MRS. ROBINSON’S “ECONOMICS OF IMPERFECT COMPETITION”

I

Recognition that the unrealistic assumptions in regard to the nature of competition form one of the main deficiencies of the traditional theory of value, and are directly responsible for some of the apparent inconsistencies between the conclusions of theory and experience, constitutes one of the most significant advances of post-war economic thought. Traditional theory—tacitly rather than explicitly—was built upon the assumption that the elasticity of demand for the product of an individual producer with respect to the price charged by any other producer is either zero or infinite. In reality it is neither. Different producers are not selling either “identical” or “different” products, but “more or less different” products—the demand confronting them being neither completely sensitive nor completely insensitive to the prices charged by other producers.

This necessitates a new analysis of the determination of value; and Mrs. Robinson sets out in this book to provide us with such an analysis. But the performance at once exceeds and falls short of the promise; the contents of the book cover a field different from that which we were led to expect from the title page. She neglects the intricate problem of the interaction of the price and output policy of rival producers and the dependence of each producer’s equilibrium position on his own anticipation of this interaction (usually called the “problems of duopoly”) altogether, though these ought to occupy a central position in the treatment of any competitive situation which can rightly call itself “imperfect”; she also excludes “marketing costs” from consideration—by the simple device of deducting such expenditures from the producer’s demand curve—although, whatever views

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1 Originally published in *Economica*, August, 1934.
2 *The Economics of Imperfect Competition*, by Joan Robinson, Macmillan, 1933.
one may hold about these, there can be little doubt that their emergence is one of the most characteristic features of an "imperfect market". In the circumstances it is not surprising that her book—after a most intriguing introductory chapter giving all the reasons for the necessity of a new approach to the theory of value—inevitably becomes a treatise on monopoly; a treatise most admirable in its lucidity, sharpness and the wealth of its material, but nevertheless a treatise very much on well-established lines. There is an elegance in the manner of presentation and the proof of her propositions about which any pure mathematician might justly feel proud; and for these reasons alone more than one part of her book—such as the analysis of Price Discrimination in Book V—is destined to remain for a long time the standard text on their subject. There is, in fact, hardly a single proposition on the theory of monopoly, treated by Mrs. Robinson, where she does not succeed in simplifying and improving upon the existing method of presentation; and there are quite a number of propositions—such as those dealing with the effect of monopolies on distribution—where she succeeds in carrying our knowledge a great deal further. No student of the theory of monopoly could fail to obtain a firmer and more inclusive grasp on the subject by reading her book, or to be grateful to her for saving the necessity of resorting to inferior or more cumbersome sources. But of "imperfect competition proper", of the problems peculiar to the type of situation presented by her at the beginning, there is little to be found; and such as there is is too tautological to improve our insight very much. In fact, one almost has the feeling that Mrs. Robinson could have written much the same book if Mr. Sraffa's path-breaking article (to which she acknowledges so much debt) had never been written; and if the problem of "highly substitute but not identical" commodities had never presented itself in the course of the discussion on increasing returns.

All this, however, is not meant as a criticism of the book itself; it could at best be regarded merely as a criticism of its title. For in the field which the book really covers it represents a brilliant intellectual achievement; and after reading some 350 delightfully instructive pages, it is hardly fair to complain that we have learnt something different from what we expected to learn
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or, even from what she expected to teach us. For we have learnt quite a lot; and what we did learn was very well worth learning.

If one can make any general criticism, it does not so much concern her own propositions as the way she disposes of her predecessors. Some of the references to Marshall, for example, may be regarded as a trifle ungenerous, especially since she herself emerges—though I feel sure Mrs. Robinson would not admit this—as a true champion of Marshallian orthodoxy; and this sometimes in a field where Marshall himself might well have preferred to be unorthodox. Mrs. Robinson professes ultimate faith in the power of revelation of Plane Co-ordinate Geometry, in the handling of which she is a superb master; but her geometry—despite all the new curves and all the new properties discovered about them—is really ultra-Marshallian. In a sense, it represents the ultimate logical outcome of the Marshallian method. Whether this method is also the most convenient one for the analysis of the problems she wants to apply it to, still remains to be seen; in our view the apparatus of the "curves" becomes progressively less useful as one makes the basic assumptions more realistic; since it then becomes increasingly difficult to exhibit the conditions of equilibrium by functions of one variable. But it is the road she herself has chosen; and as her chapters on "objections" show, she has few illusions about the difficulties that confront it. Her all too noticeable endeavour to dissociate herself from Marshall thus compares ill with the latter's constant attempts to associate himself with Ricardo.

II

Of all Mrs. Robinson's results, unquestionably the most valuable are to be found in Books VII-IX, which deal with the extension of the marginal-productivity theory of distribution to monopoloid situations. With the aid of the now famous elasticity-formula Mrs. Robinson can derive the monopolist's demand curve for a factor of production and thereby solve the general problem of distribution under a régime of monopolies. She thus shows that (assuming at first perfect competition in the markets for the factors themselves) hired factors of production will tend to
receive their "marginal value products", i.e. the net increase in the value of output created by the addition of a single unit of a factor; which is always less (except under perfect competition) than the value of their own net product (since by their own contribution they reduce the value of the product of all earlier units). The tendency, therefore, shown by Wicksell,¹ towards an equality in the level of remuneration of the same resources, both in contractual and non-contractual employments, will not be necessarily realised if competition is not perfect—even if there is no "institutional monopoly" in the sense that any of the required resources are under a single control. For while the hired factors will receive less than the value of their marginal physical products, the profits of the entrepreneur—the remuneration for the use of his own resources—will always be higher than the value of the marginal productivity of those resources multiplied by their amount. (This will also be true in cases where the entrepreneur earns no more on his own labour and capital than what he could earn by hiring them out; only then the marginal productivity of his own resources in their given employment will be less than it is elsewhere.)² In denoting the difference between the values of the marginal net products and their actual remuneration as the measure of the "exploitation" of factors, we should not forget, however, that this difference is not something which factors could always receive if only the entrepreneur acted in a way a state of perfect competition would force him to act. For in cases where the average variable costs are falling, payment on the scale of the values of marginal productivities would actually involve the entrepreneur in losses. The sum of the values of the marginal products of hired factors is then greater than the total product.

¹ Lectures, p. 125.
² A strict proof of this proposition requires the assumption of a "homogeneous and linear" production function. This can be assumed, however, even where "economies of scale"³ are present, so long as we assume that the fall in costs is due to the indivisibility of factors actually used and not the introduction of new factors as the scale of output is increasing; or, if it is due to the latter, that the "factors" are classified according to the specific form in which they are used and not according to the "original" resources from which they arise (e.g., a specific machine is regarded as a separate factor, and not the units of "capital" and "labour" which the machine represents). Then the sum of the marginal productivities of the factors, multiplied by their respective amounts, will be equal to the total product, and the marginal productivity of the "indivisible factor" will be negative so long as the average cost of all other factors is falling as output is increasing.
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So long as we assume perfect competition in the markets for the factors themselves, factor prices, though not equal, will, at any rate, be exactly proportional to the value of their respective marginal productivities;¹ and consequently hired factors will be combined with each other in the same ratio as under perfect competition. This is no longer true, however, when the factor markets themselves are imperfect; and in consequence hired factors are subjected to "monopsonistic" as distinct from "monopolistic" exploitation. The marginal value product of factors will then tend to equal not their price, but their marginal cost, which is higher than price; and factors will no longer be combined in proportions at which their relative marginal productivities correspond to their price ratio (except in the special case when their elasticities of supply are all equal). Moreover, it can be shown that this change in the proportion in which factors are combined caused by imperfections in the factor markets implies a reduction in productive efficiency. For assuming a given total supply of all resources, variability of technical coefficients, and any given ratio in which different commodities are produced, it can be proved that the aggregate output will then be at a maximum when the factors in each employment are combined in such proportions that the ratio of the marginal physical productivities of the factors is everywhere the same. This condition remains fulfilled even if factors are everywhere subjected to "monopolistic exploitation" (however much the elasticities of demand for different commodities differ); it is unfulfilled as soon as "monopsonistic exploitation" enters the field. The latter brings about therefore a purely technical wastage of resources which is absent in the case of the former.²

Moreover, there is a difference from the point of view of policy, since the effects of monopolistic exploitation on labour are unavoidable while monopsonistic exploitation on the other hand can be countered by collective bargaining or any similar device

¹ Since for all factors the difference between the value of the marginal product and price is in the ratio of $-\frac{\varepsilon}{e-1}$ where $\varepsilon$ is the elasticity of demand for the commodity.

² There may still be, in this case, a "technical wastage" of a different kind: if, on account of the generation of excess capacity, too little of the hired factors is combined with the residual factors (i.e. the entrepreneur's own resources). We shall examine this question on a later occasion.
which makes the supply curve of labour to the individual employer horizontal. It would be a mistake, however, to draw too much upon this particular argument for the purposes of trade union policy. For it is difficult to think of cases where "monopsonistic" as distinct from "monopolistic" exploitation should still be considerable.  

Unfortunately, Mrs. Robinson's manner of exposition just in these parts of the book is not quite so admirable as the standard in which the rest of the book is written. Here, at any rate—perhaps just because these parts are full of new ideas—the exposition could be considerably simplified. There was surely no necessity for her purposes to introduce the concepts of average net and marginal gross productivity, which must cause considerable headaches to those who are not used to her own ways of thinking; nor for the measurement of factors in terms of "efficiency units", which, on closer inspection, proves to be a very tricky concept indeed. For different factors of production can only be grouped together under "corrected natural units" if the elasticity of substitution between them is infinite; otherwise the multiplier by which their "natural units" must be "corrected" is indeterminate (depending partly on the ratio of the number of their natural units and partly on the amount of other factors with which they are combined). Mrs. Robinson seems to be aware of this difficulty, as her footnotes on pp. 332 and 344 show. But where are we to find resources between which the elasticity of substitution is infinite and which are yet normally classed as different factors? Surely it is more usual to err in the opposite direction.

III

Lack of space makes it unfortunately impossible to examine Mrs. Robinson's analysis of "competitive equilibrium" in Book III—which is the most relevant part of the book from the point of view of imperfect competition theory. We shall hope to return to it on a subsequent occasion. Here I should like to confine myself

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1 Theoretically by the introduction of collective bargaining wages could be raised by a percentage equal to $\frac{100}{E}$, without causing unemployment (where $E$ is the elasticity of supply of labour to the individual employer).
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to two points which concern not so much her actual conclusions as the technique adopted.

(i) The first of these concerns her concept of an "industry" (under conditions of imperfect competition). It implies the assumption that the products of different firms consist of a "chain of substitutes" surrounded on each side by a "marked gap" within which the demand for each firm's product is *similarly sensitive* with respect to the price of any of the others. The "boundary" is thus defined as the limit beyond which this sensivenes ceases or at any rate becomes a different order of magnitude. No doubt for each particular producer there exists such a boundary. But there is no reason to assume (except in some very special cases, involving a peculiar grouping of consumers) that this boundary is the same for any group of producers; or that the sensiveness of demand for the products of any particular producer is of the same order of magnitude with respect to the prices of any group of his rivals. Some producers will be "nearer" to him, others "farther off". If the demand for cigarettes in a particular village shop is more affected by the price of beer in the opposite public-house than by the price of cigarettes in the shop at the nearest town, which of the two would Mrs. Robinson lump together into "one industry": the seller of cigarettes plus the seller of beer in the village, or the seller of cigarettes in the village plus the seller of cigarettes in the town?¹

(ii) The second concerns her concept of a demand curve confronting an individual producer. The traditional "market demand curve" for a certain product is *not the same sort of thing* as the demand curve which is relevant in determining the actions of the individual producer. The first denotes a functional relationship between the price and the amounts bought from a particular producer. The second concerns the *image* of this functional relationship as it exists in the mind of the entrepreneur. The two may differ widely. The second may be much more, or much less,

¹ Mrs. Robinson is no doubt aware of the arbitrary nature of the assumptions underlying her concept of an "industry". But I doubt if she allows for the extent to which these assumptions are indispensable for her subsequent conclusions. For it is only under the assumption that there is a large group of firms between which the preferences of consumers are evenly divided (i.e. the "cross elasticities of demand" are of the same order of magnitude) that we can draw up a demand curve for the product of each; since it is only then that we can assume that a change in price by a single producer will not significantly affect the demand for any other single producer. Cf. p. 60 below.
elastic than the first; it may be discontinuous while the "real demand curve" is continuous.\footnote{Since entrepreneurs generally have no more than a very vague idea of their own demand curve it is more reasonable to assume that this "imagined demand curve" is a discontinuous one. In which case marginal revenue may be equal to marginal cost at several outputs. The two may even cut each other at a point where marginal revenue is equal to price.} It is easy to say that the general assumption of "perfect knowledge" eliminates this difference. But it is important to remember that such an assumption is something quite different and logically much less satisfactory in the case of imperfect competition than in the case of perfect competition. (1) In the case of the latter, it only implies that people know the relevant prices (in the present or in the future) quoted in the markets. In the case of the former it implies a knowledge of hypothetical situations to which the price-mechanism may give no indication at all. (2) The "real demand curve" confronting the individual producer might be (and if the above argument is correct, generally will be) indeterminate; since it depends on the way other producers react to his actions (this reaction can take the form either of a change of price or of a change in the quality of the product, both affecting in different ways the first producer's demand), and these reactions under a régime of monopolistic competition, cannot be derived unequivocally from the data.\footnote{Mrs. Robinson, following a suggestion of Professor Figou, draws up a demand curve under the assumption that not the prices, but the "conditions of supply" of all other commodities are given and which then shows "the full effect upon the sales of a particular firm resulting from any change in the price it charges" (p. 21). But this method of drawing up demand curves is only legitimate under conditions of perfect competition. For it is only under perfect competition that the marginal cost curve becomes the supply curve of the individual firm. (On p. 27, on the other hand, the same that "we ignore the fact that the price charged at any one moment may alter the position of the demand curve in the future" from which one would infer that she regards the prices of all other products as given.)} The "imagined demand curve", on the other hand, becomes determinate as soon as it exists in the producer's imagination—and since something always must exist there\footnote{If the entrepreneur has no idea of his own particular demand curve at all, this is equivalent to an "imagined demand curve" which is completely horizontal up to the amount actually sold, and then becomes completely vertical. It therefore consists of a single "step". The better "idea" the entrepreneur has of his own demand curve the more of such steps will his imagined demand curve consist.} the question of indeterminateness simply does not arise in this case. If on the other hand, by assuming perfect knowledge we make the two coincide, not only do we make the analysis unnecessarily unrealistic, but we introduce complications (by rendering the
"imagined demand curve" indeterminate) which can be avoided. ¹

Moreover, imperfect knowledge regarding the "real demand curve" is consistent with a state of equilibrium in a sense in which imperfect knowledge in regard to prices is not. So long as a producer sells as much at a given price as he expects to sell, his erroneous ideas concerning the elasticity of demand at that price are quite immaterial. The "imagined" and the "real" demand curve are thus merely required to meet at one point—I admit, at the critical point—otherwise they may show the wildest divergence without upsetting equilibrium. This not only implies that in the absence of perfect competition ignorance may persist with impunity; it also implies that under monopolistic conditions people's subjective estimates of their situation (apart from their actual situation) constitute one of the independent determinants of equilibrium.

Recent work in the theory of duopoly has also made it clear that that baffling question can only be satisfactorily treated by explicitly allowing for the entrepreneur's estimates of his rivals' reactions, as distinct from the actual reaction itself. This, of course, is not easy to do by "curves". But does it not seem probable, in the light of preceding remarks, that a more thoroughgoing recognition of this factor would both unify and simplify the whole theory of imperfect competition?

¹ Professor Chamberlin, who uses the same concept in his Theory of Monopolistic Competition, specifically assumes "perfect knowledge," and makes the demand curve determinate by assuming that the effect of a single producer's actions on any other single producer are always negligible, and thus will not induce him to change his own policy in turn. We have seen the reasons for doubting the legitimacy of such an assumption. Mrs. Robinson says at one place (p. 23) that "we shall assume that it is legitimate to make use of a two-dimensional demand curve, without enquiring how it is drawn up" from which one could infer that she is thinking of such an "imagined demand curve". But, unfortunately, neither her definitions on pp. 20-2 nor her subsequent analysis bear out this interpretation.