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Stagnation, income distribution and monopoly power

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1. Introduction

The deceleration in the rate of industrial growth in the Indian economy since the middle sixties, initially interpreted by some as a temporary downward deviation from trend, has now come to be generally accepted as reflecting long-run tendencies towards stagnation. Several explanations for these tendencies have been offered. Bhagwati and Desai (1970) and Bhagwati and Srinivasan (1975) have focused on inefficiencies and the misallocation of resources arising from industrial policies pursued by the government. Others, Chakravarty (1974), Raj (1976) and Vaidyanathan (1974) among them, have emphasised the sluggishness of agricultural growth which is alleged to have retarded industrial growth by limiting markets and the supply of wage goods and raw materials. A third view, reflected in Srinivasan and Narayana (1977) for example, has put the blame on a slackening of investment demand due to lower public investment, but does not explain why public investment fell, or why its fall restrained industrial growth. Finally, there is the explanation, put forth in Bagchi (1970, 1975, 1982), in Nayyar (1978) and in parts of Mitra (1977), that inequalities in income distribution have resulted in a limited demand for industrial goods, reduced incentives for investment, and therefore reduced growth. This view seems to suggest a positive relation between growth and income equality which is opposed to the generally accepted idea, derived from Cambridge growth models, that higher growth requires greater inequality.

The purpose of this paper is to examine the last explanation by considering the interaction between growth and income distribution in an underdeveloped economy with the help of a simple macroeconomic model. The model is a stylisation of the Indian economy, so that we will be able to use the model to assess the argument that a deceleration in the rate of growth of the Indian industrial economy could have been caused by an unequal distribution of income. The argument will not be made that this income distributional constraint is the binding constraint on industrial growth: the model will merely examine the internal consistency of the argument that a bad income distribution could explain stagnation (in the sense of reduced growth), and show that in the Indian context, as in other similar contexts, this argument can be put forward in explaining 'stagnation'.

Our argument is first presented with a highly simplified schematisation of the Indian economy, which we shall call the basic model. The economy modelled produces only one

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good, an industrial good, in an oligopolistic market environment characterised by an excess capacity of capital. The economy has a deeply dual, class-ridden socioeconomic structure, which makes it meaningful to divide the *dramatis personae* of the economy into two groups—workers and capitalists—with different behaviour patterns and economic roles. The basic model abstracts from any consideration of government activity or foreign transactions. We assume throughout that the money and other asset markets can be ignored, with interest rates pegged by the monetary authorities—an assumption which can be relaxed without much change in our results. We also abstract entirely from any consideration of the agricultural sector, which, given the overwhelming importance of that sector in the Indian economy, may seem somewhat of an embarrassment. We are ignoring this sector not because we believe that it is unimportant, but because we are interested in the possibility that the income distribution could be a constraint on growth in India, even with the agricultural constraint miraculously removed.

The rest of this paper proceeds as follows. In Section 2 we examine the equational structure of the basic model. In Section 3 we examine how equilibrium is determined in the economy at a point in time, and examine some comparative static properties of the model. In Section 4 we examine what the model implies about the relation between growth and income distribution, and relate that to some views to be found in the literature. In Section 5 we consider how the economy portrayed in the basic model moves through time, examine some facts about the Indian economy, and address some policy questions. In Section 6 we consider explicitly government fiscal activity in order to examine the implications of redistributive fiscal policies. In Section 7 we introduce open economy complications to examine how our arguments have to be modified when we allow the economy to trade with the rest of the world. Finally, Section 8 presents our conclusions.

2. Equational structure of the basic model

The economy produces the industrial good using two homogeneous factors of production, labour and capital, the latter being physically identical with the produced good, using a Leontief production function exhibiting constant returns to scale and fixed capital–output and labour–output ratios, a_k and a_l, respectively. The fixed coefficients assumption could be looked upon as a rough approximation to the observed technological rigidities in factor substitution, or reflecting that, for some reason, techniques are chosen—at least in underdeveloped economies—independently of factor prices. However, it is essentially a simplifying assumption which can be forsaken without substantially altering our conclusions (see Taylor, 1983).

We assume that there exists a large reservoir of labour, either in the form of a reserve army of unemployed, or as employed in a subsistence sector having no other interaction with our industrial sector. Assuming that the money wage is fixed, either through wage bargains or by the government, above a level ensuring at least a subsistence consumption at all prices subsequently considered in this paper, this labour is available to the industrial sector in perfectly elastic supply. The assumption of a fixed money wage is merely a simplifying one: what is crucial is that the money wage reacts only with a lag to changes in the cost of living. There is some evidence that this reflects Indian reality: Bagchi (1975), among others, produces evidence to show that the real wage has not increased but has probably fallen in recent years, while Ahluwalia's (1979) regressions show that the money wage does react to cost of living changes as measured by the price of foodgrains, but that this adjustment is slow and incomplete. The fixed money wage assumption can easily be relaxed to allow it to adjust slowly to changes in the price level but, as we shall see below, this would add nothing to our analysis but a story of inflation. The implication of perfectly elastic supply of labour is that the actual employment of labour, L, is determined by the demand for it, so that

$$L = a_l Q \tag{1}$$

where Q denotes the level of output.

The stock of capital is given at a point in time as a result of past investment. Since we shall later assume that excess capacity of capital exists in the economy, we have

$$K \geq a_k Q \tag{2}$$

where the equality defines the full capacity level of output.

The price level, p, is assumed to be set by oligopolistic producers by applying a markup τ on unit prime costs wa_l, where w is the fixed money wage, so that

$$p = (1+\tau) w a_l \tag{3}$$

τ is assumed to be a given constant at a point in time and reflects, along the lines suggested in Kalecki (1971), the degree of monopoly power.[1] The equation implies that the rate of profit is given as

$$r = \tau w a_l Q / pK \tag{4}$$

The markup pricing equation incorporates two underlying assumptions. First, there is the assumption of an oligopolistic market structure, without which we could not have producers actually setting prices. There is considerable evidence—both at the industry and aggregate levels—coming from reports of the various enquiry commissions set up to study the problem of economic concentration in India, including the works of Hazari (1966), Monopolies Enquiry Commission (1965) and the Industrial Licensing Policy Inquiry Committee (1969), showing the oligopolistic nature of most of Indian industry.[2] Second, there is the assumption of excess capacity in industry, which makes it likely that producers will wish to set prices as a markup over prime costs, ignoring capital costs. Though estimates of excess capacity vary a great deal and their conceptual and statistical bases are not precise enough, they leave no doubt in our minds that excess capacity is a widespread phenomenon in Indian industry.[3]

We assume, following the traditions of Marx, Kalecki (1971), Kaldor (1956) and Pasinetti (1962), that the two groups—workers and capitalists—have different consumption propensities. Workers do not save—an assumption we can give up at the expense of simplicity—and capitalists save a constant fraction, s, of their income. While this assumption of differing saving propensities has been questioned for advanced countries on empirical grounds, saving data for India show that it is quite valid for this country: for example,

[1] The markup pricing rule has had a distinguished career in economics. Its relation to the degree of monopoly power has been studied by Kalecki (1971). Recent use of the rule in the development literature has been made in Lara-Resende (1979), and Taylor (1979, 1983), among others.

[2] See Dutt (1982) for a brief survey of the evidence. See also Chaudhuri (1975).

[3] See Dutt (1982) for the evidence. Though there have been other views on this, emphasising, for instance, the scarcity of imported intermediates, we should take the view that this excess capacity exists due to the insufficiency of demand. See, in this context, Ramaswami and Pfoutz (1965) who emphasise the role of demand, and Ahluwalia's (1979) regression of a capacity utilisation variable on intermediate input and demand variables, the former having a coefficient not significantly different from zero, and the latter—measured by the share of government investment in GDP—having a positive, statistically significant coefficient.

if those with annual incomes of over Rs 15,000 a year are called capitalists and the rest are called workers, National Council of Applied Economic Research (1980) data for 1975–76 show that saving-income ratio of the two classes at 0·39 and 0·09 respectively. Given our assumptions, total consumption demand can be written as

$$pC = wL + (1-s)rpK \tag{5}$$

Although firms are managed by capitalists, we assume that their investment decisions are independent of the consumption decisions of capitalists. We assume that the investment decisions are made with regard for both the rate of profit and the rate of capacity utilisation, and for simplicity we write the investment function as

$$I/K = a + br + ca_k Q/K \tag{6}$$

where I is the level of investment and a, b, and c are positive constants. The function has been expressed in ratio form to take account of the fact that the investment response is different at different levels of the stock of capital. The first term a is assumed to be positive, representing 'animal spirits'. The reason for the rate of profit entering as an argument in the investment function is by now well known, with the development of the neo-Keynesian theories of growth and income distribution (see Robinson, 1956, and Asimakopulos, 1969, for example). The higher the expected profit, the greater the amount of investment firms will want to undertake. For simplicity, expected and actual (current) average rates of profit are assumed equal. Finally, the last term posits a positive relation between the investment rate and the rate of capacity utilisation measured as a ratio of actual output to potential full capacity output. Steindl (1952) provides reasons why this kind of specification may be appropriate for an economy with excess capacity. Firms have a certain desired level of excess capacity due to fluctuations in demand, or expected growth in demand which, given indivisibilities in capital equipment, may make it profitable for present value maximising producers to build ahead of demand. When the utilisation of capacity falls below the desired level, producers will want to increase utilisation, and thereby disinvest to reduce the stock of capital, and conversely when the utilisation rate rises above the desired level. If we further assume that the speed at which relative changes in capital are sought depends positively on the extent of divergence between actual and desired utilisation rates, a term like the third one is obtained, in which desired capacity utilisation, taken either as a constant or as a function of the rate of profit, has been absorbed in either the first or the second term of the function. It ought to be emphasised that this effect, by which an increase in output will bolster investment by raising utilisation rates, is additional to the effect it will have on investment through its effect on the rate of profit, which has already been captured in the second term. While we do not have sufficiently good data at this stage to test the validity of this function on Indian data, on *a priori* grounds it seems to be a sensible one, given the preponderance of excess capacity in manufacturing.

Finally, equilibrium in the economy requires

$$Q = C + I \tag{7}$$

What drives the economy to this equilibrium are changes in output responding to aggregate demand.

3. Equilibrium and comparative statics

To show how equilibrium is determined in the economy at a point in time, given the stock of capital and the markup rate, we use Fig. 1.

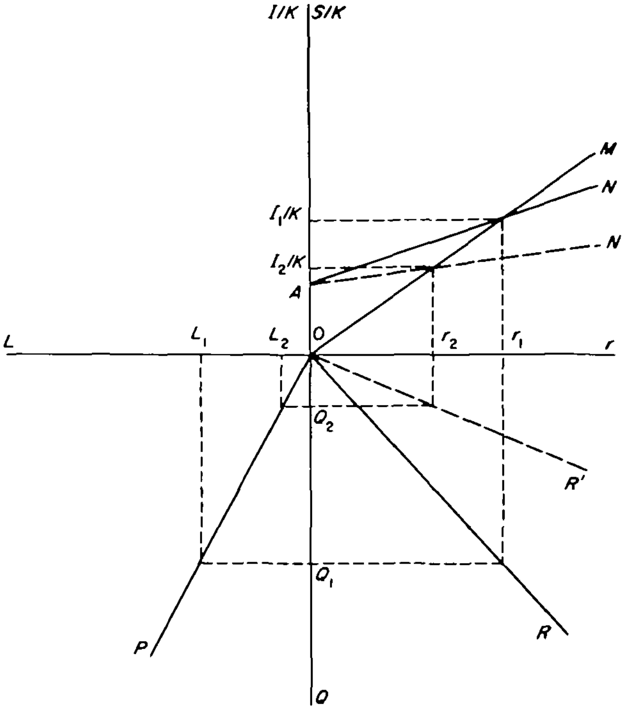

Fig. 1. *The model in the short run*

In the southeast quadrant the line OR shows the positive relation between Q and r obtained from (3) and (4),

$$r = [\tau/(1 + \tau)]\ Q/K \tag{8}$$

which states that as Q rises, with given τ, profits are higher with given K, so that r must rise. In the northeast quadrant line AN shows I/K as a function of r, and is obtained by substituting (8) in (6) to get

$$I/K = a + [b + a_k c(1 + \tau)/\tau]\ r \tag{9}$$

which states that a rise in r will increase I both directly and through an implied increase in the ulitisation rate. Line OM shows S/K as a function of r and follows from (5) which yields

$$S/K = sr \tag{10}$$

where S denotes real saving. In the southwest quadrant OP plots equation (1).

Equilibrium in the economy requires

$$S/K = I/K \tag{11}$$

which can be verified by multiplying (7) by p, substituting for p from (3) and pC from (5), and then using (1) and (4). Thus, equilibrium is obtained at the intersection of the AN and OM schedules, so that the equilibrium values are S_1, I_1, r_1, Q_1, and L_1. Note that p is determined, independently of all this, simply from (3) with w given. The equilibrium values of r, Q and I/K are found to be

$$r = a/[s - b - ca_k(1 + \tau)/\tau] \tag{12}$$

$$Q = (1 + \tau)/\tau \ \ a/[s - b - ca_k(1 + \tau)\tau] \ K \tag{13}$$

$$I/K = a + (b + a_k c(1 + \tau)/\tau)[a/(s - b - ca_k(1 + \tau)/\tau)] \tag{14}$$

For equilibrium to exist, *AN* and *OM* must intersect in the positive quadrant, and for the equilibrium to be stable, *AN* should be flatter than *OM*. Both conditions are fulfilled when

$$a > 0 \tag{15}$$

$$[\tau/(1 + \tau)](s - b) \geq a_k (c + a) \tag{16}$$

which also ensure the existence of excess capacity. The latter condition requires that the responsiveness of saving to the decision variable should exceed the responsiveness of investment, while the first condition would not have been necessary if consumption spending had a positive autonomous part.

We now examine the effects of some parametric shifts, using Fig. 1 when necessary.

A rise in the markup rate implies, as we see from (3), a fall in the real wage w/p. The rise in τ shifts *AN* down to a position like *AN*′ and rotates *OR* to a position like *OR*′, so that the equilibrium values of Q, r, I and L fall. Note that if $c = 0$, AN would be unaffected by the change so that r and I would be unaffected, but Q and L would still fall. To understand the mechanism underlying these changes, it is convenient to assume, to start with, that investors react only to changes in r and not to changes in the capacity utilisation rate *per se*, that is, $c = 0$. A rise in τ then implies that, with a given w, capitalists charge a higher price to sustain the higher markup rate, implying a lower real wage. At the initial levels of output and employment, the level of total real wage income falls, implying a shift in the income distribution away from workers and towards capitalists which, for a given K, implies a rise in r. This shift in income distribution raises saving, since workers have a higher propensity to consume. If equilibrium is stable, so that investment does not respond excessively to changes in r, equilibrium output must fall and r must return to its initial level to bring saving and investment to equality once again. With r unaffected by the change in τ, obviously I will also not be affected. If we now introduce the dependence of investment on the rate of capacity utilisation, the lower level of output implied by the higher τ will imply a lower rate of capacity utilisation, given K, and that will reduce I. By creating an excess supply, this will imply further reductions in Q, r and I, so that in the new equilibrium Q, r and I must be lower than they were before the change in τ.

A rise in w, as (3) shows, is immediately passed along by producers into a higher p, so that the real wage remains unchanged, and hence nothing else in the 'real' model changes. This shows that if we build wage dynamics into the model with w adjusting to some gap between the actual real wage and that desired by workers, we will have a story of inflation, with nothing else in the model changing, unless the rate of inflation enters as an argument in the investment function.

A change in K leaves *AN* and *OM* unchanged, implying that equilibrium r will be unchanged and so will I/K and S/K, so that I and S will change proportionately with K. In the lower quadrant, *OR* will rotate downwards, implying that equilibrium Q will rise and with it, equilibrium L; p and w/p will remain unchanged.

Effects of changes in technology or of saving and investment parameters can easily be considered by using Fig. 1, but are not examined here.

4. Relation between growth and income distribution

To consider the relation between growth and income distribution implied by our two-class model, let us analyse the determinants of each.

Measuring income distribution by the labour share, $y_w = wL/pQ$, a rise in y_w can be considered to be an improvement in income distribution. Using (1) and (3) we get

$$y_w = 1/(1 + \tau) \tag{17}$$

which shows that income distribution in our model is solely determined by the markup rate, and that a rise in it will worsen the distribution of income.

The growth rate, g, can be defined as the rate of increase in capital stock and, assuming away depreciation of capital, that implies

$$g = I/K \tag{18}$$

It may be noted from (8) that the rate of increase of K is equal to the rate of increase of Q given τ, so that g also measures the rate of change of total output at a given τ. Since we have already proven that $dI/d\tau < 0$, it immediately follows that $dg/d\tau < 0$.

Combining the last two results tells us that an improvement in income distribution is accompanied, *ceteris paribus*, by a higher rate of growth. This result seems to confirm the arguments based on verbal (as opposed to formal) analysis that have been offered by a group of Indian economists in explanation of Indian industrial stagnation, as mentioned earlier. Nayyar, (1978), for instance writes

> Ultimately ... the pace of industrialisation can only be sustained if there is a growth in the domestic market, because the production capacities created in the investment goods sector must be absorbed by final consumer demand. But, in a market economy, where the distribution of income is unequal, the demand base might be very narrow in terms of population spread. That was and, indeed, is the case in India ... Clearly, a large proportion of the demand for industrial products originates from a narrow segment of the population. However, manufactured goods sold to the relatively few rich can use up only so much, and no more of the capacity in the intermediate and capital good sector. Only a broad based demand for mass consumption goods can lead to a full utilisation of capacity (and generate sustainable increases in output), but that in turn requires incomes for the poor. Thus, an unequal income distribution, operating through the demand factor, might restrict the prospects of sustained industrial growth.

Our simple one sector model cannot take into account all of the factors discussed by these economists but, in our opinion, does capture the essence of their arguments in a simple way.

Our model, like the arguments of the group of economists mentioned above, has its origins in the contributions of Marx, and in the subsequent work of Sweezy (1968), Kalecki (1971), Baran and Sweezy (1966) and Steindl (1952), regarding what may be called realisation crisis theories. The analysis of crisis in capitalist economies discussed in these contributions emphasises the non-realisation of profit, or the surplus component of value production, as a consequence of the inadequacy of aggregate demand. This tradition has the emphasis on effective demand in common with Keynes's analysis of underemployment equilibria, but Keynes was interested in explaining short-run phenomenon such as unemployment and was not directly concerned with secular growth.

The result regarding the positive relation between growth and income distribution derived from our model is in contradiction with the negative relation argued in much of growth and development theory. The usual results implying that a worsening of the distribution of income is required for higher growth are derived from models of the Cambridge variety, including the forced saving and structuralist inflation models.[1] In those models the argument proceeds as follows: higher rates of growth require faster capital accumulation and therefore higher investment; since higher investment needs higher saving, higher growth rates require a redistribution of income in favour of those groups in the economy who save more, and given that the rich save more, a worsening in the income distribution. This argument is correct only if full capacity utilisation is assumed, so that total output is fixed. Since our model allows for excess capacity, a more equal distribution of income implies higher output, saving, and growth.

5. Cumulative processes

To examine how our economy moves through time, recall first that the relation between g and τ based on the saving-investment equality, showing equilibrium at a point in time for the economy, is given by

$$g = a + [b + a_k c(1 + \tau)/\tau]\{a/[s - b - ca_k(1 + \tau)/\tau]\}. \tag{19}$$

This shows that

$$dg/d\tau = -([b + a_k c(1 + \tau)/\tau]\, \{a/[s-b-ca_k(1 + \tau)/\tau]^2\}\, \{ca_k/\tau^2\} + \{a/[s-b-ca_k(1 + \tau)/\tau]\, \{a_k c/\tau^2\}).$$

which shows that $dg/d\tau < 0$ and that $-dg/d\tau$ falls as τ rises, so that the *IS* curve showing saving-investment equality in Fig. 2 is downward sloping and convex to the origin. We shall assume that at each point in time the economy is in commodity market equilibrium, so that it must always be on the *IS* curve. This assumption is not too restrictive, since, as will be made clearer below, this is tantamount to assuming that Q changes quickly compared to τ, which reflects changes in industrial structure.

Next, consider the determinants of changes in τ. Denoting the time derivative of τ by τ', we shall examine how τ' depends on g by considering the relation each has with changes in industrial concentration rates. Following arguments given in Baumol (1962) suggesting that with fast growth in an industry new entrants are encouraged to enter through the attraction of higher profits, and also that barriers to entry appear less formidable in an expanding market, we may assume an inverse relation between g and changes in ratios of concentration. For the case of India, Ghosh (1975) has found that changes in concentration ratios among industries during the period 1948–68 were inversely related to the growth rates of industries, and similar results have been reported for other countries.[2] Regarding the relation between changes in concentration rates and τ', we start by examining the relation between concentration rates and τ. Since collusion is more effective the greater the share of large firms, one can argue, following Strickland and Weiss (1976), that the relation is a positive one. Following Bain's (1951) pioneering work, a large literature—surveyed in Weiss (1974, 1980) and Scherer (1980)—has developed showing that some index of profit—often the markup over variable costs—rises with concentration ratios in developed economies, most of the regressions fitted being linear ones. Not much work has been done for the Indian case, but Katrak's (1980) regressions show that Indian data yield similar

[1] Kaldor (1956) and Pasinetti (1962) are the pioneering works. See also Taylor (1979) and Lara-Resende (1979).

[2] This relation may not hold in all economies. For example, in economies in which multinational corporations are important (and they enter when high rates of growth are experienced, thereby (possibly) increasing concentration rates), a positive relation may be expected. While this may be true of some Latin American economies, it is certainly not the case for India.

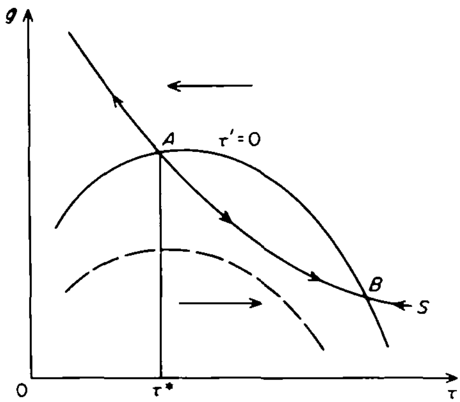

Fig. 2. *Movement of the economy in the long run*

results. If we assume that this relationship between τ and the concentration ratio is roughly linear, we get a similar positive relation between τ' and changes in concentration rates. Combining these two relationships developed in this paragraph we can assume that a higher growth rate, by reducing the rate of change in the rate of industrial concentration, reduces τ'.

One would also expect τ' to depend on τ. It seems that at least at low levels of τ, higher τ will imply greater monopoly power, and hence greater ability on the part of firms to push up markup rates, implying a higher τ'. This effect could operate through the increased concentration of credit, for example. But beyond a certain level of τ, further increases in it will reduce τ' because high markups will induce greater entry and faster falls in concentration ratios, as suggested by limit pricing models of oligopoly, because existing firms may apprehend government action if they push up their rates of markup excessively, and because firms cannot push up markups indefinitely in any case. We can therefore assume that for a given g, τ' increases with τ at low levels of τ and decreases with it at higher levels.

The upshot of this discussion of the determinants of τ' is that we can assume the existence of a function

$$\tau' = F(g, \tau) \tag{20}$$

with $F_1 < 0$ and F_2 changing sign from positive to negative as τ increases (F_i being the partial derivative of F with respect to the ith argument). Equation (20) yields a relation between g and τ which makes $\tau' = 0$, and the curve $\tau' = 0$ in Fig. 2 depicts that relationship. As shown by the arrows, τ falls above the curve and rises below it. The function F can be assumed to depend on the structure of government policies: for example, if the government were to come down more heavily on non-competitive behaviour the function would be affected in such a way as to shift the curve τ' to a position shown by the dotted curve of the figure.

To examine how the economy moves through time we bring the IS and $\tau' = 0$ curves together in the same figure. It is obvious that there are several possible configurations of the two curves, and we have presented in Fig. 2 one of them. Apart from being a probable configuration (see below for a discussion of the Indian case), it is also interesting to examine since it admits of two possible long equilibria (by which we mean states which the economy can attain which, once attained, will be repeated through time). In the figure, the economy will be restricted to points on the *IS* curve, and its movement is shown by the arrows on the curve. *A* and *B* represent the two long equilibrium positions; *A* is unstable and *B* is stable.

An economy starting from any $\tau > \tau^*$ (as long as $\tau^* > \tau_f$ where τ_f equates the two sides of (17) and is therefore the markup rate corresponding to full capacity utilisation) it will over time tend to move towards *B*, growing towards it if τ is very high so that we start from the right of *B*, or stagnating to it if it starts from the left of it with an intermediate value of τ. However, if the initial τ is such that $\tau^* < \tau < \tau_f$, then the economy will grow with rising g and falling τ till it reaches τ_f, at which point full capacity utilisation is reached, when the economy cannot be described by our model, but by a model of full capacity utilisation.

A stagnating economy is one which is at or very near point *B*, with a low g and a high τ and hence great inequality in income distribution. In terms of the model, the Indian economy could be described as being trapped near point *B*, perhaps moving towards it from above, with a declining rate of growth and a worsening distribution of income. In this way our simple model can be used to 'explain' the tendencies to stagnation in the Indian economy.

Although the model is too simple to capture all the major constraints on Indian growth, a look at data on some relevant variables suggests that the Indian experience has not been very different from what it suggests. As regards the rate of industrial growth, whether we look at the rates for each year, averages for successive periods, or trend equations fit by Dey (1975) and Nayyar (1978), there seems to be little doubt that the rate has been showing a retarding trend. There is also evidence of a decline in the rate of investment: net fixed asset formation (at 1960/61 prices) in the private corporate sector fell from Rs12,819 million during 1961–62/1965–66 to Rs6,658 million in 1966–67/1970–71 and further to Rs3,844 million in 1971–72/1975–76. Turning to the rate of profit in Indian manufacturing, the Census of Manufacturing Industries—Annual Survey of Industries series show a declining trend, while the Reserve Bank of India series shows no clear tendency, though some fall in the late sixties. Concerning industrial concentration ratios, most analysts seem to believe in the growth of monopoly power in the Indian economy, and Sau (1982) has produced evidence to show that the bigger companies in India have grown faster while the smaller companies have not grown half as fast. On the question of income distribution, the data is sparse, and it is not clear how much credibility can be attached to the different estimates; a series in Shetty (1973), however, suggests that wages as a percentage of value added by manufacture in Indian industry fell almost continuously from 53·5% in 1949 to 39·6% in 1960, to 36·6% in 1965, and to 34·7% in 1969.

We have remarked before that the $\tau' = 0$ curve could be moved by a change in the structure of government policies. Recent empirical work by Katrak (1980) suggests that, among other things, import competition dampens price-cost margins (where costs exclude capital costs) in Indian manufacturing industries, while tariffs and other protective devices increase them. Similarly, one would expect that restrictions to entry in the form of industrial licensing would also affect markup rates. Moreover, the government's attitude towards how the credit system functions could also affect the degree of concentration in the economy, with the credit system currently favouring big business in India and drawing into the hands of a few capitalists the financial resources scattered over the economy, as argued by Chaudhuri (1975). Hence it seems that it should be possible to shift the $\tau' = 0$ curve downwards to a position shown by the dotted line, by a change in the structure of government policies affecting any of these areas, and thereby improve both income distribution and growth performance.

This analysis seems to vindicate the view of those economists like Bhagwati and Desai (1970) and Bhagwati and Srinivasan (1975) who have suggested that the main reasons for India's poor growth performance can be found in the industrial policies pursued by the government in the form of industrial licensing, and heavy protection for Indian industries against foreign competition. However, the mechanisms through which these policies have deterred growth are, in the opinion of these economists, quite different from those we have emphasised: while they focus on microeconomic efficiency considerations, we stress income distribution related macroeconomic effects. Both interpretations, however, would lead to the policy prescription of substantial trade liberalisation and the removal of the kinds of policies tending to reduce competition in industry.[1]

6. Fiscal policy

We now extend the basic model to consider the effects of fiscal policy by introducing three kinds of taxes (or subsidies)—an indirect tax on commodities at rate t_i, a tax on capitalist income at rate t_c, and a tax (or subsidy) on the income of workers at rate t_w—and government expenditure, G. Accordingly, equations (3), (5) and (6) have to be rewritten as

$$p = (1 + \tau)wa_1(1 + t_i) \tag{21}$$

$$pC = wL(1 - t_w) + (1 - s)(1 - t_c)rpK \tag{22}$$

$$I/K = a + br(1 - t_c) + ca_k(Q/K) \tag{23}$$

where in (23) investment is assumed to depend on the rate of profit net of capitalist income taxes, which is not necessarily what firms consider in making their investment decisions, but is used only to stack the cards against us, given our interest in showing that improving the income distribution improves growth performance. The commodity market equilibrium condition must be rewritten as

$$Q = C + I + G \tag{24}$$

where we assume for simplicity that all government expenditure is for consumption purposes. Finally, the government budget equation is given by

$$pG = t_w wL + t_c rpK + t_i(1 + \tau)\, wa_1 Q + D \tag{25}$$

where D is the government fiscal deficit in money terms. We shall assume that the government balances its budget,[2] so that

$$D = 0 \tag{26}$$

Using the rest of the equations of the model, that is, equations (1), (2) and (4), we can consider how equilibrium is attained in the economy in the short run, given K and τ. If we specify the values of three of the four fiscal policy variables t_i, t_w, t_c and G, as

[1] It ought to be emphasised that the policy prescription of trade liberalisation makes sense if there are no balance of payments constraints on growth, an assumption we are making in this paper (see section 7). In the presence of such constraints, greater domestic competition would be a preferable alternative.

[2] This assumes, somewhat heroically, that the government has the ability to make continuous and accurate forecasts of the possible effects of changes in one of its policy variables and to make suitable adjustments in the other. The assumption could be relaxed to allow for unbalanced budgets, but is made because our interest lies primarily in analysing the effects of purely redistributive policy changes.

policy parameters, then the model can yield a determinate solution. As an example, we choose to fix t_i, t_c, and G as policy parameters and let t_w be determined residually using (25) and (26). Hence, given τ and K, and the fiscal policy instruments, the model solves for all the variables, including I, and hence g. Meaningful positive solutions are assumed to exist. We can then derive the relation between g and τ, which will give us the same kind of downward sloping IS curve, except that now its position depends on G, t_c, and t_i, in addition to the other parameters considered in the basic model. The $\tau' = 0$ curve can be drawn exactly in the same way as before, and we can consider how the economy moves through time.

Using this model we consider two kinds of tax policy changes which leave the government budget in balance. The analysis initially assumes that none of the other parameters of the model is affected by these tax changes; later we shall relax this assumption.

A rise in t_c, compensated by a fall in t_w for a given K and τ, can be shown to raise r, Q and I/K, from which it follows that a rise in t_c implies a rise in g, so that the IS curve shifts up. As regards the distribution of income, the real wage net of taxes can be shown to rise and, somewhat surprisingly, the real profit income net of taxes also rises. Defining

$$y_d = \frac{wL\,(1-t_w)}{rpK\,(1-t_c)}$$

to be our indicator of income distribution, we can see that it also rises. The redistribution of income from capitalists, with a low propensity to consume, to workers, who have a high consumption propensity, results in a rise in aggregate demand, which raises output and profit rates, which in turn makes capitalist entrepreneurs want to invest more, raising the growth rate of the economy.[1]

Such a policy would therefore seem to be desirable both from the point of view of income distribution and growth, but there may be political and administrative problems to increasing tax rates for the rich, given their already high levels. Whatever the merits of this argument, it is of interest to know whether an increase in t_i with a corresponding decline in t_w has similar effects. The effects on growth are simplest to see using a figure just like Fig. 1, in which AN, OM or OR would now depend on the fiscal policy parameters. It is easy to check that a rise in t_i would leave OM unaffected, but make AN rotate up and OR rotate down, implying that at the new equilibrium, the equilibrium r, Q, L, I and g must all be higher than at the original level, but since p rises, w/p must be lower. The effect on income distribution can be seen by noting that the rise in the commodity tax hurts both classes, while the consequent reduction in taxes on labour helps only workers, so that there will be a redistribution in favour of workers—provided that subsidies to workers are not too high initially.

The above discussion is confined to the short run, as τ was taken as given. To examine the long-run effects notice first that both the policy shifts considered above raise g at each τ so that they imply an upward shift in the IS curve, as shown in Fig. 3, from a position like IS to one like IS'. The economy therefore moves from A to C in the short run, and in the long run, to D, along IS', implying increasing g and falling τ. With a sufficiently large change in policy the IS curve could shift to IS'', with accelerating growth and improving income distribution, until full capacity utilisation is reached.

While the analysis assumed that the policy changes considered here do not affect any of the parameters of the model, we can imagine that such changes change some of the

[1]For the algebra for changes discussed in this and the next section, see Dutt (1982).

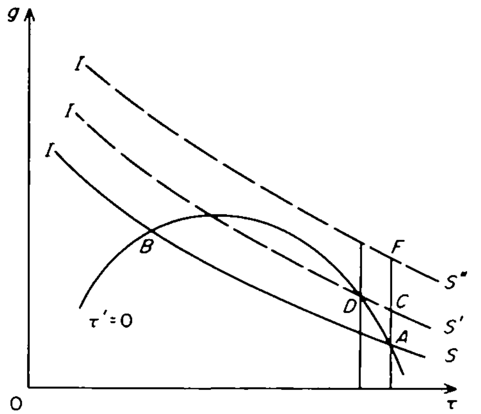

Fig. 3. *Long run effects of redistributive fiscal policy*

parameters: s could be reduced if a rise in t_c makes capitalists cut saving; it could reduce w if a fall in t_w created pressures by firms for reducing wages; and could reduce τ if firms could not shift the entire burden of a rise in t_r. These changes, it is easy to check, would either leave our conclusions unchanged, or strengthen them.

7. Open economy considerations

We now extend the basic model to consider trade with the rest of the world, though without there being any capital flows. This we do by assuming that the economy imports a_0 units intermediate goods at the fixed foreign price $p_0{}^\star$ per unit for every unit of output produced, the capitalists spend a fraction m_c of their consumption expenditure on luxury imports, and that the economy can export its product, with its level, E, responding to its foreign price and to the degree of sophistication attained by the economy's product, for which its stock of capital is a simple proxy. We therefore have to replace (3) and (9) by

$$p = (1 + \tau)\,(a_1 w + e p_0{}^\star a_0) \tag{27}$$

$$pC = wL + (1 - m_c)\,(1 - s) r p K \tag{28}$$

and can write the export function in a simple form,

$$E = (\alpha + \beta e/p)\,K \qquad \alpha > 0 \qquad \beta > 0 \tag{29}$$

where e is the exchange rate, assumed fixed in a fixed exchange rate regime. The commodity market equilibrium condition must now be written as

$$Q = C + I + E \tag{30}$$

Finally, the balance of payments equation is given by

$$eF^\star + pE = m_c(1 - s) r p K + e p_0{}^\star a_0 Q \tag{31}$$

where $F^\star$ is the trade deficit in terms of foreign currency—or the capital inflow—which is endogenously determined by our model, to be interpreted as required capital inflows somehow met by foreign aid. In other words, we are assuming away any foreign exchange bottlenecks, in the same manner as the agricultural constraint, to focus on income distributional issues.[1] These equations, along with the other relevant equations of the model, can solve the values of all the variables of the model, given τ and K.

When τ falls there is a shift in income distribution from capitalists to workers which raises aggregate demand due to differences in saving propensities, and hence output and the rate of profit, an effect already considered in the basic model. In the open economy model there are three further effects. One switches demand from luxury imports consumed only by capitalists to domestic goods raising aggregate demand. The other two operate in opposite directions: the fall in τ, by reducing p, makes domestic goods more competitive abroad and therefore raises exports, given some positive price responsiveness of exports, thereby raising Q and r; it also implies an increase in foreign saving as imports amount to a larger share in redirected income flows, which reduces demand and hence Q and r. Our presumption is that the price elasticity of demand for exports, reflected in β, is not very small for India,[2] and the ratio of the value of intermediate imports to total variable costs (which depends on a_0) is not very large, so that the last effect is dominated by the others, implying that the fall in τ raises r and Q.

Hence, provided a_0 is not too large, our conclusions from previous sections will not be altered by the existence of foreign trade, if we assume away foreign exchange bottlenecks.

8. Conclusion

In this paper we have constructed a simple one-sector closed-economy model of an economy producing an industrial good in an oligopolistic manufacturing sector having excess capacity. The model implies a positive relation between economic growth and income distribution. Appending to the model the dynamics of changes in industrial structure, we have examined cumulative processes involving the interaction in growth, income distribution and monopoly power, and that has shown us how stagnation can be explained in the economy, and what kinds of policy changes can make the economy grow. We have also extended this model to consider government fiscal policy and foreign trade to show that the logic of the simple model does not change when these complications are introduced.

The main theoretical implications of this paper as follows. First, in economies with generalised excess capacity and market imperfections, a bad income distribution can be a cause of stagnation. Second, and as a corollary, economic growth and income distribution may not be conflicting goals in such economies. Policies such as attempts at reducing monopoly power may have positive effects on both economic growth and income distribution, while redistributive fiscal policies may foster growth as well as improve the distribution of income.

The model was constructed explicitly to depict the Indian economy and motivated by the desire to explain the tendencies to stagnation in the industrial sector of that economy. The above conclusions should nevertheless be applied with caution to that economy. What we have argued is that in the Indian economy an unequal distribution of income, due to a high degree of monopoly power, could be a cause of stagnation, even in the absence of other constraints such as those arising in the agricultural sector, or from the balance

[1]Constraints on F^* could imply constraints on the level of imported intermediates, and hence, constraints on Q. Treatment of this constraint would give us some sort of a two-gap theory, with the other constraint created by demand, not saving.

[2]Our regressions suggest that the price elasticity of exports for India may be as high as 0·4 to 0·5, and seems to be rising as exports are increasingly being diversified away from traditional exports.

of payments. If these other constraints are empirically important, and one can indeed argue that for the agricultural constraint, then the removal of the income distributional constraint would not *ipso facto* generate higher growth. However, we can conclude that the removal of the other constraints could still be consistent with 'stagnation' due to an unequal distribution of income.

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