CHAPTER III

MECHANICS OF INSTABILITY

A. Inflationary Process with One Consumer Good - Food

To start with we assume only one consumer good in the economy, i.e. food, and then introduce a manufactured consumer good, say, cloth. An overall imbalance in the first situation would mean a disparity between ex ante saving and investment. This gap is a measure of primary excess demand or excess expenditure.

In the Keynesian setting, the inflationary gap is identical with excess demand for consumer goods only. Though this will be the main concern here as well, later we shall also introduce an excess demand for resources or intermediate products to see what impact it has on inflation. The traditional 'gap' analysis attempts to explain inflation only in terms of an imbalance between planned consumption and consumption demand, assuming that the actual production of consumer goods will be the planned production. We can see what difference it makes to inflation if there is disparity between actual and planned production, instead of its arising between planned production and demand for production. We shall also consider the impact of price behaviour itself on the inflationary gap, an aspect ignored in the
Keynesian analysis.

Excess outlay in a particular market is only excess demand in the sense of quantity demanded in real terms multiplied by initial prices. With perfect competition assumed, we can define excess demand as "the difference between quantity demanded and quantity supplied at a given price." When there is no perfect competition, "excess demand would refer to the corresponding difference arising at the price chosen by the monopolist or monopsonist."  

'Excess demand' at monopoly price needs a little clarification. As Chamberlin points out, when a monopolist is in equilibrium at a certain price and output, there is bound to be a difference between the amount demanded and the amount he would like to supply at that price (as shown by the supply curve). Equality of such supply and demand is a feature of perfect competition only. But this difference is not what is relevant to us, for it cannot cause a price-change. In fact, in this instance the amount the monopolist would like to supply at the monopoly price is more than

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what is demanded. The excess demand relevant for a price rise is positive and is the difference between the amount demanded and the amount actually supplied at the monopoly price. And this would arise if the demand or the average revenue curve facing a monopolist shifts to the right, causing a disequilibrium at the original price. Excess demand in the context of inflationary gap is linked with the disequilibrium situation.

However, in the case of monopoly or oligopoly, prices are not so flexible as in perfect competition and do not readily react to changes in demand conditions, though they may readily react to changes in cost conditions. This aspect is quite important, and is reserved for a discussion at a later stage. To start with, we assume perfect competition and price flexibility in all markets, and subsequently introduce non-competitive pricing in some markets. The traditional 'gap' analysis assumes perfect flexibility and does not allow for non-competitive pricing at all.

With given relative prices and tastes, what determines consumer demand in a period is the income generated during that period. We shall assume normal period to start with i.e., people do not expect any rise in prices, even if excess demand or the inflationary gap was envisaged by planners. We also assume that whatever is produced in
period \( t \) is supplied, and that further increase in production in response to excess demand or prices is not possible in period \( t \) itself. With perfect competition and price-flexibility assumed, we can then say that excess demand will raise the price of the consumer good (here, food) as follows:

\[
(P_t - P_{t-1}) \text{ or } \frac{\Delta P}{\Delta t} = \frac{D_t - O_t}{O_t} \text{ or } \frac{\Delta D}{\Delta t} - \Delta O
\]

where \( P \) is the per unit price, \( D \) is outlay (quantity demanded \( x \) initial price) and \( O \) is output in terms of initial prices, \( t \) and \( t-1 \) referring to periods, so that \( D_t - O_t \) refers to excess demand (outlay) which is also equal to \( \Delta D - \Delta O \) (because we start from an equilibrium position with \( D_{t-1} = O_{t-1} \)). In the first instance, this is equal to the excess of investment outlay over ex ante savings. This rise in prices means that national money income will no longer be \( O_t \) but will rise by the magnitude of the excess outlay. The question now is whether the national money income once risen by the excess of investment over ex ante saving will stop there or continue, i.e., whether prices at this stage will have attained equilibrium. In fact, this seems to be the beginning and not the end of the story.

The increase in money income (or prices) constitutes an increase in payments or an additional income to producers.
(or sellers) of consumer goods. If they also proceeded to spend this income according to the assumed propensity to consume, then money income would rise ultimately by $D_t - O_t$, where $\alpha$ is propensity to consume. This, however, is still a finite process indicating that prices will stop rising when the multiplier process comes to an end. By then, compared to period $t-1$, the consumer goods prices will have risen, not by $D_t - O_t$ as in equation (1), but by $D_t - O_t / \alpha$. 

Taking several periods together also, we can see how an inflationary process develops and whether it is finite. Arthur Smithies' approach can help us here to start with.

3. For any given period, monetary $\alpha$ is assumed given and refer to both marginal and average value.

4. The total excess outlay on consumption would be $D_t - O_t / \alpha$, with $O_t$ unchanging.

\[ \Delta P = \frac{D_t - O_t}{\alpha} \]

So, \[ \Delta P = \frac{D_t - O_t}{\alpha} \cdot \frac{1 - \alpha}{O_t} = \frac{D_t - O_t}{O_t (1 - \alpha)} \]

We may take up what he calls as the Keynesian method. In

Diagram 1 here, money income (Ym) is measured horizontally and investment and saving are measured vertically. The initial position is where OA is national money income and both investment and saving are equal to 00. Planners then decide to invest OD, i.e., an amount greater than savings by OD or OB. If the planners decide to continue to invest the same proportion of investment to Ym as OD/OA in future also, then investment path can be shown by the line BO. This however, is unlikely; they may, in fact, decide to invest a higher and higher proportion of national income period after period. In such a case, the investment path may be shown as lying above BO; this line may be represented by BG. Its actual slope will depend upon at what rate the
proportion of investment is proposed to be stepped up.

How the inflationary process generated once by the gap between I and S, i.e. MB, would continue, will depend upon how the marginal propensity to save behaves. If we can draw a savings path also, an equilibrium will be attained at the point of intersection between investment and saving paths and the inflationary process would come to an end there. For this to occur, the slope of the savings path should be greater than the slope of the investment path. This means that at each successive period, the gap between planned investment and saving should go on decreasing. But if the slope of the saving path is less than that of the investment path, the inflationary process would continue indefinitely and the situation is explosive. In fact this is what happens if the same proportion of saving to national income as \( \frac{MB}{OA} \) continues in future, i.e. if the saving path is EF. With the saving path EF, however, the process is finite, and the equilibrium occurs when national money income is OK.

What are the chances of an equilibrium then? What factors will influence the savings path? The most important single factor is the nature of the consumer good for which excess consumer demand arises. Once an individual is accustomed to a certain consumption level, especially in
respect of basic necessities like food, he will strive to maintain it in real terms, even if real income falls. If the fall in real income is considerable, he may diminish it only a little. This is because there is no question of substitution between food and other commodities. Of course, if one type of food becomes costly relative to another type, he may prefer the latter and thus raise its price also. When prices of foodgrains rise as a whole, there is no question of preferring other goods. When the demand for a good is inelastic like this, the money outlay on it will rise and not fall when its prices rise. If we also note that a large proportion of income is spent on foodgrains, the significance of the above fact becomes all the more evident. The increase in the outlay on foodgrains may be at the expense of savings or consumption of other goods. But if the consumption of other goods is itself very limited, increased outlay on food will only be at the expense of savings. The result is that excess consumer demand gets enlarged further, and the inflationary gap widens.

We may take up an arithmatic example to illustrate the process described so far. Assume, the net value of total production in a period is Rs.100, which constitutes disposable income of the period. There is only one type of consumer good – foodgrains. Their production is worth Rs.70, and investment goods produced are worth Rs.30. Assume for
simplicity, that producers, labourers and sellers are all one and the same, in both consumer good and investment good sectors. Say, the propensity to consume (food) is .75, so that £.75 would go into the purchase of £.70 worth of foodgrains in terms of initial prices. The primary excess consumer demand is £.5 and the food prices rise to £.75. Let us ignore the possibility of investment goods being paid a corresponding rise in prices. We now find that at this stage £.25 are saved, whereas £.30 worth of investment goods are produced. However, now there is an increase in the money income of consumer-good producers by £.5, 75 per cent of which they proceed to spend and when this multiplier process will come to have an end, we find that in all £.90 will have been spent on consumption and £.30 are saved, so that equilibrium is achieved with the national money income rising to £.120, by the end of period t. The income of consumer good producer will have risen from £.70 to 90, with the income of investment goods producers unchanged at £.30. However, consumers find that their consumption plans were frustrated. Though they planned to consume £.75 worth of food, they will have consumed only £.70 worth, both in terms of initial prices. (Food producers plan to acquire food worth £.62.50 and investment

6. This is according to equation (2) above, given in the footnote 4.
goods producers plan to acquire Rs. 22.50 worth in initial prices. Though the consumption plans of food-producers will not be frustrated in real terms, they find that the value of their consumption goes up from Rs. 52.50 to Rs. 67.50 by period end. But investment goods producers will find that though they spend Rs. 22.50, they will have consumed only Rs. 17.50 worth in real terms with that money. It is the consumption plan of non-food producers which is frustrated. This is so, irrespective of whether we assume that entire food output is sold in the market and then purchased by both types of producers, or assume that only the marketable surplus i.e. Rs. 17.50 worth is sold in the market.

In period t+1, however, let us assume that they will try to maintain the consumption level to which they were accustomed to, and if possible increase it if income rises. To avoid complications, we assume that in period t+1 also, the same production-pattern is obtained in the same quantities in real terms. That is, Rs. 70 worth of food and Rs. 30 worth of investment goods are produced in terms of initial prices (prices ruling in the beginning of period t). However, because of price rise in period t, the food producers get Rs. 90 and investment goods producers continue to get Rs. 30. To stick to their consumption plans now, food
producers will have to spend $67.50 and investment goods
producers have to spend $88.93. Together, they spend
$98.43 and save $83.57. This means that the primary
excess demand or the initial inflationary gap for period
t+1 is $6.43; as compared to $5 in period t. The
propensity to consume now is .804, compared to .75 of
period t. As a result, prices in period t+1 should rise
higher than in period t. The tendency is aggravating and
the process is not equilibrating.

B. Aggravating and Limiting Factors

There are factors which aggravate this tendency
further and also factors which limit it. We may note
them now, taking the former factors first. If population
increases, per capita consumption must fall, given the
production. If original per capita consumption level is
tried to be maintained, excess demand should increase
still further. This factor is particularly significant
in respect of food consumption.

The second aggravating factor is the problem of
marketable surplus, which arises in the case of consumer
goods, particularly food production. Here producers of

7. See Footnote 9 in Chapter II.
these goods are in a position to consume part of their produce directly, without going to the market. The factors employed in other sectors will have to consume only what is left out of the consumption of consumer goods producers, and this is the marketable surplus. This is a serious problem in food economy, again because of the high propensity to consume food. However, as we have already noted, the mere introduction of the fact that a part of the food produced is consumed at the source according to a fixed consumption plan does not alter the picture. What alters the picture and gives rise to the problem of marketable surplus is that when a transfer of population takes place from the food producing industry, i.e. agriculture to the investment sector, corresponding increase in the marketable surplus need not take place. This is because a transfer of some population from agriculture increases per capita income there and with it, the demand for food. This factor is already familiar to us and need not detain us. Any way, the result is that it adds to excess demand still further and strengthens the tendency of prices to rise. Existing models, however, assume as if it is only this transfer which causes the problem of prices. No doubt, the transfer aggravates the problem; but the basic problem of excess demand for food can exist even in the absence of such a transfer.
Thirdly, the rise in the income of food producers. To take up our arithmetic example again, farmers' money income will have risen from Rs. 70 to Rs. 90. Their consumption in real terms remaining the same (though its money value rises from Rs. 52.50 to Rs. 67.50), their actual (ex post) savings will have risen to Rs. 22.50 from their planned Rs. 17.50. If their need for savings is fixed in money terms at Rs. 17.50, either because their monetary obligations are fixed or because the prices of non-food items (here, investment goods) they need have not risen, then they may as well like to spend not Rs. 67.50 in period t+1, but Rs. 72.50, thus increasing the excess demand still further.

Expectations also act as a very important aggravating factor. Knowing the experience of period t, if they expect a similar price-rise in period t+1, and try to purchase more goods before their prices rise, expectation of a price-rise would itself cause a price-rise. The limiting factors here are income and perishability of goods.

Now we may note the limiting factors. Obviously, an increase in the production of consumer goods (here, food) in period t+1 will check the process. If investment in period t was directed at increasing food production in period t+1, any inflationary tendency created in period t should be scotched in period t+1. Higher prices in period t
could themselves have acted as stimulants for further production in period \( t - 1 \), or even thereafter. If the farmers do not increase their consumption, and spend the increased savings on increasing inputs on farms, it should diminish excess demand on both counts - by restricting consumption at the original levels and by increased production. How far the farmers behave in this way in response to higher prices, and under what circumstances, is a major question and is better tackled separately in a subsequent chapter. We may note, however, that there are structural problems in the way of increased agricultural production in underdeveloped countries which prevent a speedy adjustment of supply to demand. Economists who emphasise this aspect call the inflation peculiar to several underdeveloped economies as structural.

Even taking the production or supply as unchanged, the most important factor that checks excess demand is

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the income in the non-food (here, investment) sector itself. Income acts as a ceiling, and unless increased, it limits the consumption of individuals, however much they may try to maintain the level of consumption they were accustomed to. Once the prices rise they will find that their income is no longer sufficient to enjoy their usual consumption. If their savings also cannot go down a certain level, say, because some deductions in the form of contributions to provident fund etc. are made at the source, the effective ceiling for consumption would be lowered still further.

To the extent (in volume and in speed) to which the incomes are raised in the non-food sector, this ceiling will be raised and there will be scope for further increase in excess demand.

The third important check is the nature of redistribution of incomes. The more the incremental flows of national income go into the hands of richer classes, the less likely is the increase in excess demand. Two situations are especially relevant here. If the marketable surplus is coming from many small-size farmers, an increase in their incomes is quite likely to increase their demand for consumption at the source. But if the marketable surplus is coming mainly from a few large holdings, an increase in their income is not likely to have an adverse effect on the marketable surplus. The second situation
refers to the existence of intermediaries - the trading class, which so far we ignored. If it is the traders who benefit from price increases, increase in their incomes need not lead to perceptible increase in the demand for foodgrains for consumption. However, their role in increasing prices comes in the form of speculative holding back of supplies. And this they can do to a larger extent than farmers because of their superior financial strength.

The arithmetic model above was worked out on the assumption that consumption of foodgrains will be maintained in real terms, inspite of the price-rise. This assumption of zero price-elasticity of demand for foodgrains is, however, an extreme and it is quite likely that its value may range between a little above zero to a little less than one, though not equal to one, and certainly not more than one. To the extent that price-elasticity of demand is above zero, the consumption expenditure calculated in our example for period t+1, should be toned down. Nevertheless, so long as the price-elasticity of demand is less than one, expenditure would increase with a price-rise, and this inflates excess demand and the process is still aggravating though it may not be of the same degree as in the
C. Inflationary Process with More than One Consumer Good

So far we assumed there is only one consumer good - foodgrains. We may relax this assumption now and introduce another consumer good, say, cloth. Several hypothetical situations could be imagined. Of these three can be considered as interesting. One is where there is excess demand for foodgrains and not cloth, and the savings-investment gap is equal to the primary excess demand for food. The second situation is where there is no excess demand for food, but cloth is in excess demand and the savings-investment gap is equal to it. The third is where there is no overall savings-investment gap, but there is excess demand for food matched by negative excess demand for cloth.

9. For a given price rise, we can calculate the money spent on foodgrains at different values of price-elasticity of demand, while taking into account increase in demand following increased incomes. Let prices of foodgrains and pulses increase \( \beta \) times its initial value. Let price elasticity of demand for foodgrains be \( \epsilon \). Then the demand for foodgrains at the increased prices on certain usual assumptions will be \((1-\beta \epsilon)\) times the previous demand. Then the expenditure on foodgrains will be \((1+\beta) (1-\beta \epsilon)\) of the previous expenditure....Again if income had increased \( \alpha \) times, and income elasticity be \( \eta \), the expenditure on foodgrains and pulses will be \((1+\alpha \beta) (1+\epsilon)(1-\beta \epsilon)\)...

for (or excess supply of) cloth. While considering these, we should continue to assume price-flexibility both ways at present.

In terms of the model above what is interesting is not the extent of price-rise in period t itself, but the change in overall or aggregate consumer-demand and hence in savings following the changes in price levels - absolute and also relative. We have seen above how aggregate consumer demand is affected by a change in food prices. This could be so even if we introduce more than one good into the picture. If the increase in outlay on one good following a change in relative prices is exactly offset by a decrease in the outlay on another good, there would be no change in aggregate consumer demand. That is, "if the slope (in terms of relative price) of the demand curve for one commodity is exactly the same as the price-slope of the other demand curve, there will be no effect. But if these slopes are unequal, then even at a given level of income, more or less will be demanded than before...."

In the first hypothetical situation mentioned above, viz., excess demand for food but not for cloth, we can, for

analytical purposes, conceive of two phases of price-rise, in period t when propensity to consume (monetary) is unchanged, and in period t+1, when it changes. In period t, the primary excess demand for food will naturally go into the hands of food producers and will produce an increase in income through the multiplier process, part of which goes for food and part for cloth also, depending on the respective propensities to consume. Since the propensity to consume food must be higher, the rise in food prices will be greater than that in cloth prices. Nevertheless, cloth prices are also likely to rise to the extent food producers spend a part of their income on cloth. What is important is period t+1, when adjustments take place arising out of frustrations in consumption plans in period t. And this adjustment will be on three dimensions now—food, cloth, and savings. A price-inelastic demand for food will mean a greater outlay on it than before, necessitating a cut either in cloth-consumption or savings. The problem is whether the primary inflationary gap of period t+1 is greater than that of period t. If the greater outlay on food (to maintain planned real consumption) comes only at the expense of savings, this gap is bound to be greater in period t+1, and this situation is just like the previous one with only one consumer commodity. But if cloth consumption is cut, this overall gap (investment minus saving) must be reduced. If
the increase in the outlay on food is matched by a corresponding decrease in the outlay on cloth, the initial inflationary gap in period \( t+1 \) will be the same as in period \( t \). What is likely in practice is that both the consumption of cloth and saving will be reduced a little, instead of the out being concentrated on only one item. It is, therefore, quite likely for the primary inflationary gap in period \( t+1 \) to be greater than the same during the period \( t \).

The important question, however, is whether a smaller inflationary gap in period \( t+1 \) would mean that the process is towards equilibrium, especially in a situation as the one above. One can therefore, consider the third hypothetical situation, viz. excess demand for food matched by excess supply of cloth, there being no overall inflationary gap. Food prices will have risen and cloth prices will have fallen in period \( t \), though aggregate monetary income in the economy may remain unchanged due to the increase in the income of food producers matched by the decrease in the income of cloth producers. What will happen in period \( t+1 \) ? We may again assume that the same pattern and volume of production continue in that period as in \( t \). Food being a necessity, the outlay on it will increase in \( t+1 \), which might be at the expense of their savings or cloth, or both. The result is that either an overall inflationary gap develops, which was absent in period \( t \), or the same
situation as in \( t \) will develop with this important difference that, excess demand for food and excess supply of cloth will both be of a larger magnitude. The process is, again, dis-equilibrating.

We come now to the second hypothetical situation listed above, namely, excess demand for cloth only and not for food, the inflationary gap being equal to it. Cloth prices, of course, will rise in period \( t \) but what is important, the demand for cloth being more elastic, less quantity will be demanded in period \( t+1 \) than in \( t \). If the elasticity is greater than unity, outlay also will fall and the inflationary gap tends to get reduced. The process does not involve an increasing magnitude of excess demand over time and the tendency is towards equilibrium, unlike in the case of food.

The upshot of this discussion is that even if we consider only excess demand for commodities and not for factors, the excess demand for food emerges as the most destabilizing factor. It increases the magnitude of overall gap or it can create imbalances in markets for other commodities, creating gluts there, or both. The gluts in markets for manufactured goods could be very detrimental to developmental effort, as they serve as disincentives to investment in the production of these goods and also to production of machinery and other capital goods needed to
manufacture these goods. Even if it does not cause gluts in other markets, it progressively reduces savings and this creates an explosive inflationary process over time, which makes further capital formation more and more difficult.

D. Effect of a Shortfall in Planned Production

We assumed so far that whatever was planned to produce is actually produced, so that if excess demand arises, it is because the planned production fell short of expected demand for commodities. But it is quite possible that actual production fell short of planned production and excess demand that emerges might be due to this factor rather than because of inadequacy of planned production. This can happen for two reasons. The capital-output ratio itself might have been underestimated; proper administration machinery, adequate utilisation of technical know-how, willingness to work hard or proper organisation may be lacking and the total outlay made may produce something less than planned. Another reason is that availability of resources required for the production plans might have been overestimated, so that excess demand for resources emerges.

In the first case, no higher monetary outlay is involved in period t and the excess demand which emerges
is equal to the difference between the value of production in terms of initial prices and the outlay on them (for purchase) which itself has not changed. Factors have not received an increased income and therefore there are no multiplier effects, as in the case of a planned excess demand described earlier. So price rise in period $t$ in this instance might be expected to be lower: $\Delta P = \frac{Dt-Qt}{Ot}$, than in the case where excess demand is planned $\Delta P = \frac{Dt-Qt}{Ot(1-\alpha)}$, assuming that initial excess demand in both the cases is of the same size. In period $t+1$, however, there will be adjustments in outlay following frustrations in consumption plans.

In the second case where excess demand for resources emerges, due to a shortfall in the availability of factors, we can conceive of two situations. In case the money outlay for the purchase of factors is fixed, though there will be an excess demand for resources causing their prices to rise, there will be no increase in aggregate incomes of all factors. The same outlay is distributed among smaller number of resources—owners or factors. Thus there will be no further multiplier effects as in the case of planned excess demand. If, however, purchase plans of factors or resources are in real terms and an increased outlay is made hoping to acquire more of them, a net increase in
aggregate income occurs leading to multiplier effects. In this case, excess demand gets inflated.

It is obvious that if in addition to actual production falling short of planned production, the planned production itself was short of expected demand, the prices should rise all the more on both the counts.

E. Role of Imperfect Market Conditions

So far we assumed perfect competition and hence perfect flexibility of prices; the response of prices to excess demand is immediate and full. This state of affairs, however, is not likely to be found except in the case of foodgrains and agricultural raw materials, where conditions for the existence of perfect competition are present to a large extent. Both the number of producers (sellers) and that of buyers are large and the product is homogeneous in these markets.

In the markets for manufactured goods, however, prices do not rise just because demand increases, and, therefore,

11. One may admit of different varieties of a product, e.g., rice, and prices may differ for each variety. Nevertheless, this is not Chamberlinian product-differentiation, where the differences (mostly imaginary) are created by producers themselves in the minds of consumers through advertisement.
they are treated as inflexible to demand. This is so with respect to factor-markets also, especially that for labour. These markets are not perfectly competitive, but monopolistic or oligopolistic. The sellers may allow orders to accumulate and may ration out the supply among queuing purchasers, even though a price rise could have cleared the market and maximised profits in the short run. Since a monopolist is interested in maintaining or strengthening his monopoly, the assumption of short-run maximisation of profits will not be realistic. Baumol sets out an interesting hypothesis with regard to oligopolistic industry. The firm here is primarily interested in the total volume of its sales, as it is the size of firm or sales that determines the power of monopoly or oligopoly, rather than minor fluctuations in short-run profits. Short-run price adjustments may be detrimental to long-run demand for the firm's products. As Ball says, 'traditional theories of imperfect competition are one-sided in so far as they focus attention on the end of instantaneous profit-maximisation, with given cost and demand conditions. The static nature of such theories leads to an over-emphasis of the role of price-adaptations to market conditions and a conceptual divorce between the

problems of price-fixing, output expansion and investment. We can reasonably expect the firm to meet excess demand through a change in output rather than in prices, in the short-run. This does not rule out any price change in response to excess demand; there will be flexibility in the long run.

If there is no short-run flexibility of prices to an increase in demand, this is all the more so when there is a fall in demand. Stocks accumulate for some time and if the situation continues capacity will be worked below normal, but prices will not be adjusted downwards. One reason for the preference for stock-accumulation rather than for market-clearance is that entrepreneurs think that things will improve later; if the prices are reduced it might be difficult to raise them when demand improves. Since a majority of manufactured goods are not perishable, waiting is possible also. If the decline in demand tends

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14. Even if increased prices are not supposed to affect long run demand, there may be hesitations to do so. This may be due to fear of organised consumer resistance, fear of being branded anti-social or of unpopularity and consequently of state-intervention.

15. E.J.Ball has given an analysis of dynamic equilibrium of price-level, op. cit. pp.102-120.
to stay, production itself will be reduced. Thus the response is through production, rather than prices.

Though, in the short run, prices are not flexible to demand conditions, they move in line with costs. The assumption is that businessmen administer or set the prices on the basis of a pre-established mark up or margin over material and labour costs. It is the attempt to maintain the level of profits or returns on investment which pushes the prices up. The same force operates in the determination of wage-levels. When the cost of labour supply, i.e. cost of living rises, labour attempts to maintain its level of real income and hence wages go up. Owing to these phases, cost-inflation has also been called the income-inflation. We speak of these pushes when they result, not from the existence of excess demand, but from the factors that affect the cost of supply.

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It does not mean that these pushes can be exercised in all kinds of conditions in the manufactured sector. One may note the micro-requisites for the operation of these pushes. First of all, only non-competitive market conditions can permit these. 'The demand for labour as a whole or for same type of labour must be less than perfectly elastic'. The demand for products also must be less than perfectly elastic. On the supply side, labour as well as management 'must be able and willing to shift the supply functions upward despite unchanging demand'.

Though individual labour is dispensable, organised labour is not. Thus, organised labour is a fundamental pre-requisite for wage-push. But even organised labour may not be able to raise wages, if the demand for the product is highly elastic. However, such a situation would apply to an individual entrepreneur's product in a competitive industry and not to the demand for the product of the industry as a whole, even if this industry is competitive one. The demand for products need not fall following price rises especially in the case of heavy industries etc. which form part of planned investment programmes. Production of

capital goods may be targeted in the plan in real terms and increased prices may not deter their production. Such a demand position would not only make wage-push possible, it also reduces the resistance to it.

Higher wage-claims can be made under three conditions: when the cost of supply of labour i.e. cost of living is rising, when the relative wage-structure is disturbed, i.e. when wages in other industries are increased, say, due to higher productivity there, and lastly when productivity or profits in the industry concerned itself rise. Under the last condition, not only that the wage-claims may be easily conceded, prices of the product concerned also need not rise as a result. But increased wages here could easily lead to increased wages elsewhere, even if productivity has not increased there. Increase in cost of living, however, appears to be the most important reason behind wage-claims, in a country where ambitious development schemes are undertaken with food production lagging behind demand.

We have, therefore, what is known as the price-wage spiral. Of course, wages need not be increased to the full extent of increase in cost of living, and also wages need not immediately follow any rise in cost of living. There is likely to be a lag on both the counts and to the extent these lags prevail, the speed of inflation will be checked.
It is observed that even in countries governed by the escalator clause, wages are adjusted only when prices rise by some minimum amount which in some cases is as high as 10 per cent, and moreover the adjustment is not full but partial to the change in cost of living. This, however, should cause no complacency, as higher the rate of price-rise, shorter will be the lags. 'Once prices have started rising rapidly there is a tendency for the lags to shorten and the whole process to speed up.'

It is often suggested that in cases where wage-increases are granted following productivity-increases, or at least if productivity increases following an increase in wages, inflation need not ensue. This is presumably because the prices of products, in producing which wages are raised, need not increase. To the extent this product formed part of inputs for another product, a link in the chain of cost-push inflation is broken. But the effect of increase in wages on demand for wage-goods cannot be ignored. Even if productivity has increased in non-food sectors and the


prices there do not rise for the moment as a result of wages-increase, it can very well lead to rise in food prices which would again unleash wage-pressure in non-food industries. Wage push is then bound to overtake increasing productivity.

E. Inflationary Process with Imperfect Competition in Non-food Sector

We can now see whether the inflationary process would be destabilizing one and endless when we take the above factors into account. We had observed earlier that taking demand-pull forces alone, the inflationary process would be destabilizing one, if it is the food sector which is affected by excess demand. We shall revert to our arithmetic model to assess the influence of these new factors on savings gap.

21. It is worthwhile to refer to Sidney Weintraub's thesis here. Though he explains inflation in terms of a disparity between movements in money wage incomes and labour productivity, where he comes to the explanation of sectoral price levels he makes price level of consumer goods dependent upon money wage-level in the economy as a whole, consumption outlay of non-wage earning groups, average labour productivity in the consumption goods sector and the ratio of total employment to consumer goods employment. What is, therefore, more important is not whether productivity has increased in the sector where wages have increased, but whether productivity has increased in that sector demand for whose product has increased. Cf. "Growth without Inflation", National Council of Applied Economic Research, New Delhi, 1965.
Assume two sectors only - food and investment goods. We shall assume that as a result of rise in food prices during period t, the incomes of employers in investment goods sector are raised during period t+1. If they were to be raised during t itself, there is no question of any equilibrium even during t and the prices will rise very speedily and limitlessly. When wages are raised in this sector, the profit margin is also assumed to be raised to that extent, so that the same mark-up (at percentage rate of costs) obtains. Assume either that there are no costs except wages, or that other costs also rise to the same extent as food prices.

Assume as before that value of food grains production at the beginning of t is 70 and of investment goods produced 30. But propensity to consume is .8 and the primary gap is 10. This leads to a total increase of money incomes in the hands of food producers by 50, i.e. value of food production rises from 70 to 120 by the end of period t. If the same level of production continues in period t+1 in real terms, and if no income-raise is granted to investment goods employees, the food producers spend 96 on food consumption (66 in prices ruling at the beginning of t). The investment good producers would like to spend 51.13 to compensate for their frustration in consumption (i.e. they aim at consuming 24 worth of food in terms of prices.
ruling at the beginning of $t$), but their income continuing at $30$, they can only spend $30$ and no more. Assuming that they spend $30$, the primary gap for $t+1$ is $6$, i.e., $4$ less than in $t$, and this is because of income-ceiling in investment goods sector. As a result of cost-push factors, this ceiling is now removed. Just as food producers' income rises from $70$ to $120$, income of investment good producers would now rise from $30$ to $51.43$. To maintain their consumption plans, they would both spend $137.14$, whereas the value of food grains at the beginning of $t+1$ is only $120$. Compared to period $t$, the primary gap now is bigger by $7.14$ and, compared to the primary gap of $t+1$ that would have prevailed in the absence of cost-push, it is bigger by $11.14$.

It would be interesting to observe what would have been the effect on the gap, if the income of employees in investment goods producers was sufficiently high even in the absence of an income-rise to allow for a consumption-outlay which they would think is enough to realise their real consumption plan. This case would arise, for example, if propensity to consume is $0.7$ as assumed earlier, and not $0.8$ as here. Then they would like to spend $28.93$ and food producers spend $67.50$. If the investment goods producers' incomes are raised from $30$ to $38.57$ i.e. to the same extent as rise from $70$ to $90$ in the case of food producers, the
picture need not be different at all provided they stick to their consumption plans. The difference would come only in respect of total money income and savings during t+1. Instead of the former being 120, it is now 128.57; and, instead of savings being 23.57, they would now be 32.14. But, there is no difference in respect of savings gap (8.43) which is the same in the absence of cost-push as in its presence. Nevertheless, this gap itself is greater in period t+1 than in period t, though the increase is not caused by the cost-push as such in this instance.

We have to admit of another serious possibility, raised by Milton Friedman. The situation thus far analysed is that costs in investment goods sectors increase to the same extent as the rise in food prices (may be, with a lag) and the prices of the former goods also increase to the same extent as food prices. This enables the entrepreneurs to realise the same percentage of profits on the costs as before, but this percentage may not be the same as the per cent increase in food prices. That is, profits in the investment goods sector may turn out to be less than in the food sector. Investment goods producers may demand higher prices for themselves not only to counter cost-push but to maintain

or increase relative profitability. If such prices are not paid, they may take to the production of consumer goods (or trade therein) in the next period. Even if investment goods are produced by the government itself, they may offer higher prices to resources to attract them or dissuade them from moving out. Such a possibility makes the inflationary process all the more explosive. The explosive character is, however, reduced by lags in the payments of higher prices to investment goods sector and also if the recipients of higher profits have a propensity to consume which is less than the community average.

Thus we see, taking several periods together, that the primary gap tends to increase from period to period. A mere revaluation of consumer goods in a given period does not, therefore, mean that an equilibrium is reached. The prices would come to an end only "when those who have no power to change their incomes (say, rentiers) are sufficiently 'expropriated' through rising prices to satisfy the demands of other groups; through money illusion; or in general when the course of inflation has caused sufficient reduction in employment or in real expenditures that the power to make excess income claims ceases." 24

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The picture need not be so ominous if the source of initial price rise was not in the food sector. This was the case when we took only demand-pull under consideration. And this is more so if we take cost-push into consideration. First of all, under imperfect competitive conditions which are the most likely to obtain for non-agricultural products, excess demand need not result in a price rise. And even if prices rise in these sectors for some reason, they do not affect the cost of living so greatly as food prices and therefore do not affect wages greatly. The only pressure for wage-increase will come from a disturbance in relative wage structure, and this is not so important a source of wage increases as rising cost of living. Moreover, in such cases, there is incentive to reduce costs by increasing productivity. It is an increase in productivity in some sector which makes possible a wage-rise in that sector and which disturbs relative wage-structure, so that other sectors also will be compelled to increase their productivity.

But wage-rises following increased cost of living offer no such incentives. Non-food consumer goods, especially, may be facing a decline in demand or at least a decline in the rate of growth of demand following rise in food prices (due to aforementioned reasons) and they have at the same time to face increased wage-costs. With the existing
employment, they may not find it worthwhile to improve productivity for two reasons: low demand for their products and also their awareness of the fact that they are in for a difficult race between mounting wage-claims and productivity - a race where the former leads, as it is continuously propped by increasing cost of living. In such a situation, the producers would curtail production and try to increase productivity per man mainly by labour-replacement. The demand for capital goods for expansion purposes might fall, and whatever demand is felt may be mainly for labour-replacement. But if such replacement is not possible or permissible, the producers may even close down.

It is not necessary at this stage to indulge in detail in the controversy of whether inflation is inimical to development or helpful. Our analysis clearly shows that the type of inflationary process obtaining in developing countries, which is described here, adversely affects development in two ways - it progressively increases the savings gap by reducing the desire and power to save and also it reduces the demand for and the cost of the products of other sectors, dampening the investment climate there, which should not happen in a growing economy. Other adverse effects can also be mentioned. Incentive to save will further suffer because people expect that the value of
money deteriorates; private investment will go into specula-
tive channels rather than for genuine capital formation;
and if the inflation proceeds very far, there will be a
crisis of confidence in the monetary and financial system
of the country.*

25. For a discussion, see E.M. Bernstein and I.G. Patel,
"Inflation in Relation to Economic Development", I.M.F.,
Staff Papers, Nov. 1952, reprinted in Bernard Okun &
Richard Richardson (ed). 'Studies in Economic Development'