MARKET IMPERFECTION AND EXCESS CAPACITY¹

I

Of all the doctrines emerging from recent work on the economics of imperfect competition, none appears more intellectually striking or more significant from a practical point of view than the doctrine of "excess capacity". It is intellectually striking, because it admits possibilities which the traditional "laws of economics" seem to have excluded: e.g. that an increase in "supply" may be followed by a rise in price.² And it is practically significant, because if the main contentions of the theory are found to be correct, it affords some reasons for interfering with the "free play of competitive forces" on grounds upon which traditional economic theory would have dismissed the case for interference. The theory envisages a situation where, on the one hand the market facing a group of competing firms is, for one reason or another, not absolutely "perfect", while on the other hand the entry of resources into the "industry" is free, and it shows that under such conditions "competition" (i.e. the free flow of resources into use where they expect to obtain the largest net remuneration) will drive each producer to a situation in which he is not using its resources to the best advantage; and it will thus lead to a reduction of the physical productivity of resources all round. In a sense, it thus reverses the old argument about increasing returns and monopoly; it not only says that falling costs will lead to monopoly but that a monopolistic or rather a pseudo-monopolistic situation will automatically lead each firm to a position where it is faced

¹ Originally published in Economics, February, 1935.
² Since Marshall, we are aware of the fact that, given certain cost conditions, an increase in demand may be followed by a fall in price. But neither the Marshallian, nor, so far as the present writer is aware, any other theoretical system left room for the possibility that, under certain market conditions, an increase in the number of sources of supply (an inflow of resources into the industry) could lead to a rise in prices.
³ We shall see later what precisely the term "monopolistic" implies in this connection.
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with falling average costs. It is a highly ingenious and one might almost say revolutionary doctrine: it shows up "free competition" (i.e. the freedom of entry into any trade or industry) not in the traditional and respectable rôle as the eliminator of the unfit but in the much more dubious rôle as the creator of excess capacity. It affords an excellent theoretical background for the age-oid cry of business-men about the "wastes of competition"—so far completely neglected by the economists. It is worth while therefore to examine this theory in some detail.

The theory is put forward both in Professor Chamberlin's recent work and also in Mrs. Robinson's book. Closer inspection reveals, however, that Mrs. Robinson's version possesses a merely formal similarity with Professor Chamberlin's theory. For Mrs. Robinson includes in her "cost curves" such profits which are not competed away by the entry of new producers; and in the circumstances, her statement that "demand curves will be tangential to cost curves" and that firms will be of "less than their optimum size" is merely a statement of a tautology. It does not imply "excess capacity" or anything of that sort. In the subsequent analysis we shall follow therefore mainly Professor Chamberlin's statement of the theory.

II

The main argument can be stated briefly. Although not stated so explicitly, it is really based on four assumptions. First, it is

1 "Falling average costs", if they are to be regarded as the criterion of excess capacity, should be interpreted that in the relevant output, costs are falling in a state of long-period equilibrium (after all adjustments have been made to that output), which also implies that variable costs are falling (since in the long run the supply of all factors—-even the resources supplied by the entrepreneur himself—can be assumed variable and consequently there are no fixed costs). Since in a state of full equilibrium short-run cost curves must be tangential to the long-run cost curve, falling long-period costs also imply that short-run total costs are falling. But the converse is not necessarily true; falling short-run total costs (the fixed costs being calculated on a "historic" basis) need not involve falling long-run costs, for the same output, and consequently these are no safe criteria for establishing the prevalence of excess capacity.

2 Chamberlin, The Theory of Monopolistic Competition, Chapter V. Mrs. Robinson, The Economics of Imperfect Competition, Chapter 7. The theory, of course, is by no means completely new. Wicksell had already stated it (Lectures, p. 86) and it is also to be found, in essentials, in Cairnes' Political Economy, p. 115. It was outlined in F. Sraffa's well-known article ("The Laws of Returns under Competitive Conditions", Economic Journal, 1936). The first systematic exposition is, however, Chamberlin's.

3 Cf. on this point G. F. Shove, "The Imperfection of the Market" (Economic Journal, March, 1933) an article which, in the present writer's view, contains one of the most penetrating analyses so far published on this whole subject.
assumed that there are a large number of independent producers, each selling one product only, which is "slightly different" from the products of the rest of the producers. The words "slightly different" imply, that while the demand for the product of any of the producers is highly sensitive to the prices charged by the others, yet this sensitiveness is never so great as to compel all producers to sell at the same price. It implies that a producer, by lowering his price relatively to his competitors' prices, will attract away some, but not all of their customers; or alternatively, that he will lose some, but not all of his own customers, if he raises his price relatively to the rest.¹ It is assumed, secondly, that "consumers' preferences are fairly evenly distributed among the different varieties,"² and since there are a large number of them "any adjustment of price or of 'product' by a single producer spreads its influence over so many of his competitors that the impact felt by any one is negligible and does not lead him to any readjustment of his own situation."³ Thus, given the prices of all the others, a "demand curve" can be drawn up with respect to the product of each.⁴ Thirdly, it is assumed that no producer possesses an "institutional monopoly" over any of the varieties produced and thus the entry of new producers "into the field in general and every portion of it in particular is free and unimpeded". Fourthly, the long-run cost curves of all producers are assumed to be falling up to a certain rate of output; in other words, it is assumed that up to a certain output, there are economies of scale. (Professor Chamberlin's cost curves are U-shaped, i.e. they begin to rise.

¹ In technical terms this implies that the consumer's elasticity of substitutes between the different producers' products is large, but not infinite; which is the same thing as saying that the cross-elasticities of demand (the elasticity of demand for one producer's product with respect to another producer's price) are considerable but not infinite. Looking at it in this way, monopoly and perfect competition appear as the two limiting cases, where the cross-elasticities are zero or infinite, respectively; and there can be little doubt that the large majority of industrial producers in the real world are faced with imperfect markets in this sense.

² Which implies, in the above terminology, that the cross-elasticity of the demand for the product of any producer is of the same order of magnitude with respect to the price of any of his competitors. Cf. my article, "Mrs. Robinson's Economics of Imperfect Competition", Economica, August, 1934, p. 339 [p. 59 above].

³ Chamberlin, p. 89. Mrs. Robinson does not state this so definitely, but her analysis is implicitly based on the same assumptions. Professor Chamberlin states (pp. 86-9) that he only makes these assumptions temporarily in order to facilitate the exposition, and removes them later on (pp. 100-12). But, as I shall try to show, the theory in its rigid form at any rate, really stands or falls with these assumptions.

⁴ In the absence of these assumptions one can speak of a demand curve only in the sense of an "imagined demand curve", cf. below.
after a certain point. But while the legitimacy of the latter
assumption in the case of long-run curves appears doubtful,1 it
does not affect his argument, which merely requires that costs
should be falling over a certain range.) The elasticity of the
demand curve, and the cost curve of each producer, are also
assumed to be the same, but this, as I shall try to show, is not
essential to the main argument so long as institutional monopolies
are assumed to be absent. Now, given these two curves, each pro-
ducer will try to produce that output which will maximise his
own profits, i.e. equate marginal revenue with marginal cost. But
since marginal revenue is less than price, price will be higher than
average cost (including under the latter the displacement cost of
the resources supplied by the entrepreneur himself) unless average
cost is also, and to a corresponding degree, higher than marginal
cost (which it can only be if average costs are falling). Let us
assume that this is not the case initially. Entrepreneurs in the
industry will then make “monopoly profits”, i.e. remuneration
for their own resources will be higher than that which similar
resources could earn elsewhere. This will attract such resources
into the industry; new firms will come in, producing new sub-
stitutes, which will reduce the demand for all existing producers;
and this process will continue, until profits are reduced to normal,
i.e. the difference between the actual earnings and the displace-
ment costs of the entrepreneur’s own resources is eliminated. In
the position of final equilibrium not only will marginal cost be
equal to marginal revenue, but average cost will also be equal to
price. The demand curve will thus be tangential to the cost
curve. The effect of the entry of new competitors will not neces-
sarily reduce the price of existing products; it may even raise
them. The profits which the entrepreneur no longer earns will thus
not be passed on to the consumer in the form of lower prices but
are mainly absorbed in lower productive efficiency. The pro-
ducers, as a body, could of course prevent this from occurring by
reducing their prices in anticipation of the entry of new com-
petitors. But since the appearance of any single new producer will
only affect the demand of a single existing producer very slightly,

1 Of my article, “The Equilibrium of the Firm”, Economic Journal, March, 1934,
p. 70 [pp. 44-5 above].
while similarly the reduction of price of a single existing producer will only slightly affect the profits which a potential producer can expect, no producer could take these indirect effects on his own price policy into consideration.

There can be little doubt that given these assumptions the theory is unassailable. Any criticism therefore must be directed against the usefulness and the consistency of the assumptions selected.

III

r. The first of these concerns the assumptions made about the interrelations of the demand for the products of various producers (which are substantially the same as those underlying Mrs. Robinson's concept of an "imperfectly competitive industry").

No doubt, in most cases, the products of various producers selling the same sort of goods are not perfect substitutes for each other in the sense that the slightest price difference would eliminate all demand for the products of higher-price producers. The reasons for such market imperfection may be classed under one of three headings. There may either be slight differences in the products themselves (as in the case of motor cars, wireless sets, etc., the absence of "standardisation"); or differences in the geographical location of producers in cases where the consumers themselves are distributed over an area; or finally, there may exist a certain inertia on behalf of the buyers themselves who will require either some time, or a certain magnitude in the price-difference, before they make up their minds to buy from another seller—even if they are quite indifferent as between the products of different sellers.

1 Cf. The Economics of Imperfect Competition, Chapter r. Cf. on this point my review, op. cit., p. 339 [p. 59 above].

2 It might be objected that anything which causes a lack of indifference between buyers will make the products imperfect substitutes in relation to each other (since the consumers' attitude is the final criterion for classifying "products") and consequently no distinction can be made out between "buyers' inertia" and "product-differentiation" as causes of market imperfection. There is, however, a very good reason for keeping them separate. Whereas in the ordinary case of imperfectly substitutable commodities the consumers' elasticity of substitution between two products is symmetrical (i.e. a given change in the price ratio will cause a given change in the relative quantities demanded, whichever of the two prices has moved relatively to the other) this is by no means the case when the lack of indifference is merely due to the inertia of buyers. In the latter case, one cannot even speak of a given "marginal rate of substitution", since this rate will be different according to the direction of the change.
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Whatever the cause, the effect, from the analytical point of view, will be the same: the cross-elasticities of demand will have a positive finite value. But is there any justification for the further assumption that they will also be of the same order of magnitude with respect to the prices of any group of rival products? Can we say that any adjustment of price or of “product” by a single producer will spread its influence evenly over all his competitors? No doubt, cases are conceivable when it would. When the imperfection of the market is due to sheer buyers’ inertia and nothing else, we could invoke the law of large numbers and say that the buyers who no longer buy from A, will pair themselves more or less evenly with B, C, D, . . . . But buyers’ inertia, though an important factor in practice, is rarely found in isolation as a cause of market-imperfection. It is generally coupled with either or both of the other causes.1 And in these cases, it is clear that the different producers’ products will never possess the same degree of substitutability in relation to any particular product. Any particular producer will always be faced with rivals who are nearer to him, and others who are farther off. In fact, he should be able to class his rivals, from his own point of view, in a certain order, according to the influence of their prices upon his own demand (which will not be necessarily the same order as that applying to any particular rival of his). This is clear in the case where market-imperfection is merely due to differences in the geographical location of producers. It is equally true in cases of “product-differentiation”. Savile Row tailors will be most influenced by Savile Row prices; they will be less concerned with fluctuations in the price of East-End clothes.2

“Pseudo-monopolists”—distinguished from the old-fashioned “real monopolists” merely by the fact that the cross-elasticities of demand for their product is large—thus cannot be grouped

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1 Moreover, the case where market-imperfection is merely due to buyers’ inertia is not a very good one from the point of view of this theory: since it always implies the presence of institutional monopoly as well. Cf. p. 74.

2 It is conceivable that the “scale of preferences” of different consumers should differ in just that degree as to eliminate the differences in the degree of substitutability of different products for the body of consumers as a whole. (If individual X regards product B as a nearer substitute to A than either C or D, but Y regards C as a nearer substitute than either B or D, while Z regards D as the nearest substitute to A, then the prices, B, C, D may have the same influence on the demand for A.) But this is a rather improbable supposition.
together in a lump but can at best be placed into a series. Each “product” can be conceived of as occupying a certain position on a scale; the scale being so constructed that those products are neighbouring each other between which the consumers’ elasticity of substitution is the greatest (a “product” itself can be defined as a collection of objects between which the elasticity of substitution of all relevant consumers is infinite). Each producer then is faced on each side with his nearest rivals; the demand for his own product will be most sensitive with respect to the prices of these; less and less sensitive as one moves further away from him.

“Product variation” by an individual producer can then itself be represented as a movement along the scale; and, given the position of all other producers, each producer will tend to settle at that point on the scale where his anticipated profits are the greatest. New entrants must also occupy a position on that scale, and will thus necessarily make the chain of substitutes “tighter”.

The idea of such a scale can best be envisaged in the case of the simplest type of market-imperfection, the distribution of consumers over an area. Let us assume that all consumers are situated along a road (a kind of “ribbon development”), they are evenly, densely spread, and all of them have an equal desire to buy. They are completely indifferent as between the products of different sellers; or rather the only difference consists in respect to transport costs (which can be equally regarded to be borne either by the buyers or the sellers). Under such conditions, sellers will tend to settle at equidistant points from each other along the road,¹ and thus they are all “pseudo-monopolists”, since no two producers sell from the same spot.² Looked at from the point of view of any seller, a change of price by any other particular seller (the prices of the rest being assumed as given) is less and less important for him, the further away that particular seller is situated.

¹ If only there are more than two of them, cf. Chamberlin, p. 196, where Professor Hotelling’s relevant theorem is corrected.
² The assumption that institutional monopolies are absent implies, in this case, that any seller could, if he wanted to, move to the same spot as that occupied by any other seller (or so near to it as to eliminate differences in transport costs) and thus make his own product “indistinguishable” from that of the other. Neglect to distinguish between these two cases of “monopolies” has been the source of much confusion in the past.
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It follows from this, first, that even when the number of producers is large (the chain of substitutes tight) it cannot be assumed that the effect of a single producer's action will spread itself evenly over a large number of his rivals and will be negligible for each of them individually. The other producers' prices and "products" thus cannot be assumed as given in drawing up the demand schedule for the first; and the real demand curve for a single producer's product is thus indeterminate (depending on any of the large numbers of possible reactions in which his rivals might indulge). The problems of "duopoly" are thus not merely concomitants of a situation where there is a "small number of producers", but arise in all cases where producers are selling substitute products, since the fact of imperfect substitutability necessarily involves the presence of the scale, and thus of the "small number". "Duopoly" is thus seen not as a special class by itself but rather as "the leading species of a large genus".

Secondly, it can just as little be assumed that "new products" (the products of new or prospective entrants) will stand in the same or similar relation with all existing products. A new product must necessarily be placed in between two existing products; and will thus make considerable inroads into the markets of its nearest neighbours. Thus a producer, if far-sighted, will take the effect of his own actions not merely on his existing competitors into consideration but also on his potential competitors. He will act on the basis of an "imagined demand curve" which shows the amount he can sell at different prices in the long run, under the assumption that his competitors' products, prices and the number of his products will change in response to his actions.

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1 This does not imply that each producer will not base his policy upon certain idea concerning the relation between the demand for his product and its price. But the "imagined demand curve" is based on certain expectations concerning his rivals' behaviour as a result of changes in his own policy; irrespective of whether these expectations are correct or not. Such an imagined demand curve is always determinate (since something must always exist in the producer's own mind). But it is a different sort of thing from the demand curves of traditional analysis which always implied an objective relationship between price and the quantity demanded. For a fuller treatment of the distinction between a real and an imagined demand curve, cf. my previous article quoted above, Economica, August, 1934, p. 340 (pp. 59-60 above).

2 If a producer takes into account the consequences of his own policy on his existing competitors, this will probably induce him to charge a higher price than otherwise (will make his imagined demand curve less elastic). But if he takes potential competition into account, this will probably induce him to charge a price lower than otherwise (make his imagined demand curve more elastic). "Potential competition" implies both (a) the appearance of a new rival, (b) the possibility of product-adjustment rather than price-adjustment by an existing rival.
competitors are all adjusted to his price. If a producer knows that if he charges a high price to-day a competitor will appear to-morrow whose mere existence will put him in a permanently worse position, he will charge a price which will afford him only a low profit, if only he hopes to secure this profit permanently; i.e. he will act in a manner as if his own demand curve were very much more elastic than it is. And this “foresight” will, or at any rate may, prevent him from being driven to a state of excess capacity.\footnote{Whether it will do so or not, will depend on the relative willingness and ability to bear losses—on behalf of the existing producer and the new entrant. For let us assume that a producer reduces his price in anticipation of the entrance of new competitors. If the new producer comes in nevertheless, at the ruling price, both will be involved in losses. But there will be some higher price at which both will make some profits; and if the new entrant can induce the old producer to raise his price to that level he can thereby secure his place on the “scale” permanently. If, on the other hand, the old producer persists in charging the low price, one of them will have to drop out. (In so far as buyers’ inertia is present at all, there is always a presumption that such a price-war will cost less to the old producer than the new one.)}

2. Moreover, it can be shown that even if none of the producers takes the indirect effects of his own policy into consideration,\footnote{I.e. they all act on the basis of an imagined demand curve which corresponds to a real demand curve drawn on the assumption that the prices and products of all other producers remain the same, irrespective of what the first producer is doing (which is the assumption underlying Professor Chamberlin’s demand curves).} “potential competition” will never succeed in making the individual demand and cost curves tangential, if economies of scale exist; while the possibility of product-differentiation will by itself never prevent the establishment of perfect competition if economies of scale are completely absent. Demand curves and cost curves therefore will only become necessarily tangential to each other when “demand curves” have also become horizontal.

In order to prove this, let us again take the simplest case of market imperfection which is at the same time the one most favourable to the “excess capacity” theory—when it exists solely on account of the spreading of consumers over a large area. Let us again assume that consumers are evenly distributed over the whole area; that they have no preferences whatever as between the different sellers; and that the cost functions of all producers are identical. The demand curves of individual sellers will be downward-sloping solely on account of the increase in transport costs as more is sold. Let us assume that producers are situated at equal distances from each other and that they all make profits (sell at prices which more than cover average displacement cost).
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Let us assume that new producers enter the field. Each producer's market will be smaller; the elasticity of demand, at any price, higher than before. But if we assume that economies of scale are completely absent (i.e. long-run cost curves are horizontal) profits will never be eliminated altogether so long as the elasticity of demand is less than infinite. For each producer can always recover some of his lost profits by reducing output up to the point where marginal revenue equals marginal cost (which in this case, also equals average cost). The inflow of new producers will continue, leading to a continuous reduction in the output of existing producers and a continuous increase in the elasticities of their demand until the latter become infinite and prices will equal average costs. There the movement will stop. But each firm will have reduced his output to such an extent that he has completely lost his hold over the market.

We see therefore that the mathematical economists in taking perfect competition as their starting point, weren't such fools after all. For they assumed perfect divisibility of everything; and where everything is perfectly divisible, and consequently economies of scale completely absent, perfect competition must necessarily establish itself solely as a result of the free play of economic forces. No degree of product-differentiation and no possibility of further and further product-variation will be sufficient to prevent this result, so long as all kinds of institutional monopolies and all kinds of indivisibilities are completely absent.

Let us now introduce indivisibilities and economies of scale. The movement of new firms into the field will then not continue until the elasticities of demand for the individual producers become infinite; it will be stopped long before that by the increase in costs as the output of producers is reduced. But there is no reason to assume that it will stop precisely at the point where the demand and cost curves are tangential. For, on account of the very reason of economies of scale, the potential producer cannot hope to enter the field profitably with less than a certain magnitude of output; and that additional output may reduce demand, both to his nearest neighbours and to him, to such an extent that the demand curves will lie below the cost curves and all will be involved in losses. The interpolation of a third producer in between any two producers
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may thus transform profits into losses. The same reason therefore which prevents competition from becoming perfect—i.e. indivisibility—will also prevent the complete elimination of "profits". It will secure a "monopolistic advantage" to anybody who is first in the field and merely by virtue of priority. The ultimate reason for this is that it is not the original resources themselves, but the various uses to which they are put that are indivisible—you can divide "free capital" but you cannot invest less than a certain amount of it in a machine—and consequently the investment of resources cannot be so finely distributed as to equalise the level of marginal productivities.¹

The above argument does not hold if we assume, as Professor Chamberlin assumed at the start, that consumers' preferences are evenly distributed over the whole field; and consequently the entry of a new firm affects all existing firms to an equal degree. Then the demand for each is only reduced by an insignificant amount by a single new entrant; and consequently the number of firms could increase with impunity until profits are completely wiped out and the demand curves become tangential.

That Professor Chamberlin is aware of our first objection is clear from his analysis of chain-relationships on pp. 102-4 of his book. That he is also aware of the second is clear from certain remarks in connection with spatial competition on p. 190. It would be most unfair therefore to criticise him on a point of logic—since the logic of Professor Chamberlin's analysis is indeed excellent. What he does not seem to be aware of is the degree of unreality involved in his initial assumptions, and the extent to which his main conclusions are dependent on those assumptions.

3. So far we have not mentioned the most frequent and conspicuous objection against the "excess capacity" theory: that it assumes "identical cost and demand curves" for the different producers. In our view, this is no valid criticism on Professor Chamberlin's assumptions. The identity of the demand curves

¹ This brings out clearly also the objection against Mrs. Robinson's "normal profits". We see how the level of profits in each firm—the difference between its actual remuneration and the displacement cost of its earnings—is determined by the degree of indivisibility which acts as a "protective shield" against intruders. There is no more reason to assume these profits to tend to a normal level than there is to assume that the extent of indivisibilities is the same in all cases.
merely ensures that the prices of different producers will be identical. But since producers are free to vary the quality of their product as well as their price, differences in elasticity will not save producers from being driven to a position of "tangency"—although they may reach this position by selling at different prices. The identity of the cost curves—in the required sense—follows on the other hand from the assumption of the absence of any institutional monopoly. It is assumed, that is to say, that every producer could, if he wanted to, produce commodities completely identical to those of any other producer—if he does not, this is merely because he would not find it profitable to do so.  

Such institutional monopolies may consist of patents, copyrights, trade-marks or even a trade-name. They may be conferred by law, by ownership, or merely by the will of the public. If the public prefers to buy from Messrs. Smith and Robinson and thus the name of the seller becomes part of the "quality of the product", then Messrs. Smith and Robinson have an institutional monopoly of their products. They possess something which others cannot possess. Similarly, if the entrepreneur owns resources which are relatively better fitted for the production of some varieties than the resources over which other entrepreneurs have command, he has exclusive control over resources which to that extent are unique: and this also implies the presence of some institutional monopoly. Consequently, in the absence of these, since the relative costs of producing different varieties must be the same for the different producers, their cost curves, for each single variety, must also be identical.

It might be objected that "institutional monopoly", thus defined, covers a much larger number of cases than what is generally understood by this term. Indeed, one could make out a nice distinction between the possession of an "absolute"

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1. Professor Chamberlin does not state this explicitly; but this is the only logically consistent interpretation one can give to his assumption that "the entry of new producers into the field in general and every portion of it in particular is free and unimpeded".

2. This implies in our terminology that every producer is free to move along and settle at any point of the "scale"; he can get therefore "as near to" the products of any other producer as he wants without incurring higher relative costs.

3. In order to avoid misunderstanding it must be pointed out that the absence of institutional monopoly does not imply that the abilities of each entrepreneur, and consequently the absolute levels of their costs, are identical.
monopoly (when no other producer is able to produce a completely identical product at any cost) or a comparative or "partial" monopoly (when no other producer is able to produce the same product at the same relative cost). But as all products are more or less close substitutes for one another, this distinction becomes analytically unimportant since it comes to the same thing whether producer B can produce merely a "more or less close substitute" to A—or whether he can produce the same product but only at a higher cost than A.\footnote{In both cases producer B will obtain smaller total receipts for the same total outlay.}

Anything therefore which imposes higher costs on one producer than another (whether it is due to the possession of unique resources by one entrepreneur or whether it is merely due to buyers' inertia\footnote{What we designated above as "sheer buyers' inertia" (i.e. that consumers require either a certain lapse of time, or a certain minimum of price-difference before the change over from one seller to another, even if they are otherwise completely indifferent between the different sellers' products) is merely a special case of institutional monopoly; since it always imposes a differential advantage on the existing producer relatively to the new entrant. The mere existence of specialised durable plant, however, does not imply such a differential advantage in the long run, although it may prevent adjustments being undertaken in the short run.} imposing a special cost of entry on new producers) implies, to that extent, the presence of institutional monopoly.

Such institutional monopolies of course are never completely absent. Their presence—though, as we have seen in the last section, by no means essential—may even be directly responsible for a large part of market imperfection, as Professor Chamberlin himself so convincingly shows in his appendix in favour of "unfair trading". They cannot therefore usefully be assumed absent when a situation is analysed which is often largely bound up with them. And what does the situation look like when they are not absent?

If the "scale of differentiation" of the consumers can be regarded as given (as e.g. in the previous example, when the degree of substitutability of different products was rigidly determined by the level of transport costs) institutional monopoly, to the extent to which it is present, will prevent the generation of excess capacity—since, to that extent, profits earned by one producer cannot be competed away by another producer. Many types of institutional monopolies, however, by themselves increase the degree of market imperfection, and to that extent are favourable
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to the generation of excess capacity.¹ The sudden appearance of buyers' inertia, for example, has the double effect of reducing the elasticity of demand for the individual products and of imposing a cost of entry on potential competitors; these two opposing tendencies may cancel out, or the net effect may go in either direction.

To sum up the results of the above argument. The extent to which excess capacity may be generated as a result of "free competition" (under the assumption that the existence of economies of scale will prevent this competition from becoming perfect) will depend: (1) on the degree of "short-sightedness" or "far-sightedness" of producers (how far they take potential competition into account in deciding upon their price-and product-policy). This is a question of business psychology rather than economics. (ii) The extent to which institutional monopolies are present. This, as we have seen, will tend to prevent the generation of excess capacity if it leaves the scale of differentiation unaffected; while it will have an uncertain effect if it increases the scale of differentiation as well. (iii) The extent to which the market-situation resembles a "chain relationship" (in Professor Chamberlin's terminology), i.e. the extent to which the various cross-elasticities of demand differ in order of magnitude. Only in the special case when they are all of the same order of magnitude will Professor Chamberlin's conclusion (that demand curves will be tangential to cost curves) necessarily follow. At the same time, there is a presumption that some degree of excess capacity will be generated even if profits will not be completely competed away since "indivisibilities", by themselves, will not offer a strong enough shield to prevent some rise in costs as a consequence of the intrusion of new competitors. Many of the objections therefore which can be brought against the theory if put forward in its

¹The difference between these two types of institutional monopolies (the one which affects merely the relative costs of different producers, and the other which affects the elasticities of the demand curves for products as well) can best be elucidated by examples. A legal patent for a certain cheap process of producing ordinary window glass will not lead the consumers to differentiate between glass produced by one process or another. It will merely have the effect of imposing higher costs upon anybody who does not possess the patent. A trade-mark protecting a certain soap or medicine, however, may lead the consumers to differentiate between different soaps or medicines; and thus reduce the elasticity of demand for the products of each producer.
rigid form (that demand curves will tend to become tangential with the cost curves), do not affect the fundamental proposition that the effect of the competition of "new entrants" and consequent reduction of the level of profits earned may take the form of a rise in costs rather than a reduction of prices.¹

4. So far we have not touched upon another abstract assumption which Professor Chamberlin has made, i.e. that each producer produces only a single product. In reality the majority of producers produce a series of different products, if products are to be defined by the same rigid market-criteria as were applied in the earlier parts of this paper. And at first sight at any rate, it does appear as if the spreading of production over a series of different products is the way in which producers can overcome the effect of those indivisibilities which form the conditio sine qua non of imperfect competition. If there is not a sufficiently great demand to produce one product on an "optimal scale", the producer may still utilise his plant fully by producing two or more products, rather than building a smaller, sub-optimal plant or leaving his existing plant under-employed. In this way, indivisibilities will be overcome; and consequently excess capacity will not make its appearance either. The effect of "competition from outside" will be to induce producers to produce a larger series of products, rather than to reduce the scale of output as a whole.

In our view this line of reasoning is not strictly accurate; for even if it is admitted that varying the number of different kinds of products produced provides one line of adjustment for the entrepreneur, this does not imply that the essential consequences of this type of situation (that increased competition will lead to an increase in costs) can thereby be avoided. Whether they will or

¹ Professor Chamberlin's analysis is most valuable also in throwing light upon the probable consequences of all monopolistic agreements which refer to selling price rather than quantities produced. It explains why, if a uniform taxi-fare is imposed, one will find too many empty taxis about. Or if the code of "professional etiquette" prevents doctors and lawyers from undercutting each other, sooner or later they will all complain that they are "under-employed". Or if manufacturers' cartels or trade associations impose a uniform price or a uniform "profit-margin" on retailers, one will find too many tobacco shops round the streets. It should also make us very sceptical about any remedy of the evils of imperfect competition by compulsory rationalisation, cartelisation, or any type of interference with price-competition. For measures which intend to prevent the alleged evils of "price-cutting" not infrequently tend to aggravate the real evils which they are supposed to remedy.
not, will depend on the nature of the cost function of the jointly produced products.

Commodities, of course, will only be produced jointly if it is cheaper to produce them jointly than separately. For certain commodities (such as wheat and straw) this is always the case: whatever is the amount produced of each (or rather whatever is the amount of resources engaged in producing them); irrespectively therefore of whether the economies due to scale are attained or not. These are the cases of “by-products” where more than one commodity emerges as a result of a single productive process. Certain other commodities, however, may be jointly produced simply because the demand for any of them is not large enough to be produced on a scale which should enable the realisation of the economies of scale; while some of these economies can be retained by utilising a larger plant for the production of several commodities. For such commodities joint production will only be profitable at certain outputs, and will become unprofitable as soon as the demand for each or any of them is sufficiently large to enable the economies of scale to be secured in the case of separate production. This is the case simply because the indivisible factors (buildings, machinery, etc.) which are responsible for these economies are never completely specialised; and can be used, more or less effectively, for the production of several things simultaneously.

Since, however, in most cases, indivisible factors are not completely unspecialised either, such a “spreading of production” is always attended with some cost; i.e. the physical productivity of a given quantity of resources calculated in terms of any of the products will always be less, the greater the number of separate commodities they are required simultaneously to produce. That this is the case for a large proportion of jointly produced commodities is shown by the fact that the development of an industry is always attended by “specialisation” or “disintegration”, i.e. the reduction of the number of commodities produced by single firms.  

Assuming that the cost functions of jointly produced commodities are of this nature, how does the equilibrating process

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work itself out under our previous assumptions? For simplicity, we can postulate that there is a given number of firms, and initially each of them produces only one product and all are making profits (not necessarily to the same degree). Let us suppose that one of them finds it profitable to produce another commodity, highly competitive with the products of some other producers. These latter producers will now find the demand for their products reduced; and this may make it profitable for them to engage in the production of a second, or even a third, commodity—even if this was not profitable before. This in turn will induce other producers (possibly our "first" producer) to do the same, which in turn will lead to a further "spreading of production" by competing producers. Assuming always that producers merely take the direct effects of their actions into consideration (i.e. act upon an imagined demand curve which regards the prices and the products of all other producers as given)\(^1\) this process will continue, so long as producers continue to make some profits; and so long as the loss caused by a reduction in the amount of resources engaged (if the reduction in the output of one commodity were not compensated by an increase in the output of another) is greater than the loss caused by a further "spreading of output". A precise formulation of this process would require either some very cumbersome language or some rather involved mathematics; but without resorting to either, it is easy to see what conditions the final equilibrium will involve. The demand curve for each single product will have become very much more elastic\(^2\) (since each producer now produces a very much smaller share of each product, or "type of product"); profits will have been wiped out and the general level of costs of each product, or type of product, will have become higher. There will not be much "excess capacity" in the sense that, given the number of different products produced simultaneously by each firm, an increase in the output of all of them would reduce costs per unit. Yet there

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\(^1\) This implies in this case that producers ignore not only any adjustment of price or of product by other producers as a result of their own policy, but also any effect upon the demand for some of the other commodities produced by themselves.

\(^2\) It can become infinitely elastic only when the "spreading of output" involves an additional cost at all. In this case the "economies of scale" refer to the amount of resources used by single firms rather than those engaged in the production of certain products; and for each single product, conditions of perfect competition might be brought about even if the total number of firms is small.
Market Imperfection and Excess Capacity

will be a "technical wastage", since the physical productivity of resources will be less than what it would be if each producer produced a smaller number of products and a larger proportion of the total output of each; a policy they undoubtedly would prefer if all of them could foresee the ultimate, as distinct from the immediate, consequences of their actions.¹

IV

We have seen therefore that in all cases where economies of scale are present over certain ranges of output and where market imperfection exists (in the sense that highly and yet imperfectly substitutable commodities are on sale), "increased competition" (i.e. an increase in the number of firms in a particular industrial field) might lead to a reduction of technical efficiency rather than to a reduction in price or an increase in aggregate output; while in cases where firms can vary the number of different products produced, this might come about even without an inflow of "new firms". In both cases this result was seen to depend on a certain "short-sightedness" of producers who act on the basis of the immediate industrial situation confronting them rather than following out the further consequences of their own policy. The prevalence of such short-sightedness can be sufficiently accounted for, however, partly by the producers' ignorance of those further consequences and partly by the uncertainty as to the extent of far-sightedness with which their actual and potential competitors are endowed.

It is extremely difficult to deduce any general conclusions from the above analysis as to the effect of the generation of excess capacity upon economic welfare in general—in whatever arbitrary way this concept may be defined. If the money-value of the National Dividend is to be made its criterion (calculated on the basis of some given price-level), then no doubt, it could be increased, in some fields quite considerably, by compulsory "standardisation", cartel-agreements, the restriction of entry or any similar measure enabling producers to realise more fully the

¹ There may be another reason, apart from this type of "short-sightedness", why producers would prefer a policy of many-product production: and this is the reduction of risk, especially important in cases of fashionable articles, where they cannot calculate with any precision how the public will take any particular variety.
"economies of scale". The recognition of this fact, however, as yet far from warrants the advocacy of such measures. Apart from the ill-effects on distribution (and in a world of wage-rigidities, upon employment) which such processes of monopolisation inevitably involve, the public would be offered finally larger amounts of a smaller number of commodities; and it is impossible to tell how far people prefer quantity to diversity or vice versa.

Neither is it permissible to argue, on the other hand, that the generation of excess capacity is itself the result of consumers' choice; since it only comes about by creating a greater diversity of commodities: and consequently that its emergence is evidence that the public, to that extent, prefers "variety" to "cheapness". This line of reasoning would only be permissible if consumers were actually confronted with the choice of having either a smaller range of commodities at lower prices or a larger range at higher prices. In fact, they never are in a position to choose between these alternatives: they are offered either the one or the other, but never both. To expect the consumers to be so "far-sighted" as to concentrate on the purchase of a few varieties merely in the hope of thereby reducing prices in the future, is an assumption which even the highest level of abstraction should avoid.