Relative Prices and Development Programmes(*)

SUMMARY. I. *Variations in Productivity, Prices and Incomes in the Long Run*. 1. Relative prices and productivity. 2. Alternative economic consequences of the increase in physical productivity. 3. Wages and productivity. II. *Consequences of Variations in Relative Prices in the Short Run*. 1. The elements constituting the total unit cost of the industrial firm. 2. Variations in relative prices and in income distribution. 3. The " waste " of the increase in productivity. (a) Increase of the relative prices of agricultural products. (b) Increase of commercial margins. (c) Increase of the relative prices of raw materials. III. *Application of the Analysis to the Italian Economy*. 1. Real wages and productivity in industry; the " waste " of the increase in productivity. 2. The relative prices of agricultural products; Ricardo's thesis and the Italian economic situation. 3. Commercial margins. 4. The relative prices of raw materials; the case of the textile industry. IV. *Conclusions*.

The aggregative approach, as used by Keynes and his followers, has undoubtedly made possible considerable progress in bringing economic theory more into line with the requirements of economic policy. It is coming to be more and more widely recognised, however, that the approach suffers from serious limitations (1). The Keynesian aggregates are expressed in terms of a general average of prices (or wages). What appears, therefore, is the *level*, not the *system* of prices; not relative prices and still less variations in these prices.

In the development programmes now being worked out in an increasing number of countries, the Keynesian aggregates are the fundamental decision variables. These are measured by using the price level for a certain base year. This procedure, however, overlooks the question of the consequences for economic development of variations in that level and, even more important, in relative

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(1) *Cf.* J. A. SCHUMPETER, " Business Cycles " (McGraw-Hill, New York, 1949), p. 144; and, more recently, for a discussion of the problems relating to economic policy, G. U. PAPI, " Statistica e macroeconomia ", in the volume *Studi keynesiani*, Istituto di economia e finanza della Facoltà giuridica di Roma (Giuffrè, Milano, 1953), pp. 353-384.

prices. These issues are disposed of with a vague reference to "appropriate" policies (such as fiscal, international trade, wage and, indeed, price policies) without specifying them. *It follows that State action bearing directly or indirectly on prices, and especially on relative prices, is left in the air without any orientation in the light of rational principles and is decided on, case by case, by rule of thumb methods — not infrequently with unfavourable effects on economic development itself.*

The present article deals with the problem of relative prices from the perspective of a policy designed to foster the growth of national income. We shall examine variations in income distribution, not in relation to their influence on the immediate welfare of various social groups, but only as they affect the growth in total income. We shall refer to an expanding economy in which, however, there is a substantial amount of unemployment, as is the case with the Italian economy at the present time. An analysis of this type of economy brings out the serious limitations of the Keynesian aggregates. The use of a single average for prices (or wages) will be shown to be particularly unsatisfactory. It is not a question of dropping the aggregative method or the use of general indices in order to concentrate on individual firms or consumers. It is a question of making this method suitable to the study of the problems of a developing economy; to reduce the degree of aggregation by selecting sufficiently homogeneous sectors of the economy and then to study the terms of trade (average relative prices) between these sectors. The analysis should be based on individual firms whenever possible or desirable.

In the first section we shall consider the relations between prices, incomes, and productivity with reference to the long run on the basis of certain simplifying assumptions. These assumptions will be dropped in the second section, where we shall consider the variations in relative prices mainly with respect to the short run. The analytical problem, unifying the entire discussion, concerns the allocation of an increase in productivity in a developing economy. We purport to show how variations in relative prices affect the increase in productivity, and to show, in particular, when this increase, in its turn, is a factor stimulating development — or helping to foster subsequent development — and when it is, economically speaking, sterile, i.e. when it "runs to waste". This is our basic problem.

I.

Variations in Productivity, Prices and Incomes in the Long Run

1. *Relative prices and productivity.* One of the main reasons for variations of relative prices is the fact that productivity (by which, following the general usage, I mean the physical productivity of labour) (2) does not increase at the same rate in different productive activities: in some of these it increases at a relatively high rate, in others, at a relatively low rate, in still others it does not increase at all or even decreases. This necessarily brings about variations in the price and income system.

Before considering such variations and their consequences on development, we must examine briefly the factors determining the increase in productivity. Generally speaking, this increase depends on innovations and on improvements in productive methods. The new methods may not imply additional investments in fixed capital. They may simply consist of more efficient systems of organization or of more rational combinations of the factors of production. Opportunities of this kind exist especially in agriculture and above all in the agriculture of backward economies; but in industry itself they are more common than is usually believed. In industry, however, the new methods imply, as a rule, additional fixed investments, which are embodied in machines, new or improved.

Fundamentally, new machines may be introduced for two reasons. 1) An increase in wage rates may make it advantageous to introduce machines already on the market. In this case the entrepreneur is trying to reduce to the previous level the cost of labour per unit of output (the ratio between hourly wage rates and hourly productivity) which had increased owing to the increase in the wage rates. 2) On the other hand, even if wage rates remain unchanged, it can be advantageous to introduce new machines which

(2) Alternatively, productivity may be expressed either in terms of invested capital (measured in money units with constant purchasing power or in physical units, such as horse power or kilowatts), or else in terms of labour *and* of capital (*cf.* J. W. KENDRICK, "Productivity Trends: Capital and Labor", *Review of Economics and Statistics*, May, 1956, pp. 248-257). The denifition used here — physical productivity in terms of man-hours — is rigorously determined only if it refers to a firm producing a single product; it becomes problematic if it refers to an "industry"; it becomes extremely problematic if it refers to a complex of industries. See below section II, par. 1 and section III, par. 1.

are more efficient than those already employed. As a matter of fact, the machine producing firms continuously try to improve their models and to create new ones. In the first case we can speak of an "induced mechanization" — induced by the increase of wages; in the second, of an "autonomous mechanization" — fostered by technical progress and advantageous at prevailing wage rates.

There is a special case of "induced mechanization". During a period of inflation or of inflationary pressure, firms may find it expedient, in view of the progressive diminution of the real burden of debts, to borrow at long term, in order to buy machines, more than they would in periods of stable prices. In addition, firms tend to invest their growing money profits in durable goods and particularly in machines (3). In such a case, mechanization is induced by the inflationary process.

If, in a firm, new machines are *added* to those already employed, the fixed cost increases. If new machines are introduced *in substitution* for those which are gradually wearing out and which should be replaced anyhow, the fixed cost does not necessarily increase, it may even diminish. This second case is quite common. The opportunities for such substitutions are created by the very firms producing machines; their models are being perfected constantly.

Empirical enquiries have shown that there is a high correlation in most industries between increases in production and increases in productivity. In other words, in those industries where production increases at a relatively high rate productivity also tends to increase at a rate decidedly higher than the average (4). This is understandable; in order to expand production, firms enlarge their plants and buy new machines; therefore, they have greater opportunities to introduce machines which are better and more efficient than those already functioning.

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(3) *Cfr.* C. Bresciani-Turroni, "Le vicende del marco tedesco", *Annali di economia*, 1931, No. 1-2, pp. 235-255 and especially pp. 496-503. There is an English edition of this work, enlarged and entirely revised, published under the title: "The Economics of Inflation" (Allen and Unwin, London, 1937).

(4) *Cf.* W. S. Woytinsky and Associates, "Employment and Wages in the United States" (The 20th Century Fund, New York, 1953), pp. 73-75; A. Rinaldi e G. Sacco, "Alcuni indici di produttività nell'economia italiana", *Produttività*, No. 4, 1954, pp. 382-387; A. Madison, "Output, Employment and Productivity in British Manufacturing in the Last Half Century", *Bulletin of the Oxford University Institute of Statistics*, No. 4, 1955, p. 383.

2. *Alternative economic consequences of the increase in physical productivity.* In a first approximation and with reference to the long run, the increase in productivity may lead: 1) to lower prices, at constant money incomes; 2) to higher money incomes, at constant prices (for the sake of simplicity, we will consider only profits and wages and suppose that both of them increase in proportion to productivity); 3) partly to lower prices, partly to higher money incomes.

In the first case, although money incomes remain constant, real incomes increase with the diminution of prices of consumers' goods for which those incomes are expended. In the second case, real incomes increase *pari passu* with money incomes, prices being constant. Finally, in the third case, real incomes increase owing partly to the diminution of prices and partly to the increase in money incomes.

Which of these mechanisms is the most convenient from the social point of view? Which one is most suitable to promote economic development?

Let us suppose for the moment that it is possible to choose freely among these mechanisms.

The first is described by the classical economists; it assumes that competition operates in all or in most markets. *In favour* of this mechanism there are several considerations. The increase in productivity brings about directly and indirectly a diminution of costs. When certain technical coefficients are reduced owing to innovations, costs decrease even if the prices of the factors of production remain constant. But costs may also decrease in non-innovating industries, owing to a diminution in the prices of the factors, the technical coefficients remaining unchanged. In the first case the direct cause of the diminution of costs is an improvement in productive methods. In the second, the diminution of costs is determined by the diminution in the prices of the factors. Now, if the first mechanism operates (decreasing prices, constant incomes) and if the decreasing prices are those of instrumental goods, employed by broad categories of firms, *the reduction of costs determined by technical progress is not confined to those sectors in which it takes place, but spreads into many other sectors. All the firms which do not change their methods but employ as factors of production those goods the prices of which decrease benefit indirectly*

from that reduction (5). The process of diffusion is particularly important for medium-sized and small firms which, through the induced reductions of costs, obtain higher total profits and are thus able to self-finance their own development (6). It is also important, generally speaking, for firms engaged in productive activities where the reduction of costs determined by technological innovations is relatively infrequent. (Agriculture is among these activities).

Against the first mechanism there is the question of the indebtedness of the firms. *General* increases of productivity bring about a *general* fall in prices; such a fall increases the real burden of debts of the firms and in this way it discourages the growth of production.

In favour of the second mechanism (constant prices, increasing incomes) one could point out the fact that the problems just mentioned do not arise.

Against the second mechanism we must point out, in the first place, the absence of the process of diffusion of cost reductions. In the second place, there is the very important fact that productivity does not increase at the same rate in different firms nor (even less) in different industries. The increase of incomes (wages and profits) in proportion to productivity gives rise in the long run to untenable situations, since productivity, in certain industries, increases at a very high rate. In particular, a given increase in wages taking place in the most progressive industries tends to push upward wages in all industries, even in those in which productivity grows at a rate too low to compensate for that increase. In these industries costs go up and productive development slows down.

It has therefore been maintained that the most advantageous mechanism is the third one (7). Money incomes increase in proportion to the *average* increase of productivity while the price *level* remains approximately stable; *individual* prices fall in those markets where productivity increases more than the average and rise in those markets where productivity increases less than the average.

(5) *Cf.* the present writer's monograph: "Oligopolio e progresso tecnico" (Giuffrè, Milano, 1957), part II, ch. II, par. 3-5.

(6) In a competitive market the higher profits can last only for a limited period. But if the technological reductions of costs are frequent, the whole process repeats itself, though at intervals.

(7) For example, see J. C. Davis and T. K. Hitch, "Wages and Productivity", *Review of Economics and Statistics*, November 1949, pp. 292-298.

This mechanism would avoid the difficulties inherent in the second one and would seem to combine, to a certain extent, the advantages of the first and second mechanism. If, however, in the different industries the dispersion of the rates of increase in productivity is very marked, some of the difficulties of the second mechanism reappear. Indeed it is probable that in those industries where the increase in productivity is considerably higher than the average, incomes (profits and wages) tend to increase at a rate higher than the average (though less rapid than the specific increase in productivity), owing to attritions, which already operate in competition and which, if there are monopolies or oligopolies, become true and proper obstacles. These attritions or obstacles delay or reduce the diminution of prices corresponding to the increase (higher than the average) of productivity. The inequality in the distribution of incomes, even of those of the same kind, tends to worsen. On the other hand, non-innovating firms with stationary productivity do not receive, or receive to a reduced extent, the stimulus to expansion afforded by the diminution of the prices of goods that they employ as factors of production.

Up to this point in our discussion we have assumed the possibility of choosing among the three mechanisms. In practice, from the standpoint of economic policy, the possibilities of choice are very limited. In the past it was competition which made inevitable the diminution of costs. In England and in the United States, for instance, during the past century the trend of prices was, on the whole, diminishing. In the industrial markets, in which productivity apparently was then increasing at a higher rate than in agriculture, prices fell considerably with respect to agricultural prices (8). To-day, in many important industrial markets, prices are no longer determined in a really spontaneous way; rather to a considerable extent they are regulated or, as the Americans say, "administered" by big concerns. Wages, in their turn, are regulated to a considerable extent by the trade unions. If we take into account the ever-growing public expenditures, which tend to make the volume of money in circulation grow faster than the volume of goods, the most we can hope for to-day is an approximation to the third

(8) Such a tendency had already been observed by Adam Smith, "Wealth of Nations", book I, chap. XI, sub-section: "Effects of the Progress of Improvement upon Real Price of Manufactures".

mechanism: incomes increase in proportion to the average increase in productivity; the price level remains stable, while individual prices increase or decrease according to the variations, lower or higher than the average, in productivity. But even if, realistically, we decide to recommend the application of this mechanism, an important qualification should be added which can serve as a practical rule.

When discussing the first mechanism, the classical one, we said that the effects for economic development are most favourable when the prices which diminish *pari passu* with the increase in productivity are those of instrumental goods, particularly of those goods which are at the origin of many productive chains and which, therefore, condition the development of all other goods (9). In these cases, the process of successive reductions of costs acquires the greatest diffusion. Now in a developing economy (as is the Italian one at present) the production of these goods usually tends to grow at a high rate, higher than the average rate for other types of goods. We have seen that, as a rule, the increase in productivity is quicker the quicker is the expansion of production (see above, par. 1). Therefore, the increase in productivity in these industries can be distributed partly through an increase of money incomes and partly through a diminution of prices; not only of relative but also of absolute prices. If the market does not achieve this result spontaneously, a policy can be recommended tending to translate the excess of the specific increase of productivity over the average increase into price diminutions. In the case of imported goods it is through international trade policy that price diminutions can be promoted or, at least, increases can be resisted. We shall return to this later.

We have considered three mechanisms through which the increments in productivity can be distributed. Emphasizing the question of the indebtedness of firms (and the rapidly increasing burden of compounded interests), several economists have maintained the expediency — to promote development — of a gradually but persistently rising price level. Such an opinion, which to-day is again gaining supporters, was already voiced not less than two

(9) The goods which are basic for economic development are relatively few; among them we can list electricity, coal, petroleum, pig iron and steel, lumber, cement.

centuries ago by David Hume (10). This could be considered as a fourth mechanism, different from those already mentioned. Logically, however, this mechanism is on another plane, which has very little in common with the pure and simple consideration of increments in productivity. A rising price level cannot but be the result of a particular money and credit policy; and with such a policy we are not here concerned. However, the considerations expressed before about the third mechanism can be properly adapted to refer also to the case of a rising price level, because here too variations in relative prices (more or less favourable to economic development) do take place. All things considered, the writer again declares that his preference is for the third mechanism (increasing incomes, stable price level with variations in relative prices). A rising price level discourages personal saving and stimulates purely speculative investments — unproductive from the social point of view; moreover, in a situation like the Italian one where bottlenecks in trade channels are widespread it is likely that the prices which rise gradually are retail rather than wholesale prices. Traders rather than productive firms would be favoured, with no advantage for society as a whole (11).

3. *Wages and productivity.* With respect to wages, the main characteristics of the third mechanism are found in the practical rule, so often coming up in discussions on the wage policy of the State and of the trade unions, that wages should increase in proportion to the average increase of productivity.

When one considers the applicability of this rule, one must realize that it presupposes extremely simple assumptions which very seldom correspond to actual conditions. In practice, variations of money wages not only do not accord with variations of productivity but, as a rule, diverge considerably from them (12). This fact

(10) Cited by D. Ricardo, "An Essay on the Influence of a Low Price of Corn on the Profits of Stock", 1815, *The Works and Correspondence of David Ricardo*, edited by P. Sraffa with the collaboration of M. H. Dobb (Cambridge University Press, 1951), vol. IV, p. 36.

(11) See below, par. 3 (b) of Section II and par. 3 of Section III.

(12) C. Kerr, "The Short-Run Behavior of Physical Productivity and Average Hourly Earnings", *Review of Economics and Statistics*, November 1949, pp. 299-309; see also D. M. Eisemann, "Inter-Industry Wage Changes, 1939-1947", *Review of Economics and Statistics*, November 1956, p. 446.

is to be attributed essentially to variations of the different groups of prices, which are implicitly ignored in the rule under discussion: variations of wholesale prices (of industrial and agricultural products), variations of retail prices of the goods which enter into the "cost of living", and variations of prices of raw materials.

In the long run, the distribution of income between various social categories is not affected, provided that *real* wages increase, approximately, *pari passu* with productivity (and there is no substantial variation in the number of unemployed). As it happens, a certain parallel between the two rates of increase has been noted in those countries where statistics make it possible to carry out a survey over a long period (13). But the parallel is in fact by no means close. In certain countries and at certain times, on the contrary, there has been a sharp divergence between the two rates. As will be seen from Section III of this study, this has been the case in recent years in Italy.

What is the meaning of this divergence?

There are three possibilities. (a) It may indicate that there has been a redistribution of income (*in favour* of wage earners, if the increase in real wages is greater than that in productivity; *at the expense* of wage earners, if the opposite is the case); (b) it may reflect an actual "waste" of the increase in productivity and lastly (c) it may point to a combination of redistribution and "waste".

To clarify the issue, let us take an individual firm, preferably an industrial concern, and try to pinpoint the effects of variations in specific types of relative prices on the firm's profits. Before beginning this analysis, however, we might express two observations on the practical value of the rule of correspondence between real wages and productivity. First, the comparison should be made between real wages and productivity and should refer to a relatively long period. Second, if this comparison shows a systematic divergence between the two rates of increase and, in particular, if the rate of increase of real wages is systematically lower than the rate of increase of productivity, then we will have to examine the reasons for such a divergence. Such an enquiry can serve as a basis for public intervention which, however, cannot be confined to wage

(13) V. E. H. Phelps Brown, "The Long-Term Movement of Real Wages", in *Theory of Wage Determination*, edited by J. T. Dunlop (Macmillan, London, 1937), pp. 48-65.

policy, but necessarily must be co-ordinated with the entire policy for economic development.

II.

The Consequences of Variations in Relative Prices in the Short Run

1. *The elements constituting the total unit cost of the industrial firm.* We assume that the total cost function of the industrial firm in the relevant range may be represented *fairly accurately* by a straight line. This assumption is supported by an increasing number of empirical studies (14) and indeed it is being employed more and more frequently in theoretical analyses (15). A linear function of total cost implies that marginal cost is constant and is *equal to variable cost*: this not only greatly simplifies theoretical analysis but makes it easier to bridge the gap between the theory of costs and real occurrences in industry. *In particular, it brings into a direct relationship the cost function and both rates of wages and prices of raw materials, which is practically impossible in the case of non-linear functions of total cost.*

A linear function of total cost can be expressed simply as a binomial

$$C = dx + k$$

where C is total cost, d, is the direct or variable or prime cost, x the quantity produced; k is the fixed cost for a given period, usually a year, and includes the allowance for plant amortisation, interest on money borrowed to buy the plant, the salaries of the technical

(14) *Cf.* H. Staehle, "The Measurement of Statistical Cost Functions: An Appraisal of Some Recent Contributions", *American Economic Review*, June 1942; "Cost Behaviour and Price Policy" (National Bureau of Economic Research, New York, 1943); S. A. Tsiang, "The Variations of Real Wages and Profit Margins in Relation to the Trade Cycle" (Pitman, London, 1947), pp. 71-74; W. J. Eiteman and G. E. Guthrie, "The Shape of the Average Cost Curve", *American Economic Review*, December 1952, pp. 832-838; P. Sylos Labini, "Oligopolio e progresso tecnico", *op. cit.*, pp. 42-47.

(15) *Cf.* M. Kalecki, "The Theory of Economic Dynamics" (Allen and Unwin, London, 1951), chapters I-II; R. Ruggles, "The Nature of Price Flexibility", in *Business Concentration and Price Policy* (National Bureau of Economic Research, New York, 1955), pp. 441-505.

and managerial staffs and other overhead costs (16). The total unit cost is

$$c = d + \frac{k}{x} \qquad (17)$$

The direct cost, d, is the sum of the unit cost of labour, l, and the unit cost of energy and raw materials, m:

$$d = l + m$$

The unit cost of labour, in turn, may be expressed as the ratio of the wage bill, S, and the quantity produced, x: $l = \frac{S}{x}$

The wage bill is the product of the hourly wage rate and the total number of hours worked in the period under review ($S = s\ h$), and the quantity, x, may be expressed as the product of man-hour

(16) Strictly speaking, not all these costs are "fixed" in the absolute sense, even in relatively short periods. Some of them remain fixed in the case of very wide variations in the quantity produced, others in the case of lesser variations. In any case, these costs do not vary in proportion to the units produced.

(17) The total cost function traditionally ascribed to a firm (operating in competitive conditions) is of the following type:

[1] $C = ax^3 - bx^2 + cx + k$

from which we can obtain the average unit cost function:

[2] $c = ax^2 - bx + c + \frac{k}{x}$

the marginal cost function:

[3] $\frac{dC}{dx} = 3ax^2 - 2bx + c$

and, lastly, that of the average variable cost:

[4] $c_v = ax - bx + c.$

(The last three functions, as readers are aware, U-shaped).

To appreciate the major simplification resulting from a linear function of cost, compare the above four functions with the corresponding functions for total linear cost:

[1'] $C = dx + k$

[2'] $c = d + \frac{k}{x}$

[3'] $\frac{dC}{dx} = d$

[4'] $c_v = d.$

productivity, a, and the total number of hours worked ($x = ah$). It follows that the unit cost of labour may be written as

$$l = \frac{s}{a}\frac{h}{h} = \frac{s}{a}.$$

The total unit cost is therefore

$$c = \frac{s}{a} + m + \frac{k}{x}$$

The difference between the price, p, and the unit cost gives the unit profit, g:

$$p - c = g,$$

or

$$p - \frac{s}{a} - m - \frac{k}{x} = g.$$

We now have all the elements needed to follow the variations in unit profit; in actual fact, these variations depend on variations in the relations between prices and incomes, as we shall see shortly when we analyse them. More specifically, in the short run, variations in the profitability of industrial concerns depend on variations:

— in the wholesale prices of industrial products,
— in hourly money wages,
— in hourly productivity,
— in the wholesale prices of raw materials,
— in the quantities produced

and, in the non short term period, on variations in the prices of buildings and machines, long term interest rates and the salaries of the managerial staff.

Variations in both unit and total profits have a bearing on development. In an economy based on private enterprise profit is both a stimulus to expansion or at least to continued production, and one of the main sources from which the concern is financed. If g diminishes, development tends to slow down; if g increases as a result of a reduction of costs, a boost is given to expansion. If, however, g increases and is kept high not by continuous reductions in cost elements but by monopolistic or oligopolistic price policies,

expansion is checked from another direction (18). In addition, if total profits are invested, a fillip is given to expansion. If, as against this, they are used for unproductive purposes, development is hampered. We shall assume, merely in order not to complicate the discussion, that the firm uses its profits productively and that, in consequence, a reduction in g will operate against development (19).

Let us then examine the forces making for variations in unit profits.

The simple formula indicated above shows that, if the hourly wage increases in proportion to productivity, the unit cost of labour does not vary, nor do unit profits. At this point, we can see the meaning of the practical rule that wages should increase in proportion to productivity. It would be immediately applicable only if hourly productivity increased at the same rate in all firms and if the other cost factors and the prices of products remained unchanged. That is not the case. All that can be asserted is that when, in an individual concern, wages and productivity increase in the same proportion, the cost of labour does not vary.

If hourly wages outstrip productivity, are unit profits reduced?

If *ceteris* are not *paribus*, that does not necessarily follow. If s/a increases, but if, at the same time, p, the price of the product, increases or if m, the unit cost of raw materials, is cut by a fall in prices, or if k, the fixed annual cost, remains unaltered but x, the quantity produced and sold, increases, and hence k/x the fixed unit cost is reduced (20), then the unit profit may remain unaltered and even increase, in spite of the increase in the unit cost of labour s/a.

(18) *Cf.* A. Breglia, "Profitti sterili e profitto fecondo" (Sterile profits and fruitful profit), *Giornale degli Economisti*, March-April, 1953, pp. 211-213.

(19) Some of the possible consequences of non-productive uses of profits have been examined in the monograph mentioned earlier: "Oligopolio e progresso tecnico", part II, chapter II, par. 4 and 5.

(20) If k is relatively large, an increase of x may lead to a marked diminution of k/x: in that case, the variations in this ratio are the decisive factor in regulating the variations in the average unit cost and hence of unit profits. In any case, variations in global profits are determined mainly by variations in x. *Cf.* M. Fanno, "La teoria delle fluttuazioni economiche" (UTET, Torino, 1947), pp. 126-7, footnote; H. H. Wein, "Wages and Prices - A Case Study", *Review of Economic Statistics*, May 1947, pp. 108-123; J. I. Dunlop, "Review of Wage-Price Policy", in "Symposium: Wage Policy", *Review of Economic Statistics*, August, 1947, p. 159.

Vice versa, if s/a diminishes because, for example, wages are unchanged but productivity increases, it does not necessarily mean that g will increase. It will not increase if there is a decline in p or an increase in one of the other cost factors.

Let us take a closer look at the factors of direct costs, the unit cost of labour, s/a, and the unit cost of raw materials, m.

What are the forces affecting s/a?

It is notorious that the labour market is usually under conditions of bilateral monopoly. There is the downward push of the industrialists' associations and the upward push of the workers' trade unions. But there is a factor making for variations which in Italy, at least in industry, operates quite automatically, that is the cost of living index to which wages are tied by a sliding scale system. In other words, variations in the cost of living index constitute a minimum limit (a sliding limit) to variations in money wages.

What do variations in the cost of living depend on?

If all prices, including those of goods comprised in the cost of living and those of industrial products, varied in the same proportion, there would be no problem for the firm. The increase in hourly wages, in the same proportion as the increase in the cost of living, and the increase in the prices of the other instrumental goods would be offset by an increase in p. But the problems are caused by the fact that it is rare for the variations in the different categories of prices to be proportionate. This is particularly so in the case of the prices of industrial goods in relation to the cost of living. It is mainly due to two reasons. In the first place, the cost of living index is a weighted average of prices, largely retail prices, whereas the prices which matter to the industrial entrepreneur are wholesale prices. In the second place, the goods included in the cost of living index in a number of countries (such as Italy) are for the major part food items. It is common knowledge that variations in the prices of these goods are more violent and more frequent than in the case of industrial products. In certain circumstances the two categories of prices may even vary inversely.

If the prices of industrial products increase while the cost of living remains unchanged, everyone in industry benefits. The workers can obtain higher nominal wages which, in view of the stability of the cost of living, are in effect higher real wages. The

industrialists obtain higher gross and net receipts in spite of increased wages.

Conversely, if the cost of living increases, while the prices of industrial products do not, everyone in industry is worse off. The workers are able to obtain increasing money wages only after some delay (for even the sliding scale does not go into effect at once) and hence there is a cut in their real wages. A number of workers are laid off by the firms, whose unit cost of labour increases without any corresponding increase in receipts (for the prices of industrial products are constant *ex hypothesi*).

Similar considerations apply to relative prices for raw materials. If the prices of raw materials fall, while those of industrial products remain unchanged, the direct cost of these products diminishes. Industrialists are in a position to grant wage increases even greater than the increase in productivity, without suffering a reduction in their net unit profits, and may even obtain increased earnings. In industry, everyone is better off. Conversely, if the prices of raw materials rise, while the prices of industrial products do not vary, both industrialists and workers will be worse off. The direct cost increases and unit profits are pulled down. The industrialists are tempted to offset this increase by trying to cut wages or at least oppose claims for raises in wages, even if the productivity of labour is rising.

2. *Variations in relative prices and in income distribution.* Hitherto we have dealt only with industry. But the economist must examine the economy of a society as a whole. It may be pointed out that, if the cost of living increases because of a rise in the prices of agricultural products, industry's loss will be agriculture's gain. In the same way, if the cost of living increases owing to a rise in retail prices, while industrial and agricultural wholesale prices do not vary, both industry and agriculture will suffer, while traders will do well. Lastly, if the relative prices of raw materials increase, the producers at least will stand to gain. In all these cases, then, it would seem that variations in relative prices merely lead to a redistribution of the national income (21).

(21) The quantitative evaluation of transfers of income due to variations in relative prices is a complex problem with which we are not here concerned. One of the first attempts to approach the problem organically was made by P. N. Rasmussen (" On Changes in Intersectorial Terms of Trade ", an essay in the volume *The Structural Interdependence of the Economy*, edited by T. Barna, Giuffrè, Milano, 1956). Rasmussen's method has been discussed by Vera Cao-Pinna in her article: " Determinazione dei trasferimenti di reddito tra i singoli settori produttivi per effetto delle variazioni nel sistema dei prezzi relativi " (The determination of income transfers between individual productive sectors as a result of variations in the system of relative prices), *Rivista di Economia Agraria*, June 1956, pp. 191-207.

What actually happens, however, is that not only the distribution of income but the development of income itself is affected. The fact is that one kind of redistribution may foster, while another kind hampers, the general expansion of income.

To present the case for this view, we must take as our starting point the increase in industrial productivity and examine its consequences *on economic development as a whole* in each of the following cases: (a) constant industrial prices with rising agricultural prices; (b) constant wholesale prices (both industrial and agricultural) with rising retail prices; (c) constant industrial prices with rising raw materials prices. We shall see that in each of these cases there can be a veritable " waste " of the increase in productivity. There may be other instances of variations in relative prices entailing similar results. For example, if incomes in industry increase faster than average productivity because of monopolistic price and wage policies, the overall expansion of the economy will be prejudiced. It would seem, however, that these three cases deserve a special analysis in view of the important rôle they may play in practice in an expanding economy.

3. *The " waste " of the increase in productivity.* (*a*) *Increase of the relative prices of agricultural products.* Let us, then, suppose that productivity in industry is rising and that money incomes — wages and profits — are rising on the average in the same proportion as productivity. The increase in wages will be reflected in an increase in the demand for food products which will be the greater, the lower the absolute income of the workers.

If the expansion of agricultural production consequent upon the increase in demand entails — in accordance with the Ricardian model — increasing costs, and hence prices, because diminishing returns from the land are not offset by technical progress, the net income of farmers, particularly of those cultivating the richest land, will increase, and, in the long run, land rents will go up too. But the total increase in the farmers' net income is not

proportional to the increase in demand, precisely because production expands at rising costs. What happens, therefore, is partly a redistribution of the increase in industrial productivity in favour of the farmers and partly a veritable " waste " of the increased productivity. But *the redistribution of social income itself is not capable of promoting a further expansion of income because the cost of living rises with the increase in agricultural prices and in consequence all industrial and agricultural wages rise or tend to rise too.* The direct costs of farms increase. As to industrial concerns, there are two possibilities. Either the increase in wages due to the increased cost of living tends to be greater than the increase in productivity, in which case the direct costs of industrial concerns go up, unit profits are reduced (in accordance with the Ricardian model) and further expansion is discouraged. Alternatively, the rise in the cost of living is lower than the increase in wages, which, *ex hypothesi*, has already taken place in the same proportion as the increase in productivity. In that case, there is no increase in the direct costs of industrial concerns, but the increase in wages is absorbed in the higher cost of living. There could have been a widening of the market for products of every kind — industrial or agricultural — but in fact there is nothing of the kind. That, in another way, dampens further development.

The situation is quite different if the farmers' net income increases not because of rises in prices but because of a reduction of costs owing to the use of more efficient producers' goods or to cuts in prices of those goods (e.g. farm machines, materials for rural building, chemical fertilisers). If farm prices do not vary, or if they fall, but less than costs, the net farm income increases. Here the growth of farm income constitutes a net addition to national income (22). It does not have a depressing effect on expansion. Indeed, it stimulates it by widening the market for all products and (in the event of farm prices falling) it reduces the cost of living and hence attenuates the upward pressure of money wages.

If a " spontaneous " increase in farm prices acts as a check on economic expansion, the effect is not so grave as that of an increase in prices, or their maintenance at a high level, by an " artificial " support. Such a policy can be carried out either by customs protection or, more directly and more effectively, by price fixing on the part of the State. In this case, the increase in prices is *stable* and is regarded as such by the farmers, who, therefore, are readier to expand production even at higher costs and bring under the plough less and less fertile land. The increase in costs and prices gives rise to a " waste " of the increase in productivity and, by its repercussions on the cost of living and on wages, hampers expansion.

(22) *Cf.* A. Breglia, " Profitti sterili e profitto fecondo ", *op. cit.*

The question of the relations between farm and industrial prices is both serious and complex for two reasons. First and foremost, industrial firms and especially big modern combines, generally speaking, have a far greater market power than farms, whether large or small. The former are to some extent able to administer the prices of their goods. The latter, *if left to their own devices*, must accept the prices determined by the market. The former are in a position to avoid reducing prices as productivity increases and to transform rising margins into greater money incomes (profits and wages); the latter, *if left to their own devices*, cannot do so. In short, if we may adopt the terms used by Pantaleoni in a famous essay (23), it can be said that, as a contracting party, industry is constitutionally " strong ", while agriculture is constitutionally " weak ". In addition, for reasons inherent in the structure of production itself, seasonal variations of prices are far greater in agriculture than in industry. This gives rise to abrupt and unpredictable fluctuations in farm incomes. The stabilisation of agricultural prices enabling farmers to draw up more efficient plans would be of help to production. Lastly, above all in backward agrarian economies, producers, who are often ignorant and badly organised, are an easy prey for speculating middle men. In such economies, the gap between prices to producers and prices to consumers is relatively large. This harms agrarian producers and does not benefit society as a whole.

There is a real problem, then, which has been tackled in a number of countries, by means of the artificial support of agricultural prices. Is this the best way?

No objections are raised when the State intervenes in agricultural markets with the aim of moderating short term variations

(23) " Tentativo di analisi del concetto di ' forte e debole ' in economia " (Attempt to analyse the concept of " strong and weak " in economics), in *Erotemi di economia*, Laterza, Bari, 1925.

(whether seasonal or cyclical) in prices and diminishing the gap between prices to the producer and those paid by the consumer. This policy is undoubtedly sound. The objection is to a policy aimed at maintaining these prices at artificially high or even rising levels over long term periods (24). The fact is that this support affects, and cannot but affect, only some products, however important. This distorts the distribution of crops, gives rise to inequalities between the producers of the various goods (25), and creates what is neither more nor less than a vicious circle. An incentive is given to increase production and productivity in the protected crops. A tendency to accumulate stocks is set up and price support becomes more and more difficult and onerous. In the end measures have to be taken which boomerang on the farmers; for example, the forced restriction of areas under cultivation (" acreage allotments " in the United States). In addition, there is, of course, the financial burden which the policy entails.

If it is desired to aid agriculture, other forms of intervention are preferable. It would be better, for example, to grant financial aid to the farmers for the purchase of the instrumental goods needed for agricultural development, or supply them with these goods at low prices. This policy would, it is true, like price support, entail expenditure by the State, but it would avoid the much heavier economic burden on the community (referred to above) in the form of higher costs in all branches of production. In addition, it would have the distinct advantage of giving a fillip to agricultural expansion itself. Even a policy based on subsidies or one of tax reliefs is to be preferred to the support policy. Any of the policies here

(24) In practice, it is extremely difficult to distinguish between supports designed to stabilise farm prices in the short run without raising them artificially, and supports which in fact push them up. Moreover, once the support machinery has been set up, it is hard for the government to resist political and electoral pressures tending to force up prices. It is therefore essential to find an objective yardstick to define the stabilisation pure and simple of agricultural prices. (Some economists have proposed that internal prices should somehow be geared to international prices. These prices, considering the strong influence exercised by the American agricultural markets, where many prices are supported, are themselves not really " spontaneous " or market prices; but in certain countries, such as Italy, where the prices of several important agricultural products are supported at levels which are markedly higher than the international or American levels, such a policy would already represent considerable progress).

(25) In an agrarian economy, such as the Italian one, where subsistence farming is still frequent on tiny holdings, *there arise also serious inequalities between producers of the same type of good*. Such holdings derive little or no benefit from price support.

recommended would make possible a differential treatment of the various types of farms, e.g. according to size of farm and fertility of the land.

In a word, then, an agrarian problem does exist; but the policy of price supports at artificially high levels is the worst possible solution. There remains the problem of short term fluctuations in agricultural prices; but this is not the place to discuss that issue (26).

3. (b) *Increase of commercial margins.* If retail prices are rising, while wholesale prices remain unchanged, the unit commercial margins increase. This, however, does not depend on reductions of distributive costs and on greater efficiency in commercial services. Such an increase in efficiency brings lower and not higher unit margins. A rising gap between the two categories of prices means either increases in costs, that is, a loss for the social economy, or an increase in net margins, that is, it works to the advantage of traders and is sterile from the social point of view. It does not stimulate but hinders expansion. In fact, this growing divergence increases the cost of living or prevents it from falling. In this way, through wage increases, it raises the direct costs of all undertakings and reduces (or prevents the growth of) the purchasing power of the various income receivers and in particular of the wage earners, on the same lines as happens in the case studied in the previous paragraph. It is by no means certain that the increase in net margins means that the bigger tradesmen are able to obtain extraordinary gains; this is not the case if that increase is accompanied by the insertion in commerce of a growing number of small operators who cannot find work in other productive occupations and who succeed in carving out for themselves a little " economic trench " at some stage of the distributive process. Thus a host of small net margins springs up. Many of them remain small, giving rise to incomes which are barely sufficient for a living. Nevertheless, these same margins hinder economic development.

3. (c) *Increase of the relative prices of raw materials.* Similar observations to those made as regards the relative prices of agricultural products may be mentioned in connection with variations in

(26) *Cf.* the analysis by Demaria in the essay published in the number of January 1956 of the *Rivista Internazionale di Scienze Economiche e Commerciali*.

the relative prices of raw materials — increase of raw material prices as compared with industrial prices. Nevertheless, a number of important considerations must be added if raw materials are not produced at home but are imported, as is often the case in Italy. Here the increase in relative prices does not even lead to that partial redistribution of incomes in favour of home producers to which we have alluded in the previous paragraphs.

The question has a particular bearing on wages. It seems clear from the formula proposed by us that, especially in the short run, variations in wage rates are in opposition to those of the prices of raw materials. *Ceteris paribus*, if these prices fall wages can increase without forcing down unit profit. Conversely, if the prices of raw materials rise, the entrepreneurs will oppose wage increases. Tsiang has shown that, in the United States, price movements of finished industrial products, raw materials and wages tend to a certain extent to offset each other. For example, the fall in the prices of raw materials is often accompanied by an increase in the ratio of wages to the prices of finished products. Conversely, an increase in those prices is accompanied by a diminution in this ratio (27). In an article published in 1925, Taussig showed that in the period between 1900 and 1914 there was a high direct correlation in England between nominal wages and " terms of trade ", i.e. the ratios between the prices of exports and those of imports (28). Taussig did not provide a detailed explanation of this correlation. It can in fact be explained if it is remembered that England exports mainly finished industrial products and imports mainly raw materials and foodstuffs. A reduction in the relative prices of raw materials makes it possible to increase money wages. An increase in the relative prices of raw materials has the opposite consequences (29).

(27) S. C. Tsiang, *op. cit.*, pp. 64-67.

(28) F. W. Taussig, " The Change in Great Britain's Foreign Trade Terms after 1900 ", *Economic Journal*, March 1925, pp. 1-10.

(29) Strictly speaking, however, still in connection with England, money wages should be compared with the variations of that particular category of " terms of trade " formed by the relation between prices of industrial products exported and those of imported raw materials. On the contrary, variations in the general " terms of trade " (including also prices of agricultural food products which in their turn act upon the cost of living) should be compared with variations in real wages (index of money wages divided by the cost of living index). The present writer carried out both comparisons for 1870-1938 in the first case and for 1850-1913 in the second. The detailed comparisons between the various statistical series would be extremely interesting; but this is not the place to submit them. To put it briefly, the results are as follows: *the correlation between specific " terms of trade " (raw materials) and money wages is still higher than that brought out by Taussig. The correlation between the general terms of trade and real wages is just as high.* The second correlation is explained not only on the basis of the points made in this paragraph on the relative prices of raw materials but also in conjunction with those made in the previous paragraph on the variations in the relative prices of agricultural products.

The series of specific terms of trade are to be found in the article by K. Martin and F. G. Thackeray, " The Terms of Trade of Selected Countries ", 1870-1938, *Bulletin of the Oxford University Institute of Statistics*, November 1948, pp. 382-3; the series of general terms of trade can be derived from the article by A. Imlah, " The Terms of Trade of the United Kingdom 1793-1913, *Journal of Economic History*, 1950, pp. 177-182. The wages series are to be found in the book by W. Layton and G. Crowther, " An Introduction to the Study of Prices " (MacMillan, London, 1935), pp. 265-6; in the article by E. H. Phelps Brown and S. V. Hopkins, " Wage Rates in Five Countries, 1860-1939 ", *Oxford Economic Papers*, June 1950, pp. 264-5; and in the " Statistical Abstract of the United Kingdom ".

III.

Applicaton of the Analysis to the Italian Economy

1. *Real wages and productivity in industry; the " waste " of the increase in productivity.* In an excellent article on the Italian economy, Vera Lutz has studied the variations in real wages and productivity in industry, with special reference to what is customarily called big or modern industry, where the proportion of small units is very low and where statistics are much fuller and more reliable than those for other industrial activities (30). Her study provides the following percentage variations in prices, wages and hourly productivity from 1950-1955. (The data, except for items 1, 6 and 8, refer to " big industry ").

1.	Wholesale prices for industrial products	+ 3%
2.	Nominal hourly wages	+ 36%
3.	Production	+ 63%
4.	Employment (total hours worked)	+ 4%
5.	Hourly productivity	+ 57%
6.	Cost of living	+ 20%
7.	Real hourly wages	+ 13%
8.	Prices of raw materials	+ 19% (31)

(30) V. Lutz, " Some Characteristics of Italian Economic Development, 1950-1955 ", in this *Review*, 1956, No. 39. The author divides Italian industry into two groups the first of which (referred to in our text) employs over half of all industrial workers (2.3 million out of 4.3).

(31) This percentage has been arrived at by the writer, using the index numbers of

It must be borne in mind that these data are very much of an approximation. This is particularly so for those figures concerning productivity in view of the considerable difficulties in effecting the necessary statistical calculations (32). These figures, therefore, may be useful only as an indication of the order of magnitude of the variations. They lay no claim to precision.

How was the increase in productivity distributed?

Real wages increased by only 13%, while productivity increased by 57%. It is probable that unit profits have increased. It is certain that overall global profits have gone up, considering the great increase in production. *But to a considerable extent, the increase in productivity has not been tapped either by the industrialists or by workers or by other firms or by consumers.* (The price level has not fallen. Wholesale prices have gone up slightly while retail prices have shot up). *Partly this increase has been "wasted" because of the increase in the cost of living* which, in its turn, depends on variations in agricultural prices (of 10-12%) and on the increasing gap between retail and wholesale prices, i.e. commercial margins (8-10%); therefore, the 36% rise in nominal wages has been reflected in a much smaller increase in real wages (13%) (33). *Partly the increase in productivity has been "wasted" because of the increase in the price of raw materials* (19%), many of which are imported.

2. *The relative prices of agricultural products.* The first cause of waste of the increase in productivity lies, therefore, in the absolute

wholesale prices of "raw materials" in the *Bollettino mensile di statistica*. It is not easy to identify the raw materials used in "big industry" (to which the other data refer). Moreover, the prices of some of the main raw materials and sources of energy presumably used by "big industry" have varied in very different ways in the period under consideration: oil 5%, coal 24%, electricity 0, methane gas 0, cotton 11%, wool 36%, scrap iron and steel 44%, pig iron 17%, mineral perphosphates 0, wood 90% (*Bollettino mensile di statistica*; *Statistica mensile del commercio con l'estero*). Since the variations differ so widely, any average would be bound to be unrepresentative. (Only a study of individual industries can lead to precise conclusions. Below, in paragraph 4, we shall briefly consider the case of the textile industry). For this reason and because all the data cited in the text are merely intended to provide a very broad indication, we may make do with the percentage variation for the above said prices of "raw materials".

(32) S. Fabricant, "Of Productivity Statistics: An Admonition", *Review of Economics and Statistics*, 1949, No. 4, pp. 309-11. *Cf.* also note 2 of the first paragraph in the first section.

(33) To a small extent (1-2%), the increase in the cost of living was due to a rise in rents.

and relative increase in the prices of agricultural products. Now it should be noted that, whereas in economically advanced countries, where average incomes are high, the proportion of a typical worker's family budget which goes into food is relatively small (20-30%), this percentage is very high in a country such as Italy where average incomes are relatively low. Actually it is about 70% (34). Consequently, in a country like the United States, variations in the prices of agricultural food products have relatively less influence on the cost of living and hence on money wages, and, in this respect, the question of "waste" has only limited relevance. Such countries are in a better position to bear higher prices for agricultural products. For the United States, the main factor in the cost of the price support policy is the financial burden (35). What I have termed the economic burden is not so serious (paragraph 3 of Section II). The question of waste, on the contrary, is of great importance for a country like Italy (36).

Ricardo's observation is still valid for our country:

"Corn being one of the chief articles on which the wages of labour are expended, its value, to a great degree, regulates wages. [. . . . .]. With a permanently high price of corn, caused by increased labour on the land, wages would be high; and, as commodities would not rise on account of the rise of wages, profits would necessarily fall" (37).

According to Ricardo, as will be remembered, the fall in profits leads to a halt in the accumulation, i.e. in the process of development.

(34) The percentage of total national expenditure which goes on food bought by all consumers (workers and others) is somewhat lower: 57.8%. *Cf.* the *Bollettino di informazioni dell'Associazione per lo Sviluppo Industriale del Mezzogiorno* (SVIMEZ), February-March 1956, p. 231.

(35) This, incidentally, is very heavy. At the end of 1955, the value of the stocks accumulated by the Federal Government to implement its agricultural price support policy was over 8 billion dollars (*i.e.* 5,000,000 million lire, or more than twice the total expenditure of the Italian Budget); "Midyear Economic Report of the President transmitted to the Congress", January 1956, p. 129.

(36) The purely financial burden is very heavy on Italy too. Although the precise amount is not known, since it is lumped together with the mysterious and chaotic "gestioni speciali" (special subheads of the budget), it would appear to amount to several ten thousand million lire.

(37) "On Protection to Agriculture", 1822, an essay in volume IV of *The Works and Correspondence of David Ricardo, op. cit.*, pp. 236-7; *Cf.* also "An Essay on the Influence of a Low Price of Corn on the Profits of Stock", *op. cit.*

Both Ricardo's contention and his recommendation that there should be a gradual reduction in tariffs up to a certain level (though in our case the main point is to reduce the political support of prices) are still valid for Italy (38). Though not bringing in Ricardo, Mrs Lutz has made this point very clearly in the article quoted above (p. 184):

" . . . the tie-up between wages and the cost of living means that food prices for all practical purposes become a direct cost of industry. It follows that industrial expansion and agricultural protection are to a certain extent mutually exclusive aims. Agricultural protection, were it to be pursued, might constitute for industry as a whole a limiting factor similar to that which steel protection once implied for the engineering sector ".

Nowadays, it is possible to add two considerations to Ricardo's argument and recommendation.

First, a gradual reduction in agricultural prices, by giving a downward push to the cost of living, increases the purchasing power of wages without weighing on industrial costs and thus permits a widening of the market for all products, whether industrial or agricultural. (This point lies outside the scope of the Ricardian analysis. Ricardo usually assumes constant real wages).

The second additional consideration has already been set out above. Nowadays, as opposed to what happened in Ricardo's time, an agrarian problem does exist essentially for structural reasons. But the best way to deal with this problem is not the price support policy. It is by subsidies, tax relief or financial aid in the purchase of instrumental goods. The policy of supporting prices at a high level is the worst of all solutions (39). It not only gives rise to a heavy " economic " burden (increase in the costs of all firms) and to a by no means slight " financial " burden on the State budget — as already mentioned — but also involves a burden which might be termed a " monetary " one.

(38) The writer does not, however, regard as necessarily valid in modern industrial conditions (where, unlike the circumstances in Ricardo's days, situations of " concentrated oligopoly " are frequent) the assertion that " commodities would not rise on account of the rise of wages ". *Cf.* " Oligopolio e progresso tecnico ", *op. cit.*, part I, chapter III.

(39) In Italy the commodities mainly affected by this policy are wheat, rice, sugar and hemp. It has led to increases in prices or has prevented them from falling and kept them at artificially high levels. For this reason, the price of wheat in Italy is distinctly higher than international quotations, although the latter, owing to policies pursued by the United States, are, as we have already pointed out, " artificial ". Here are the prices of home wheat and those of the imported article including transport. The prices are in lire per quintal (*i.e.* 100 kilogrammes):

(Administration of the Public Pool)	*Prices for domestic wheat* 1955-56)	*Import prices* (1956) lowest	average
Soft wheat	7,000	4,800	5,000
Hard wheat	8,000	4,900	6,500

Sources: Federazione Italiana dei Consorzi Agrari, " Listino dei prezzi del grano conferito agli ammassi "; *Statistica mensile del commercio con l'estero*, December 1956. The price of imported wheat varies widely, depending on origin, transportation and the specific import-export agreements. For this reason, we have shown the minimum and average prices separately.

(40) *Cf.* " La Relazione del Governatore della Banca d'Italia all'Assemblea Generale Ordinaria dei Partecipanti " (Report of the Governor of the Banca d'Italia) for 1956, p. 26 et seq.

(41) The yearly losses from the administration of the scheme are caused by the accumulation of growing stocks which lie unsold in the warehouses. This is only due in part, however, to the policy of agricultural price support and to the expansion of home agricultural production. A large share of the responsibility for the losses must be attributed to " conditioned " imports. In fact, with a view to facilitating the export of certain industrial products, trade agreements have been concluded by which a number of countries producing agricultural commodities purchase specific industrial products from us *on condition* that we buy their agricultural products. The resulting distortion is not due to farm prices policy but to foreign trade policy, which is directed to favour specific industrial groups. (I am indebted for this observation to Prof. Federico Caffè). It is therefore urgently necessary to revise radically both farm price policy and foreign commercial policy, with a view to bringing them into line with the policy of economic development which the Government professes to pursue.

In Italy, the " monetary " burden has assumed proportions which can only be defined as enormous. The value of the " pool bills " discounted and rediscounted every year by the *Banca d'Italia* and other credit institutes is of the order of 490,000 million lire. (The volume of bank-notes in circulation in 1956 was 1,500,000 million). The losses resulting from administration are over 230,000 million (40). To cover these losses, means of payment are issued which, at least at present, lie like a deadweight on circulation. This aggravates inflationary pressure (41). In addition, the rediscount of the pool bills, which now forms the greater part of the *Banca d'Italia*'s portfolio, imposes rigid restrictions on the Banca's freedom to manoeuvre and on monetary and credit policy.

The objections to the policy of agricultural price supports are fully justified if, as has hitherto been the case in Italy, prices are in fact maintained at a high and even rising level. The case against price support loses force (though still remaining valid to some extent) if prices are maintained at levels not exceeding international

price levels. A policy on these lines might be supplemented by other measures of the kind suggested above. In any case, the objective to be achieved should be the progressive reduction and ultimately the elimination of all three burdens in question — " economic ", " financial " and " monetary " — which at present impose a serious check on Italy's economic expansion.

3. *Commercial margins.* Another cause of the waste of the increase of productivity is the growing divergence between wholesale and retail prices. Various measures have been suggested to reduce this gap (such as the suppression of the trading licence system). These measures are intended to stimulate competition and do away with monopolistic obstacles hampering distributive channels. The problem, however, is one of great complexity. The fact is that trading conditions are closely linked to general economic development. A sharp and uninterrupted increase in the outlets for capital and labour in industry, or at any rate in the non-commercial sectors, would reduce the incentive to dig " economic trenches " in commerce and would make possible an improvement in trading efficiency. The result would be a cut in commercial margins.

4. *The relative prices of raw materials; the case of the textile industry.* In the period 1950-55 under consideration, raw materials have, on the average, gone up steeply. The increase is estimated at 19%. Since a good deal of the more important materials are imported, there is a clear loss to Italy, without even a redistribution of incomes (42). It has already been pointed out that the situation varies widely from one industry to another: these price increases have varied considerably and have had more or less negative consequences according to the price variations of the finished products. It is, again, the *relative* variations which are of interest. These variations have had particularly adverse effects in the textile industry. Here are the data for cotton and wool (43):

(42) The greatest price increases have in fact been those in imported materials: coal (24%), cotton (11%), wool (36%), scrap iron (44%), wood (90%).

(43) *Source*: Annuario Italiano di Statistica, 1953, p. 317, 1955, p. 444, 1956, p. 300 and 343.

(a) Price of raw cotton	+ 11%
(b) Price of cotton fabrics	— 18%
Ratio a/b (1950 = 100)	135.4
(c) Price of unprocessed wool . . .	+ 36%
(d) Price of woollens	— 27%
Ratio c/d (1950 = 100)	186.3

It will be remembered that, in the period 1950-55, after a short-lived burst of prosperity, the textile industry was hit by a fairly serious crisis from which it has not yet fully recovered. The causes of that crisis include the domestic competition from chemical fibres and foreign competition. As a matter of fact, there has been a substantial decline in exports — even sharper than that suffered by other European countries. Mrs Lutz observes in this connection that in Italy the textile crisis and the contraction in exports were more marked than elsewhere. She attributes this to the increase in labour costs and makes a number of interesting points on the subject (44). The present writer, basing himself on the data set out above, attaches more weight to the deterioration of the relative prices of raw materials. In particular, hourly money wages in the cotton and woollen industry went up less than the average (34% and 30% against 36%) and, owing to the increase in productivity, the unit cost of labour increased relatively little or did not increase at all (45).

This example shows the importance for general economic development, and especially for industrial development, of a com-

(44) *Op. cit.*, pp. 242-3.

(45) Here are the detailed data for 1955 (1950 = 100):

	Average hourly wages	Hours worked	Output	Hourly productivity	Unit cost of labour
	s	h	x	$a = \frac{x}{h}$	$\frac{s}{a}$
Cotton manufacturing . .	134	77.5	96	124	108
Wool manufacturing . .	130	92.5	120	130	100

(The fall in the output of the cotton manufacturing shows that this industry was hit worse than wool, where production went up).

Sources: Hourly wages and hours worked: *Statistiche del Lavoro*, Ministero del Lavoro, 1950, No. 7, pp. 18 and 22 and 1955, Nos. 4-5-6, pp. 20 and 24. Output: *Bollettino Mensile di Statistica*, 1951, No. 3, pp. 49 and 1956, No. 4, p. 28. Since the Ministry of Labour publishes only monthly statistics without giving the annual averages, the figures for March have been used as being representative figures.

mercial and foreign exchange policy which is supple enough to take into account variations in the prices of raw materials and which tends to reduce the adverse movements of such prices.

IV.

Conclusions

Let us recall some of the points which have emerged in the previous discussion.

1) Of the three mechanisms through which the increase of productivity can be distributed, under modern conditions the third one seems to be the most advantageous: money incomes increasing in proportion to the average increase of productivity; prices, on the average, approximately stable, with increasing or decreasing individual prices depending on whether the rate of increase of productivity, in each individual industry, is lower or higher than the average. If market forces do not spontaneously bring about such a result, State intervention should be recommended. In particular, such an intervention should aim at insuring that the excess of the specific increase of productivity over the average be actually translated into price decreases in the case of fundamental instrumental goods, conditioning the development of all other productions. This particular result is similar to that spontaneously brought about by the classical mechanism; it can and should be pursued under modern conditions.

2) The practical rule, relevant for the wage policy of the State and the trade unions, according to which wages should increase in proportion to productivity, can serve as a guide only with reference to real wages and to the long run.

3) Variations in relative prices determine a redistribution of income between productive sectors and social categories. Some of these variations are prejudicial to the general economic development and tend to entail a veritable waste of the increase in productivity. In particular, a waste of this kind may occur:

(a) when the relative prices of agricultural products increase;

(b) when the gap between retail and wholesale prices increases;

(c) when the relative prices of raw materials increase.

The "waste" under (a) is the more serious the greater the proportion of the workers' family budget is spent on food and the more closely the country concerned approaches a "Ricardian" situation. This is, as it happens, the case for Italy. It follows that there, far more than in countries where per capita incomes are high, a policy of agricultural price supports at artificially high levels is both onerous and detrimental to the development of the economy as a whole.

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