural products, is likely to be high. It is thus only in exceptional cases that the home elasticity of demand can exceed the home elasticity of supply to a sufficient extent to compensate for the excess of the foreign elasticity of supply over the foreign elasticity of demand, and in general a fall in the exchange rate must be expected to cause a deterioration in the terms of trade.

An exceptional case would occur if the home supply of exportable goods were perfectly inelastic. There would then be no fall in the world price of exports, while unless either home demand for import goods is perfectly inelastic or the foreign supply of them perfectly elastic, there will be some fall in the price of imports, and the terms of trade will become more favourable when the exchange rate falls. Thus, as we have already seen,[1] for an agricultural country which produces a considerable proportion of the world supply of some commodity, the drawbacks of an inelastic world demand for its exports may be overcome by a sufficiently inelastic home supply. A country for which an inelastic foreign demand is combined with a highly elastic home supply will suffer a serious deterioration in the terms of trade as a result of exchange depreciation.

The importance of the home country in world markets will also affect the result. The change in world prices brought about by exchange depreciation will in general be smaller the smaller is the country concerned, and the narrower will be the range of the possible changes in the terms of trade. A large country is likely to suffer a

[1] P. 222.

greater deterioration in the terms of trade, when its exchange depreciates, than a small country, but at the same time it is only for a very large country that a favourable movement in the terms of trade can possibly occur, for it is only a large country which can exercise an appreciable influence on the world prices of the goods which it imports.

The effect upon the terms of trade of a fall in money wages differs from the effect of depreciation in so far as there are foreign obligations fixed in terms of home currency. These are unaffected by a fall in the exchange rate, while a fall in wages raises the cost of payments and the value of receipts in terms of home wage units. Thus, in so far as payments fixed in terms of home currency are an appreciable element in invisible imports, the deleterious effect of a fall in wages upon the terms of trade will be greater than the effect of a corresponding depreciation in the exchange, while a given increase in the balance of trade, in terms of wage units, will require a larger fall in wages, and so entail larger changes in the prices of other imports and exports. In so far as receipts fixed in terms of home currency are an appreciable element in invisible exports, the deleterious effect of a fall in the exchange rate will be greater.

A subsidy to exports leads to a fall in the world price of export goods which will be greater the less elastic is foreign demand and the more elastic is home supply. In so far as the price of import goods is affected at all, it must be raised. The output of export goods is increased, and their price in the home market, in which they are not subsidised, is raised,[1] so that the price of imports which are rival in the home market to exportable goods may be raised. A subsidy to exports therefore causes an unfavourable movement in the terms of trade.[2] In this respect a subsidy is necessarily more deleterious than exchange depreciation or a fall in money wages.

A tariff leads to a fall in the world price of import goods, which will be greater the less elastic is foreign supply and the more elastic is home demand.[3] In so far as it affects the price of exports it must raise them. Raw materials entering into export goods may be subject

[1] Services such as transport must be regarded as exports in so far as they enter into the production of export goods.

[2] Income per unit of output in the export trades is not reduced, but real income per unit of output for the country as a whole is reduced by the levy of funds to pay the subsidy.

[3] This is known as 'making the foreigner pay the tax'. If foreign supply is perfectly inelastic, price to the home consumer is not raised by the import duty at all and 'the foreigner pays the whole of the tax'.

to duties, while the increase in the output of home goods which are substitutes for imports may raise the price of the exportable goods. A tariff therefore has a favourable effect upon the terms of trade.

Neither a tariff nor a subsidy can normally be applied to the invisible exports and imports (with the exception of shipping services). Where it is possible to increase the invisible balance by means of exchange depreciation without any adverse effect upon the terms of trade (for instance when the main invisible export consists of receipts fixed in terms of foreign currency), the advantage of a tariff, as opposed to exchange depreciation, is *pro tanto* diminished, and the disadvantage of subsidies increased.

The restriction of imports by means of quotas does not have the same effect upon the terms of trade as a tariff, since it leads to a rise in the home price of import goods, while preventing the restriction in home consumption from lowering the foreign price. A quota upon imports has much the same effect as an increase in the degree of monopoly amongst foreign suppliers. It leads to a deterioration in the terms of trade, while the benefit from the raised price to the home consumer, which goes to the exchequer under a tariff, goes to the foreign producers under a quota.

We have so far considered the terms of trade only in the light of the elasticities of home and foreign supply and demand. Any increase in the balance of trade, by whichever expedient it is brought about, will lead to an increase in home incomes and activity. It will therefore raise both the demand curve for imports and the supply curve of exports.[1] But the effect of increased incomes in raising the demand for consumable imports, and the effect of increased activity in raising the demand for raw materials, will normally be far greater than the effect of increased home consumption in reducing the supply of goods available for export. Increased activity is therefore likely to have a larger effect in raising the price of imports than in raising the price of exports, and therefore tells in the direction of worsening the terms of trade. The presumption that the terms of trade will deteriorate as a result of a fall in the exchange rate or of wages is therefore increased, the deterioration due to a subsidy or to quotas is enhanced, and the improvement due to a tariff mitigated, by the effect of increased activity.

The effect of changes in the terms of trade upon income per unit of employment must be combined with the effects, discussed above,[2]

[1] See p. 216.

[2] See p. 233.

of the distribution of home activity between different groups of industries. The beneficial effects of a tariff upon the terms of trade may offset the deleterious effects of concentrating output in a narrower group of industries, and in favourable circumstances may even lead to an increase in income per unit of employment. Exchange depreciation and wage cuts occupy the intermediate position on both counts; while subsidies and quotas are the most deleterious, on both counts, of all the expedients for increasing the balance of trade.

The change in real wages which is brought about by the various expedients is not necessarily commensurate with the change in real income per unit of employment, for wage earners may consume goods of various types in different proportions from the average for the country as a whole, while, in the case of a tariff, the benefit to wage earners of the expenditure of tax receipts is not necessarily, or usually, commensurate with the contribution which they make to them. For a given increase in the balance of trade, the rise in the home price of export goods is greatest in the case of a subsidy, and the rise in the price of import goods, and of home goods which are rival to them, greatest in the case of tariffs, while a fall in the exchange rate or in money wages has an intermediate effect upon both sets of prices (prices being calculated in wages units, in the case of a fall in money wages). Thus for a country whose export goods are an unimportant element in the consumption of wage earners the fall in real wages will be least for a subsidy, greater for depreciation, and greatest for tariffs, while for a country which exports food-stuffs and imports the luxuries of the rich the order of preference is reversed. Quotas, which are commonly applied to agricultural commodities and so raise the price of food-stuffs, and which make no contribution to fiscal revenue, bring about the largest fall in real wages of all the expedients for increasing the balance of trade.

The various expedients have important effects upon the distribution of income and activity between industries within the home country. An increase in the balance of trade is accompanied by a rise in the home price of export goods, or of goods which are rival to imports, or of both together, so that an increase in the balance of trade increases not only activity, but also income per unit of output, in the industries concerned in producing these goods. Now, when the game of beggar-my-neighbour is being hotly played, these industries suffer a decline in incomes relatively to the industries which are not

subject to foreign competition,[1] and an improvement in their situation may be regarded as desirable for its own sake, apart from any increase in the total of activity and incomes of the country. This consideration is of particular importance in so far as it affects agricultural commodities, since the agricultural community is in general poorer than the industrial. Any policy which is designed to increase the exports, or reduce the imports, of agricultural commodities has the effect of turning the terms of trade between agriculture and industry inside the home country in favour of agriculture, and so of reducing the inequality in their earnings. Such policies are widely held to be beneficial, in spite of the fall in the average of real wages which they necessarily bring about.[2]

Certain special considerations apply to each of the four expedients. We have treated a reduction in wages as being in general equivalent to a fall in the exchange rate, but there is one difference between the two which is of the utmost importance. Even if obligations to foreigners fixed in terms of home currency are unimportant, internal indebtedness still has to be considered. A cut in wages leads to a redistribution of real income in favour of the fixed-income classes, and an increase in the burden of indebtedness within the home country. For this reason a cut in wages is undesirable so long as any other expedient will serve, even if it can be brought about smoothly without the distress and wastage of industrial disputes, and even if it can be made equal in all industries so as to avoid arbitrary redistribution of income and activity between them.

Depreciation of the exchange rate has the disadvantage of being regarded as a breach of international good faith, while the apprehension of a fall may have serious effects upon the international financial position of the home country.

Tariffs and subsidies bring well-known political evils in their

[1] Even in a country so greatly dependent upon foreign trade as Great Britain these industries occupy much less than half the working population, while the Multiplier appears to be normally something in the neighbourhood of 2. Thus a given decline in employment in the foreign trade industries causes an almost equal absolute, and therefore a smaller proportionate, decline in employment in the home trade industries. This is known as 'the problem of the unsheltered industries'.

[2] A fall in the exchange rate, or an all-round reduction in wages, will benefit the export industries even when they bring about no increase, or even a decrease, in the balance of trade, while quotas will always benefit the home industries protected by them, and subsidies the industries which receive them. These expedients may therefore be resorted to in certain circumstances entirely for the sake of the industries concerned, without regard to their effect upon the general level of activity, while tariffs are often designed for the benefit of particular groups without much regard to their incidental effect in improving the balance of trade.

train, from which the more general, automatic and inhuman mechanism of exchange depreciation is comparatively free, while tariffs foster monopoly by violently reducing the elasticity of demand for home goods formerly subject to foreign competition, and so making the gains of monopolisation more tempting to the home producers. Tariffs, it is true, have the advantage that they are selective, and may be devised in such a way as to bring about the minimum decrease in real wages for a given increase in employment, but actually they are not always devised with this end in view.

All expedients are subject to the objection that they are calculated to promote retaliation; indeed this is the very nature of the beggar-my-neighbour game. Which expedient is the least dangerous from this point of view will depend upon general political considerations.

When a nation, hard pressed in the game, is determined to take a trick, the decision as to which suit it is wisest to play must be taken in the light of all the considerations set out above, as they apply to the particular situation of the nation concerned at the particular moment when the decision is taken.

From an un-nationalist point of view all are equally objectionable, since each is designed to benefit one nation at the expense of the rest. But there are circumstances in which a limited indulgence in them cannot be regarded as a crime. First of all, they may be justified by the plea of self-defence, and secondly they may be used merely to cancel out a benefit to the rest of the world that would otherwise result from the policy of one nation. An increase in home investment in one country tends to increase activity in the rest of the world, and measures designed to protect the balance of trade when home investment increases merely cause a larger share of the reward of virtue to fall to the virtuous nation, while measures which protect the balance of trade when money wages rise at home merely prevent the rest of the world from gaining an advantage, and leave it no worse than before.

24

AN ECONOMIST'S SERMON

ECONOMICS IS THE DOPE OF THE RELIGIOUS PEOPLE

CONSIDER the case of a man to-day who has an honest intelligence, a strong social conscience and an independent income.

His intelligence tells him that he has no particular right to enjoy a privileged position. 'Right' is a vague phrase. A doctor has in a sense a right to a motor-car because it makes him do his work better than he could without it. And if he uses it to visit his friends as well as his patients, no harm is done to anyone. But our man is too honest to try to persuade himself that his own comfort really makes very much difference to the amount of benefit that he does to other people. His conscience tells him that he would be doing a good act if he endowed a hospital with his wealth and worked for his living. But his independent income is not easy to give up.

He cannot keep all three—integrity of mind, a quiet conscience, and the privileges of wealth. One must be sacrificed. If he is a saint he sacrifices the wealth—but we will suppose that he is not. If he is a man of no definite religious creed he can keep his mental honesty and his income by sacrificing his conscience. He can say 'I am a selfish individual. I don't pretend to have any better right than anyone else to a comfortable life, but I propose to enjoy it if I can.'

But if he belongs to a definite religion this line of escape is impossible for him. Conscience is more precious than anything else. Without its approval he can have no peace. He will have to sacrifice his honesty of mind instead, and make up arguments to show that it is right for him to be better off than the majority of his heighbours.

Now, it is here that the economist is a godsend to him. The economist is a self-appointed expert. It is his business to know about these things. A man may have an honest and independent mind and yet take on trust the opinion of experts on a subject that he has not time to master for himself. If the economist tells him it is all right, then he can keep his integrity, his income and his conscience all intact.

One of the main effects (I will not say purposes) of orthodox traditional economics was to fill this want. It was a plan for explaining to the privileged class that their position was morally right and was necessary for the welfare of society. Even the poor were better off under the existing system than they would be under any other. There is a significant passage in the reminiscences of Alfred Marshall.[1] As a young man, a mathematician and philosopher, before he had embarked upon economics, he began to be troubled by social conscience.

> From Metaphysics I went to Ethics, and thought that the justification of the existing condition of society was not easy. A friend, who had read a great deal of what are called the Moral Sciences, constantly said: 'Ah! if you understood Political Economy you would not say that.'

Marshall himself did much to break down the doctrine that no matter how much poverty and distress there may be it is still true that all is for the best in the best of all *possible* worlds. But even in the system of economics as it was handed down by Marshall the main theme is still the justification of the existing system.

I will put forward three examples of the products of traditional teaching: First, the doctrine that increased wealth of the propertied class brings about an automatic increase of income to the poor, so that, if the rich were made poorer, the poor would necessarily become poorer also. A familiar instance is to be found in Mrs. Marcett's *Conversations on Political Economy*, a popular early nineteenth-century work designed to explain the principles of Political Economy to the masses. Mrs. B. explains to Caroline the subject of Poor Law Relief:

> The greatest evil that results from this provision for the poor is that it lowers the price of labour; the sum which the capitalist is obliged to pay as poor rates necessarily reduces the wages of his labourers, for if the tax did not exist, his capital being so much more considerable, the demand for labour and consequently its remuneration would be greater. . . .[2] Where there is capital the poor will always find employment, the demand for labour is therefore proportioned to the extent of capital.[3]

[1] *Memorials of Alfred Marshall*, p. 10.
[2] *Conversations on Political Economy*, p. 164.
[3] *Op. cit.*, p. 130.

This argument is based upon the postulate of nineteenth-century economic teaching, that an increase in the capital equipment of industry is the result of an increase in thriftiness. An unsophisticated inquirer might wonder how it comes about that a decline in the demand for consumption goods, due to transferring income from the poor who must spend it to the rich who may save it, can possibly lead to an increase in the demand either for the labour or for the capital equipment which is required to make the goods. But he is silenced by appeal to the mysterious Law of Economics which teaches that saving is only another form of spending. This Law, as it happens, entails that unemployment cannot occur, so that, if it held true in fact, 'the poor' would always be fully employed in any case. Mrs. Marcett's argument that the thriftiness of the rich is necessary to provide employment for the poor is therefore a violent contradiction. The whole basis of the argument lies in a simple confusion of thought.

But that is not the concern of our honest inquirer with capital of his own. He can take the word of the experts and rest satisfied. If the experts' arguments do not hold water it is not his business to put them right. And see how comforting their word is. If poor relief did the poor good, the awkward question might arise whether he ought not to contribute to the aid of the poor more than the State demands, or ought not to vote for a government that would demand more. But if even poor relief does the poor positive harm then he can go on enjoying his comfortable life without distress of mind.

My next example is more modern. By a statistical calculation, which has had considerable vogue, it is shown that, if the present national income were equally distributed, even the poorest would be hardly any better off than they are now. This leads to the conclusion that it is no good causing the sacrifice to the rich of redistribution, as it will only reduce everyone to a dead level of poverty. For my own part I have never been able to see the *moral* force of this argument. If the average is so low, it seems to me all the more disgraceful to live above the average standard. But actually this conclusion is found to be of great comfort to the social conscience of the wealthy.

Now, even onthe assumption that the aggregate consumption of the nation remains unchanged, the calculation is very hard to believe. A calculation in money values has little meaning—a calculation in terms of productive resources is obviously required—and it is hard to believe that if, for instance, the equivalent of all the domestic

servants who would be dismissed from wealthy households after the redistribution of income were turned into attendants at nursery schools, the average of welfare would not be increased. But however that may be, it is impossible to maintain that the aggregate of consumption would in fact be no greater than before, for the thriftiness of the community would be lowered by redistribution, and taking one year with another, the total waste of resources through unemployment would be very much reduced. The aggregate of consumption and the average standard of life would therefore be raised. The statistical argument, like so many others which provide dope for the conscience of the pious rich, loses its force when the Law that saving is a form of spending has been removed from the statute book.

My last example is taken from a letter to *The Times* of the Bishop of Gloucester. At the time of the 'National Crisis' in 1931 it was considered necessary to introduce emergency measures to balance the budget. In the name of 'equality of sacrifice' an addition was made of 6d. to the income tax and a cut of 10 per cent in unemployment benefit. In 1934, the budgetary position being favourable, the Archbishop of York published a plea in *The Times* that in the event of a surplus, the restoration of cuts in the allowances of the unemployed should come before any other concessions, including remission of income tax.

To his letter the Bishop of Gloucester replied as follows:[1]

'1. 'Unemployment is more than a misfortune for those who are overtaken by it; it is a curse.' So he [the Archbishop of York] tells us. I agree, and therefore it seems to me to be the first duty of the Government to do all in their power to reduce the number of unemployed. It is recognised that one of the most fruitful causes of unemployment is excessive taxation, and in particular a high income tax. I am convinced that nothing would ease the situation more at the present time than a substantial reduction of income tax, for it is very largely a tax on industry. We are none of us concerned with the discomforts of those, whether ourselves or others, who are reputed wealthy. But the experience of history tells us that it is always the poorer classes who suffer most from excessive taxation. If a man is compelled to dismiss a certain number of his workmen, it may diminish his profits or comfort, but it ruins the men dismissed.

'2. The result is still more the case if funds thus diverted from industry are used to increase the amount spent in supporting the

[1] *The Times*, March 12, 1934.

unemployed, for all money spent in that way must be withdrawn from paying the wages of working men and will be expended entirely unproductively. It therefore leads automatically to increase the evil it is fighting against.

'3. What I particularly resent is the use of the authority of religion to justify a policy which I believe to be damaging to the country. . . . There are generally two policies open to a nation: the one is popular, attractive, sentimental and ultimately harmful to those whom it professes to benefit, the other demands sternness and courage, but will in the end bring a happier time to the people of this country. That I should hope to see the Government adopt.'

Stripped of the Bishop's forceful rhetoric the arguments seem to be these: That a remission of income tax would lead to increased spending by the taxpayers, thus increasing employment, while money given to the unemployed would have no such effect. The first paragraph of the Bishop's letter is somewhat obscure and I hesitate to attribute such an extravagance to him, but this argument was openly used by other correspondents on his side of the question.

Alternatively he may be taken to mean that, when a businessman finds that he has less tax to pay, he allots the entire addition to his net income to wages for an increased number of employees. It need hardly be said that this is not a convincing account of business practice. Unless market conditions improve the entrepreneur has no motive for employing more men, and if he does wish to employ more men his usual method of financing is to obtain additional credit. Out of the whole increase of net income to taxpayers due to a reduction of 6d. in the income tax it can hardly be maintained that a significant amount will be devoted to building up increased working capital. The argument can only be made to sound plausible to the layman by dark references to the formidable Economic Law expounded by Mrs. Marcett.

The Bishop's second point is not ambiguous. He is maintaining that a country which makes provision for its unemployed will suffer from more unemployment than a country which makes none. This is contrary to the 'experience of history'. For instance, one reason why Great Britain suffered less than the United States from the impact of the present (1936) world slump was because she was already provided with a scheme of public maintenance for the unemployed. Moreover, this argument is contrary to common sense. Suppose that a man is thrown out of work for some external reason,

such as a loss of an export market to which his product was formerly sent. When he loses his income he must cut down his consumption and the loss of market is passed on to those trades which formerly supplied his needs. Here also there is unemployment and curtailment of consumption; fresh losses to home industry and further unemployment follow. The more lavish the provision which is made for the unemployed the less is this secondary loss of employment and the smaller are the repercussions at each round which follow from the initial loss. The Bishop's argument is without foundation either in fact or in logic.

It is only fair to say that there is one argument which goes to show that remission of income tax may increase employment. It may enhance the attractiveness to businessmen of schemes of capital expansion. This effect, in times of severe depression, it not likely to be very great, and it is a far less certain and powerful remedy for unemployment than an increase in the incomes of persons who are certain to spend all that they receive on immediate consumption. But however that may be, the Bishop's acquaintance with economic reasoning was not sufficiently great for him to hit upon this argument.

He concludes his letter with an emotional appeal, contrasting the soft and sentimental expedient of increasing the incomes of the unemployed with the strenuous and heroic course of remitting taxation to those 'who are reputed wealthy'.

But, if economics is the dope of the religious, the chief blame for the excesses of the drug addicts is to be laid upon the manufacturers of the drug—the economists who have made it so fatally easy for the rich and pious to preserve an easy conscience by the sacrifice of their honesty of mind.

ESSAYS 1953

25

Introduction

Logic is the same for everybody, but in the social sciences it is impossible to avoid ideological bias. Every school of economic theory in the Western world has been concerned with interpreting capitalism as well as attempting to describe it. In the process, ideology and logic have continually been mixed up. Orthodox Marxists are inclined to maintain that the flow of national income produced in a particular period must be calculated as a number of man-hours of labour; orthodox academics would like to measure it as a flow of utility but have to fall back on some index of physical outputs weighted by prices. When it comes to discussing profits, the one school maintains that they are derived from unpaid labour time, the other that they represent the contribution of capital to the value of output. But here we are, in an actual capitalist economy, with actual statistics (more or less) of national income and the share of wages in value added in industry. It surely should be possible to adopt a language in which the two parties could talk to each other? Neither party really wants to, for each fears that their hold on ideology might be lost in the process of translating the familiar language in which each has been accustomed to recite the creed. But why should I care?

These essays were written in a hilarious mood after reading Piero Sraffa's Introduction to Ricardo's *Principles*,[1] which caused me to see that the concept of the rate of profit on capital is essentially the same in Ricardo, Marx, Marshall and Keynes; while the essential difference between these, on the one side, and Walras, Pigou and the latter-day textbooks on the other,- is that the Ricardians are describing an historical process of accumulation in a changing world, while the Walrasians dwell in timeless equilibrium where there is no distinction between the future and the past.

The essays were published under the title *On Re-reading Marx* in

[1] *Works and Correspondence of David Ricardo*, Volume I.

1953 by the Students' Bookshop at Cambridge. I am glad to say that they were rewarded for this venture by selling out the whole edition in seventeen years.

As a matter of fact, I do not think that the views expressed here, especially in the first piece, are quite correct. It was a mistake to identify the nature of surplus in Marx with Ricardo's rent. Marx did not think profits were a bad thing. He thought that exploitation was a necessary part of the process by which capitalism will destroy itself.

This pamphlet caused a great deal of offence, both to Marxists and to Walrasians. But I do not think that the offence was caused by the errors in it.

26

WOULD YOU BELIEVE IT?

WHEN two economic theories differ in their ideology the most important distinction between them lies in the sphere of political action, but the best sport that they offer is to trace the difference in the ideologies to its roots in a difference in the logical structure of the systems.

Put it like this: there are a number of cuttle fish that emit different coloured ink-screens. One is red (Marx), one true blue (Marshall), one a curious kind of pinkish purple (Keynes), and one some other colour, which I leave you to name (the Continental schools, excluding Sweden, who has a cuttle fish all to herself). The sport is to catch the cuttle fish and take them out of water. Then the ink is left in the sea and the cuttle fish appear on dry land as white, bony-looking objects.

The cuttle fish called Marshall (long-period) is far too wily to be caught, but Marshall (short-period) and Keynes are easy game. There are evidently quite a number of cuttle fish in the red patch of ink. I think it is not so very difficult to catch the one that contributes economic theory to the general mixture.

The reason that this sport has not been commonly pursued is largely a matter of geography. On the Coninent the academic economists spent a lot of time pursuing the Marx cuttle fish, but they did it in an unsporting manner. They tried to chip bits off it before it was fairly caught (each sport has its own rules of sportsmanship). The Marxists were so nauseated by the ink of the Continental cuttle fish that they would not go near it.

On the other hand, in England the situation happened to be such that the academic economists had no occasion to attack Marx. All they had to do was to forget about him. Thus, though *Capital* was written in London, it was very little read there, and still less in Cambridge. For this reason cuttle-fish hunting never caught on here as a popular sport (though I believe that Marshall pursued it in secret).

When I had caught the cuttle fish and laid them out in a row the Continental one looked rather a weedy specimen, but the other three

were fine large shiny white objects, and blest if I could tell which was which.

This seemed excessively odd, particularly as each system was built up precisely in order to explode the preceding one. I tried to get other people interested in this strange phenomenon, but no one would take the question up. My academic colleagues thought it queer (if not something much worse) that I should be interested in Marx's logic, because they had been taught as undergraduates that he has none. The Marxists just did not make head or tail of what I was trying to say. You cannot talk to a Marxist in English because he only understands Hegelese, a language I have never mastered and which seems to me, in any case, a very poor medium of communication for ideas about pure logic.

When I came to think it over I realised it was not so odd after all that the difference between the cuttle fish was so hard to detect, for they had all been at school together. The metaphor is setting some strain on the imagination, so I will resort to plain language. All three schools have a common origin in Ricardo.

The extent to which Marx had absorbed Ricardo we are able to see because of a curious accident. In spite of the respective dates at which they flourished, we know that they thought on parallel lines independently. This is made clear by the paper that Ricardo wrote just before his death, which never saw the light of print till after Mr. Sraffa had got Mr. Mill to open the famous box at Raheny.[1]

When you read *Absolute Value and Exchangeable Value*[2] you get that funny feeling: What does this remind me of? And then you say: Of course—Volume I of *Capital* (though two prose styles could not be more different).

Marshall pored over Ricardo all his life, and Keynes, though not a great reading man, drank Marshall in his mother's milk. So all three were trained in one tradition.

Now let me illustrate my point. Take a number of firms, a number large enough for their individual idiosyncrasies to average out, and set down their consolidated annual accounts:

Receipts—(wages bill+material bill+amortisation charges)= Profit.

There are many puzzles about how to enter the items inside the bracket. When is a wage a salary? When is a raw material a finished

[1] Works and Correspondence of David Ricardo, Vol. I, p. ix.
[2] *Ibid.*, Vol. IV, p. 361 *et seq.*

product? When is the amortisation actually being made sufficient to keep capital intact? (Heaven forbid we should start on that subject!) But the bracket as a whole is something about which there is not much dispute (though you can raise some fussy points if you like); the same applies to receipts. Therefore the last item—profits of the firms including interest charges—is a pretty clear concept. It is expressed as a number of pounds sterling. It is very hard to introduce ideology into a mere number (though Marx tried to sometimes) so that this number must be part of the bony structure of all three cuttle fish.

Now what do they call it? Keynes and Marshall call it 'quasi-rent' and Marx calls it 'surplus'. And what do they mean? They mean 'a kind of thing which resembles in an important respect the thing that Ricardo called rent'. Let us designate it by some quite un-ideological letter (if we can, for letters are more coloured than numbers), say N. Now return to the plane of ideology and see if we can account for the fact that N has the same name in three totally different ideologies.

Ricardo's ideological position was perfectly definite; he thought rent was a bad thing. As his chief preoccupation was with problems such as the repeal of the Corn Laws, he concentrated heavily on this, and it follows that he regarded N as not such a bad thing.

Marx thought surplus—well, we need not go into details—he was against it. Marshall, again without going into details, was for it. Keynes took an intermediate position. He thought N was a good thing in a slump if it promoted investment and a bad thing if it curtailed consumption, and vice versa in a boom.

Thus Marx turned round the heavy guns with which Ricardo attacked rent and sighted them on N. Marshall was very well pleased to develop Ricardo's idea that N is not such a bad thing, and while sympathising with Ricardo over rent, laid very little stress on it from an ideological point of view, though he made a great pother about it from a logical point of view. Keynes thought N good or bad according to circumstances. Thus the same name suited all three ideologies.

The genius of Ricardo did not lie in his ideology but in his method of analysis; the method of 'taking strong cases'. This means: swing your variable over a wide range and look at the two ends before you look at the middle. But there is an art in doing this, it is not just a mechanical trick. What is a *wide* range in relation to the question in

hand? The trick anyone can learn, but the power to recognise a wide range is a gift of God.

Take, for instance, the proportion in which N is divided between saving and expenditure on consumption goods. Would you say that a range between 10 per cent and 100 per cent was wide? Keynes is interested in the influence of saving on effective demand in the short period, and 10 per cent to 100 per cent is fairly wide, but he needs some negative values as well. On the other hand, for Marx 10 per cent to 100 per cent is chicken feed, for he is interested in capital accumulation over the long run. For Marx the proper application of the Ricardian method is to begin to study accumulation after he has put the variable for the rate of increase per annum of the stock of capital through the range of 0 per cent to, say, 1 per cent. It would be a very natural error to think that this is a narrow range. That is what I mean by saying that many are called to use the method, but few are chosen to make sense of it.

For Marx the strong case (for accumulation) is zero accumulation. Thus he starts his study with Simple Reproduction, that is an economy which is not in stationary *equilibrium* in any sense, but just happens to be stationary with zero net investment and net saving.

Again, you might think it rather a funny idea to study accumulation in terms of a system that is not accumulating. But if you think that, it just shows that you did not go to one of the best schools, and I will not be so snobbish as to rub it in.

The cuttle fish Marshall (long-period) has never been caught, so we cannot say anything about it. Marshall (short-period) takes accumulation zero, and as he is not interested in Keynes' problem he can fudge it without damaging the analysis of the problem he is interested in, relative prices, to a serious extent.

Keynes starts in a Marshallian short period. It certainly does seem rather odd, at the first glance, to assume zero accumulation when the very things you are going to talk about—saving and investment—are two aspects of accumulation. A number of smart Alecs have noticed this anomaly and spent a lot of time pointing out the fundamental logical contradiction on which the *General Theory* is based.

Keynes *was* a snob. If you had not been to a good school he cut you. He used to say: 'The fellow simply hasn't driven up,' and until you drove up under your own locomotive power (if any) he would not begin to argue with you. So he never explained himself,

and left the smart Alecs to enjoy their triumph to their heart's content.

Professor Kahn is not a snob. He takes infinite pains to explain a point to you, whatever school you come from. So when the first controversy broke out over the *Treatise on Money* he reinvented Marx's schema for Simple Reproduction in an endeavour to explain what Keynes was doing. (This was in oral discussion, not published.) The smart Alecs, of course, would not have it, but a lot of dowdy Alecs found it very helpful.

When you turn to the General Theory in the long period you have to start with Marx's schema for expanded reproduction. But here you do not find a ready-made model. All you have to go on is the rough workings of Marx, dished up all anyhow from his notes by Engels after his death.

The modern Marxists, of course, use the model, but as they can only explain it in Hegelese they are no help at all to a monoglot Englishman.

Mr. Harrod, however, rediscovered the trick, and set out the model under a weird and wonderful name, 'the warranted rate of growth of national income'.[1]

This is what I mean when I say that it is very hard to tell the three cuttle fish apart. But I still do not expect anyone to believe me.

[1] *Towards a Dynamic Economics.*

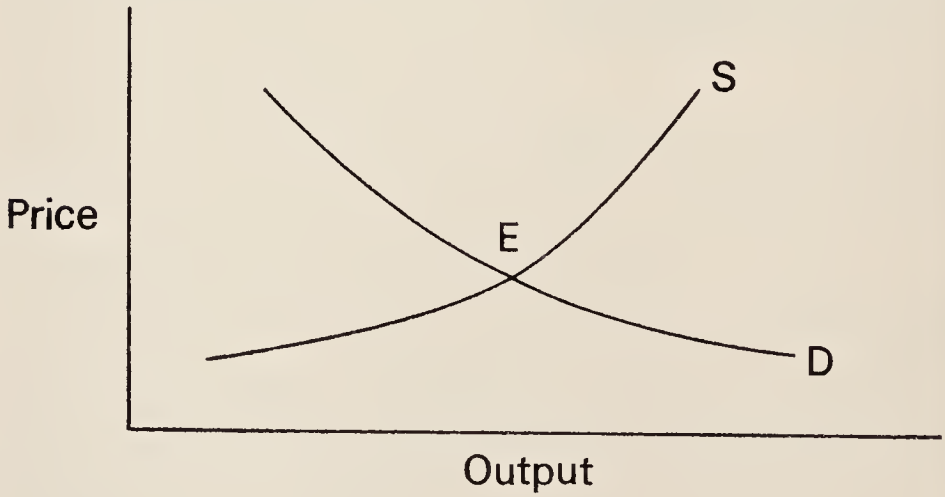
27

A LECTURE DELIVERED AT OXFORD BY A CAMBRIDGE ECONOMIST

If there are any galled jades present they are going to find this lecture very disobliging. (Those whose withers are unwrung will find it just their bag of oats.)

As I am going to give a disobliging lecture I will begin with a disobliging Cambridge joke. In Cambridge we all make them, and, taking one with another, as Marshall says, they come out about fair, but if you make one in isolation, among nice, polite people, it sounds very ill bred.

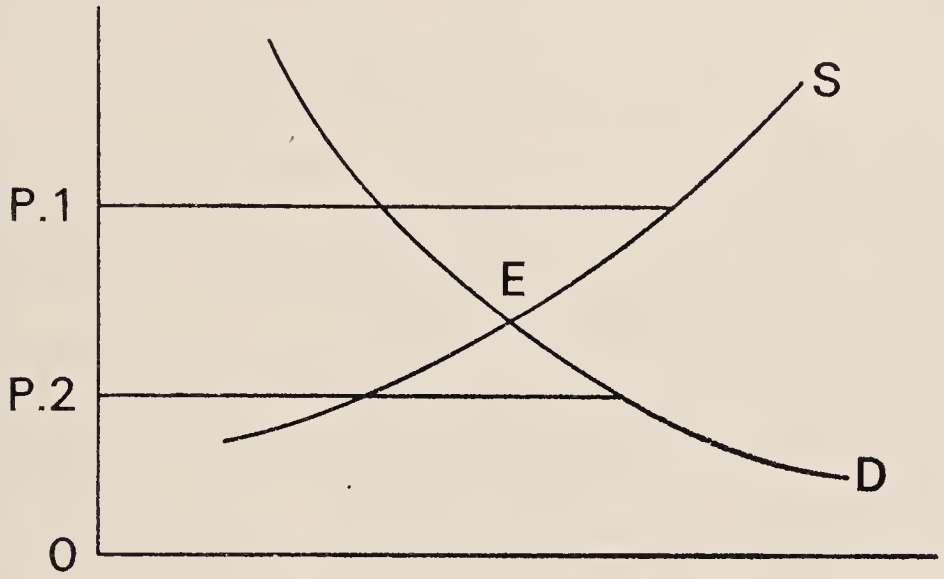
My disobliging joke is this: when an economist from Oxford comes to lecture at Cambridge he fills up the black-board with such a lot of equations and diagrams that the audience is knocked out cold. I have come from Cambridge to knock you out cold with this diagram:



Think of a tutor explaining to a freshman the meaning of equilibrium. The tutor is a neoclassical economist. If the cap fits put it on, and if it does not, no one will be better pleased than I.

The tutor might say to the freshman: 'E is the point of equilibrium of supply and demand,' and if the young man asks: 'What is the

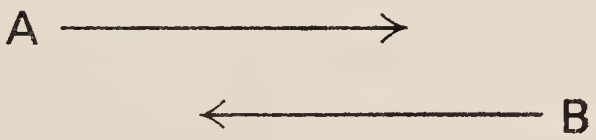
equilibrium of supply and demand?' he answers: 'It is the point E.' So he has holed out in one. He has given the freshman a short excerpt from an illustrated dictionary.
Or he may say:



'When price is O P^1, supply exceeds demand and price tends to fall. When it is O P^2 demand exceeds supply and price tends to rise. Price may never actually be in equilibrium, but it is always tending towards equilibrium.'

Now he has gone clean off the rails. Why? He is using a metaphor based on space to explain a process which takes place in time.

Have you ever considered the difference between moving through space and moving through time? A and B are two points in space. If the bodies at A and B are out of equilibrium with each other they move simultaneously in both directions. Some of the A's go towards B, and some of the B's go towards A, and they pass each other *en route*.



In time, there is an exceptionally strict rule of one-way traffic. You can have

A ⟶ B

or

A ⟵ B

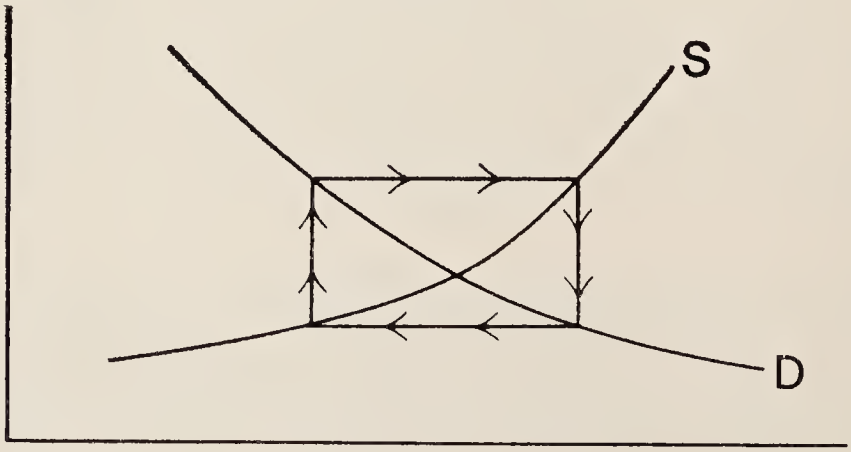
but not both.

The second point about space is that there is none of this stuff about *tending* (which the freshman, poor soul, finds extremely fishy). If you give your bodies time, they actually do get into equilibrium. Time will help you with space. But take as much space as you like—how is that going to help you with time?

The third point about space is that the distance from A to B is of the same order of magnitude as the distance from B to A. I do not say of equal magnitude because of the Trade Winds, and returning empty, and all that. But the distances are of the same order of magnitude.

In time, the distance between today and tomorrow is twenty-four hours forwards, and the distance between today and yesterday is eternity backwards. There is a lot about this written in verse, but the tutor (who never met Keynes) reads poetry, if at all, only in the evening, and does not think of mixing it up with his work.

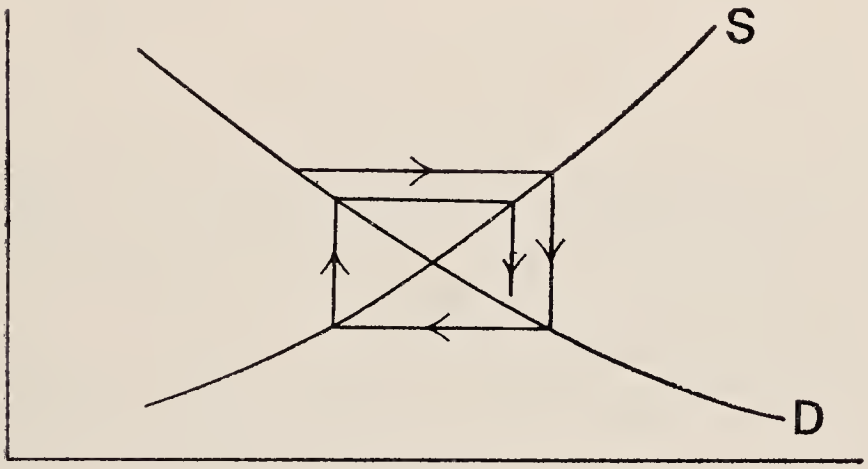
Now the tutor says to himself: 'This is one of these tiresome logic-chopping points. I will soon fiddle my assumptions and get out of trouble.' All right—go ahead. The only single thing I insist on is that you put in the arrow of time between each pair of points.



What does that remind you of? The pig cycle, the shipbuilding cycle, and the trade cycle. Now the tutor cheers up a bit. He has heard this one before.

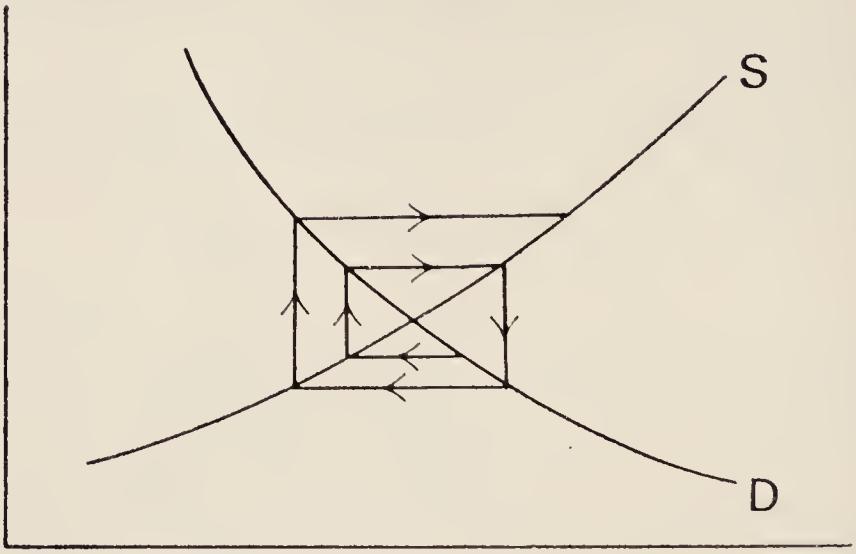
He has two cases—first he says: 'Pigs are an exception. If I drew the picture for peanuts, I would be all right. The cycle would be a damped one.'

Go ahead—I only ask for an arrow for each move.



First time round, it looks as if he was on to something. Second time round? His stocks of peanuts have been altering. It would not be the same on the second round if he had started at a different point on the first round. The stocks would have altered differently. This is a kind of *tending* that the freshman cannot be expected to take in so early in his career.

Meanwhile the tutor tries his second answer. If the cycle goes like this:



you get to infinity in a week or two, which is a logical absurdity.

But now he has played right into the Keynesian court. Even if he gets a ball over the net once in a while, Samuelson, Kaldor or Kaleeki kill his service, so that he never scores a single point. It is a love game to the Keynesian every time.

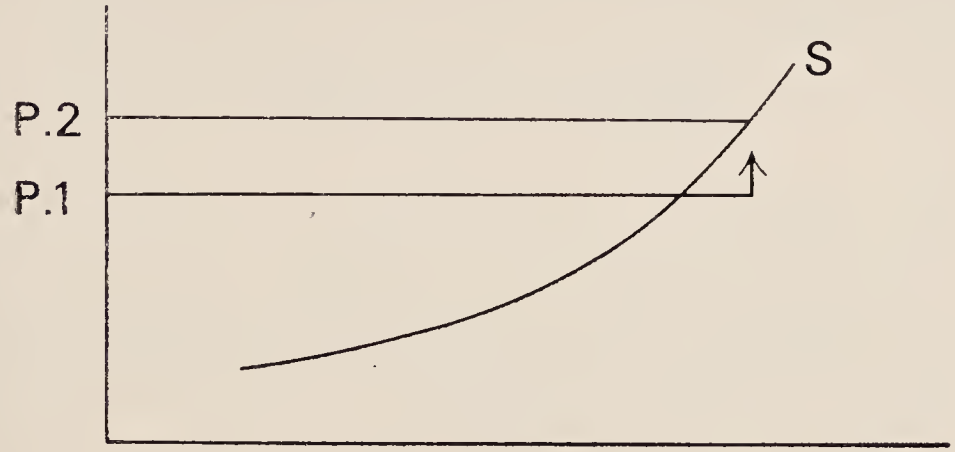
Who would you say was the economist who best understood the idea that I am trying to explain with these arrows? Certainly not Keynes. He thought that neo-classical economics was a lot of stinking fish, and he threw it out of the window, holding his nose and making very disobliging remarks indeed. He never stopped to examine what it was that made the fish stink. He knew that it was something to do with time, but he could not hold his nose for long enough to find out exactly what.

Keynes got the tutor rattled. He said: 'I honestly have to admit I am a bit high in the short period. But, all the same, the long period is a non-Keynesian world. There I smell quite sweet.' (We will see about that later.)

No. The one who understood it thoroughly well was Marshall. This is not a learned lecture. I will only refer you to Appendix H in his *Principles*. Read it over again, and you will see how right I am.

Now Marshall had a remarkable intuitive genius and he knew by instinct how to find out the one case where you can say something without the arrow getting you all mixed up. The short period supply

curve, under strictly perfect competition, when demand always rises, never falls.



One hop up in time, and you have a position where the arrow will not worry you laterally, so long as you are in the short period.

What did he do? The more I learn about economics the more I admire Marshall's intellect and the less I like his character.

He worked out his short period for forward movements with great lucidity and then he filled the book with tear gas, so that no one would notice that he had fudged the whole of the rest of the argument. Just read Marshall's *Principles* through again with a gas mask on and you will see how right I am.

After Keynes died the tutor recovered his nerve a bit, and began to read the *General Theory* carefully and he found that it was full of the most frightful howlers. (I will explain about the howlers in a minute.) Would you believe it? That tutor was so badly brought up he did not even know the first principle of Aristotelean logic. He argued like this: Keynes says I am stinking fish. Keynes makes logical errors, therefore I am not stinking fish. (The kind of errors in logic that Keynes made were not of that order of magnitude.)

Now I will explain to you about the errors in the *General Theory*.

There is a time arrow in the process of arguing. Here are the assumptions A and here are the conclusions C.

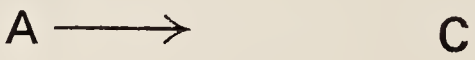
You can start at A, puzzle: find the conclusions. Or you can start at C, puzzle: find the assumptions.

When the argument is correctly worked out (if ever) it is in equilibrium:

The conclusions imply the assumptions and the assumptions entail the conclusions.

Next I will tell you a fact from natural history. I cannot prove it; I just happened to notice it when I was making observations in the field. If you lurk in a well-constructed machan and look through field glasses you will observe a difference in habits between the tygers of wrath and the horses of instruction.

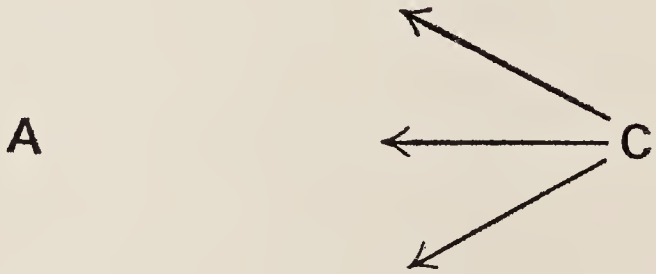
The horses of instruction always argue from the premises to the conclusion. It just is their nature to do so. So when a horse argument is not finished it looks like this:



Well—good luck to the horse. He will soon be there.

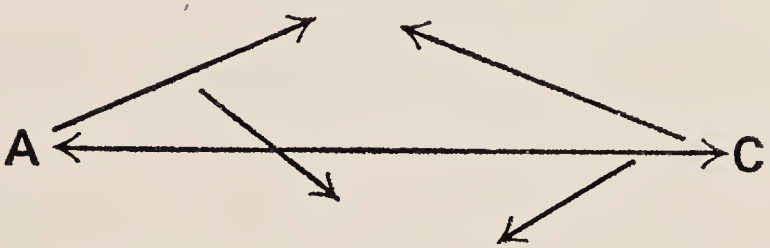
But the tygers of wrath go the other way. Do not ask me why. It is just a fact that I noticed when I was looking through field glasses from a machan.

To hit off a straight line from the assumptions to the conclusions is just what a horse can do, if he has a bit of horse sense, as well as pure horse stamina. But to hit off the line backwards is not at all easy, even for a tyger. Your half-finished tyger argument looks like this:



The *Treatise on Money* is a very good example of what I mean, but it takes much longer to read than Appendix H, and is not so rewarding (in this context) as Marshall's *Principles* as a whole, so please do not bother to look it up on my account. Just rely on the memory of the headache you have the first time you read it.

The *General Theory of Employment, Interest and Money* looks like this:



It has got the equilibrium line in it but Keynes did not rub out all the other lines before he published the book.

(You would be surprised if you knew some of the lines that did get rubbed out before R. F. Kahn would allow him to publish. Keynes refers to this in a very handsome manner in the Preface.)

So you see what I mean if I say: When you are doing economics, do not forget your Blake.

Now let us try the long period. The short period means that capital equipment is fixed in kind. You do not have to ask: When is capital not capital? because there is a specific list of blast furnaces and rolling stock and other hard objects, and for Marshall a given number of trawlers.

In the long period capital equipment changes in quantity and in design. So you come slap up to the question: What is the quantity of capital?

I would not like to have to say where the books written on that question would stretch to, if you put them end to end.

This is where my lecture is really very disobliging. All those books are nonsense, in the strict sense given to that word by Wittgenstein: 'What can be thought can be thought clearly. What can be said can be said clearly. What can be shown cannot be said.'

Now, this is pre-eminently true of capital. When you can measure a quantity of capital at all you can measure it exactly, and

when it is a list of blast furnaces and other hard objects it can be shown but not be said.

So when you are doing economics, do not forget your Wittgenstein.

Let us apply the notion of equilibrium to capital. What governs the demand for capital goods? Their future prospective quasi-rents. What governs the supply price? Their past cost of production. For hard objects like blast furnaces and rolling stock demand is of its very nature *ex ante*, and cost is of its very nature *ex post*. The tutor cannot find any shelter here from the arrows of time.

There is only one case where the quantity of capital can be measured, not shown; that is when the economy as a whole is in equilibrium at our old friend E.

Never talk about a system *getting into* equilibrium, for equilibrium has no meaning unless you are in it already. But think of a system *being* in equilibrium and having been there as far back towards Adam as you find it useful to go:

The Fall of Man ←——— E

so that every *ex ante* expectation about today ever held in the past is being fulfilled today. And the *ex ante* expectation today is that the future will be like the past.

Then you hole out in one. Capital goods are selling today at a price which is both their demand price, based on *ex ante* quasi-rents, and their supply price, based on *ex post* costs.

Who was it who understood this bit? Marshall did, in his wicked way. You will notice, if you re-read his *Principles*, that the thinner is the argument the thicker is the tear gas. But the one who both understood it and played fair was Marx.

He starts to discuss accumulation by setting out a model of Simple Reproduction, which is precisely E, expressed in Marx's language. Then he sends his model moving forward through history and shows how it can never get back to E this side of doomsday.

You remember that Marshall found out the one case where you can say something sensible about the theory of market prices: the short period supply curve under perfect competition. Who found out the corresponding case where you can say something about long-run development? Mr. Harrod, with his *warranted rate of growth*. (You

do it by fiddling the assumptions with neutral technical progress and one thing and another.)

Mr. Harrod was rather taken aback when I drew his attention to the fact that his theory was in *Capital*, Vol. II. But he is a thorough Keynesian, and has long ago spewed up every bit of stinking fish he ever ate. So after the shock had worn off he saw how right I was.

In any case it was already in his book. The point of the *warranted rate of growth* is not to show that the model tends towards an equilibrium line of development but that (just as Marx said) once it slips off the line it will never get back between now and doomsday.

It all boils down to a question of playing the game according to the rules. Ricardo established the rules of the game: Fiddle the assumptions as much as you like, but always show what you have done.

I will not say any more about the way Marshall played. Marx, instead of saying in a well-bred manner: 'If you would be so good as to give me your attention, I will tell you my assumptions,' falls down on his knees and begs and implores you to *believe* his assumptions, because they are the secret of the universe. Though less reprehensible in a moral light, the result is even more stupefying than Marshall's tear gas. And Keynes often omits to mention a point here or there because (how rashly) he thought that you would see that it is obvious.

Ricardo himself was *too* conscientious. He hated having to fiddle the assumptions. Right up to his dying day he was looking for *the* assumption, that would not need to be fiddled. And that wretched neoclassical tutor took advantage of the obscurities produced by Ricardo's scruples to make out that he meant the opposite of what he said. If you read Mr. Sraffa's Introduction to the *Principles* you will see how right I am.

28

AN OPEN LETTER FROM A KEYNESIAN TO A MARXIST

I MUST warn you that you are going to find this letter very hard to follow. Not, I hope, because it is difficult (I am not going to bother you with algebra, or indifference curves) but because you will find it so extremely shocking that you will be too numb to take it in.

First I would like to make a personal statement. You are very polite, and try not to let me see it, but, as I am a bourgeois economist, your only possible interest in listening to me is to hear which particular kind of nonsense I am going to talk. Still worse—I am a left-wing Keynesian. Please do not bother to be polite about that, because I know what you think about left-wing Keynesians.

You might almost say I am the archetypal left-wing Keynesian. I was drawing pinkish rather than bluish conclusions from the *General Theory* long before it was published. (I was in the privileged position of being one of a group of friends who worked with Keynes while it was being written.) Thus I was the very first drop that ever got into the jar labelled 'Left-wing Keynesian'. Moreover, I am quite a large percentage of the contents of the jar today, because so much of the rest has seeped out of it meanwhile. Now you know the worst.

But I want you to think about me dialectically. The first principle of the dialectic is that the meaning of a proposition depends on what it denies. Thus the very same proposition has two opposite meanings according to whether you come to it from above or from below. I know roughly from what angle you come to Keynes, and I quite see your point of view. Just use a little dialectic, and try to see mine.

I was a student at a time when vulgar economics was in a particularly vulgar state. There was Great Britain with never less than a million workers unemployed, and there was I with my supervisor teaching me that it is logically impossible to have unemployment because of Say's Law.

Now comes Keynes and proves that Say's Law is nonsense (so did Marx, of course, but my supervisor never drew my attention to Marx's views on the subject). Moreover (and that is where I am a

left-wing Keynesian instead of the other kind), I see at a glance that Keynes is showing that unemployment is going to be a very tough nut to crack, because it is not just an accident—it has a function. In short, Keynes put into my head the very idea of the reserve army of labour that my supervisor had been so careful to keep out of it.

If you have the least little pinch of dialectic in you, you will see that the sentence 'I am a Keynesian' has a totally different meaning, when I say it, from what it would have if you said it (of course you never could).

The thing I am going to say that will make you too numb or too hot (according to temperament) to understand the rest of my letter is this: I understand Marx far and away better than you do. (I shall give you an interesting historical explanation of why this is so in a minute, if you are not completely frozen stiff or boiling over before you get to that bit.)

When I say I understand Marx better than you, I don't mean to say that I know the text better than you do. If you start throwing quotations at me you will have me baffled in no time. In fact, I refuse to play before you begin.

What I mean is that I have Marx in my bones and you have him in your mouth. To take an example—the idea that constant capital is an embodiment of labour power expended in the past. To you this is something that has to be proved with a lot of Hegelian stuff and nonsense. Whereas I say (though I do not use such pompous terminology): 'Naturally—what else did you think it could be?'

That is why you got me so terribly muddled up. As you kept on proving it, I thought that what you were talking about was something else (I could never make out what) that needed to be proved.

Again, suppose we each want to recall some tricky point in *Capital*, for instance the schema at the end of Volume II. What do you do? You take down the volume and look it up. What do I do? I take the back of an old envelope and work it out.

Now I am going to say something still worse. Suppose that, just as a matter of interest, I do look it up, and I find that the answer on my old envelope is not the one that is actually in the book. What do I do? I check my working, and if I cannot find any error in it, I look for an error in the book. Now I suppose I might as well stop writing, because you think I am stark staring mad. But if you can read on a moment longer I will try to explain.

I was brought up at Cambridge, as I told you, in a period when

vulgar economics had reached the very depth of vulgarity. But all the same, inside the twaddle had been preserved a precious heritage —Ricardo's habit of thought.

It isn't a thing you can learn from books. If you wanted to learn to ride a bicycle, would you take a correspondence course on bicycle riding? No. You would borrow an old bicycle, and hop on and fall off and bark your shins and wobble about, and then all of a sudden, Hey presto! you can ride a bicycle. It was just like that being put through the economics course at Cambridge. Also like riding a bicycle, once you can do it, it is second nature.

When I am reading a passage in *Capital* I first have to make out which meaning of c Marx has in mind at that point, whether it is the total stock of embodied labour, or the annual flow of value given up by embodied labour (he does not often help by mentioning which it is—it has to be worked out from the context) and then I am off riding my bicycle, feeling perfectly at home.

A Marxist is quite different. He knows that what Marx says is bound to be right in either case, so why waste his own mental powers on working out whether c is a stock or a flow?

Then I come to a place where Marx says that he means the flow, although it is pretty clear from the context that he ought to mean the stock. Would you credit what I do? I get off my bicycle and put the error right, and then I jump on again and off I go.

Now, suppose I say to a Maxist: 'Look at this bit—does he mean the stock or the flow?' The Marxist says: 'C means constant capital,' and he gives me a little lecture about the philosophical meaning of constant capital. I say: 'Never mind about constant capital, hasn't he mistaken the stock for the flow?' Then the Marxist says: 'How could he make a mistake? Don't you know that he was a genius?' And he gives me a little lecture on Marx's genius. I think to myself: This man may be a Marxist, but he doesn't know much about geniuses. Your plodding mind goes step by step, and has time to be careful and avoids slips. Your genius wears seven-league boots, and goes striding along, leaving a paper-chase of little mistakes behind him (and who cares?). I say: 'Never mind about Marx's genius. *Is* this the stock or is it the flow?' Then the Marxist gets rather huffy and changes the subject. And I think to myself: This man may be a Marxist, but he doesn't know much about riding a bicycle.

The thing that is interesting and curious in all this is that the ideology which hung as a fog round my bicycle when I first got on

to it should have been so different from Marx's ideology, and yet my bicycle should be just the same as his, with a few modern improvements and a few modern disimprovements. Here what I am going to say is more in your line, so you can relax for a minute.

Ricardo existed at a particular point when English history was going round a corner so sharply that the progressive and the reactionary positions changed places in a generation. He was just at the corner where the capitalists were about to supersede the old landed aristocracy as the effective ruling class. Ricardo was on the progressive side. His chief pre-occupation was to show that landlords were parasites on society. In doing so he was to some extent the champion of the capitalists. They were part of the productive forces as against the parasites. He was pro-capitalist as against the landlords more than he was pro-worker as against capitalists (with the Iron Law of Wages, it was just too bad for the workers, whatever happened).

Ricardo was followed by two able and well-trained pupils—Marx and Marshall. Meanwhile English history had gone right round the corner, and landlords were not any longer the question. Now it was capitalists. Marx turned Ricardo's argument round this way: Capitalists are very much like landlords. And Marshall turned it round the other way: Landlords are very much like capitalists. Just round the corner in English history you see two bicycles of the very same make—one being ridden off to the left and the other to the right.

Marshall did something much more effective than changing the answer. He changed the question. For Ricardo the Theory of Value was a means of studying the distribution of total output between wages, rent and profit, each considered as a whole. This is a big question. Marshall turned the meaning of Value into a little question: Why does an egg cost more than a cup of tea? It may be a small question but it is a very difficult and complicated one. It takes a lot of time and a lot of algebra to work out the theory of it. So it kept all Marshall's pupils preoccupied for fifty years. They had no time to think about the big question, or even to remember that there was a big question, because they had to keep their noses right down to the grindstone, working out the theory of the price of a cup of tea.

Keynes changed the question back again. He started thinking in Ricardo's terms: output as a whole and why worry about a cup of tea? When you are thinking about output as a whole, relative prices

come out in the wash—including the relative price of money and labour. The price level comes into the argument, but it comes in as a complication, not as the main point. If you have had some practice on Ricardo's bicycle you do not need to stop and ask yourself what to do in a case like that, you just do it. You assume away the complication till you have got the main problem worked out. So Keynes began by getting money prices out of the way. Marshall's cup of tea dissolved into thin air. But if you cannot use money, what unit of value do you take? A man hour of labour time. It is the most handy and sensible measure of value, so naturally you take it. You do not have to prove anything, you just do it.

Well there you are—we are back on Ricardo's large questions, and we are using Marx's unit of value. What is it that you are complaining about?

Do not for heaven's sake bring Hegel into it. What business has Hegel putting his nose in between me and Ricardo?