Entrepreneurship and Development

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ENTREPRENEURSHIP AND DEVELOPMENT*

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Ι

The received theory of competition gives the impression that there is no need for entrepreneurship. If all inputs are marketed and their prices are known, and if all outputs are marketed and their prices are known, and if there is a definite production function that relates inputs to outputs in a determinate way, then we can always predict the profit for any activity that transforms inputs into outputs. If net profits are positive, then this should serve as a signal for entry into this market. The problem of marshaling resources and turning them into outputs appears to be a trivial activity. From this point of view it is hard to see why there should ever be a deficiency of entrepreneurship. But there is frequently a lack of entrepreneurship. The answer is that the standard competitive model hides the vital function of the entrepreneur.¹

My aim in what follows is twofold: to suggest a theory of the economy and of entrepreneurship in which entrepreneurship has a unique and critical role and to use this theory to indicate why entrepreneurship is a significant variable in the development process.

In a paper published in 1966 [9] I argued that there does not exist a one-to-one correspondence between sets of inputs and outputs.² There are three main reasons for this: contracts for labor are incomplete, the production function is not completely specified or known, and not all factors of production are marketed. I will argue that these are the basic postulates for an economy in which entrepreneurship has a distinct and critical role.

We may distinguish two broad types of entrepreneurial activity: at one pole there is routine entrepreneurship, which is really a type of management, and for the rest of the spectrum we have Schumpeterian or "new type" entrepreneurship. (We shall refer to the latter as N-

* The author would like to thank his colleagues Sam Bowles, Albert O. Hirschman, Gustav Papanek, Nathan Rosenberg, and Ray Vernon for helpful comments that led to some revisions of an earlier version. They are not responsible for the deficiencies that remain.

¹ This point is elaborated in detail in Professor Baumol's paper [3]. His quotation from Veblen is especially apt. Professor Hirschman makes similar points in [8a, pp. 2–5].

² See [9] for evidence of specific cases. Econometric evidence on production functions is hard to interpret. Production functions fitted for specific industries frequently have very low values for \mathbb{R}^2 . While this is consistent with the notion that there is no one-to-one correspondence between inputs and putputs, there are also many other reasons why the fits may be poor. See Marc Nerlove, "Recent Empirical Studies on the CES and Related Production Functions," in *The Theory and Empirical Analysis of Production* (N.B.E.R., 1967), p. 78.

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entrepreneurship.) By routine entrepreneurship we mean the activities involved in coordinating and carrying on a well-established, going concern in which the parts of the production function in use (and likely alternatives to current use) are well known and which operates in wellestablished and clearly defined markets. By N-entrepreneurship we mean the activities necessary to create or carry on an enterprise where not all the markets are well established or clearly defined and/or in which the relevant parts of the production function are not completely known. In both cases the entrepreneur coordinates activities that involve different markets; he is an intermarket operator. But in the case of N-entrepreneurship not all of the markets exist or operate perfectly and the entrepreneur, if he is to be successful, must fill in for the market deficiencies. To my mind one of the main obstacles to our understanding of the entrepreneurial role lies in the conventional theory of the production function. This theory seems so reasonable at first blush that we are likely not to notice the subtle assumptions it makes. The basic culprits are the following assumptions: that the complete set of inputs are specified and known to all actual or potential firms in the industry, and that there is a fixed relation between inputs and outputs. The first assumption is implicit. To my knowledge, it is never stated explicitly. but I have not made an exhaustive search of the literature to check this. The second assumption is explicit, but it is rarely challenged.

In its usual conception the production function is considered to be clearly defined, fully specified, and completely known. Where and to whom in the firm this knowledge is supposed to be available is never stated. In fact, there are great gaps of knowledge about the production function. Points on the production function refer to well-defined inputs. To the extent that they are not completely defined in actuality, the entrepreneur must in some way make up the deficiency. Suppose that to produce a certain commodity, a certain type of machine has to be employed. If no one in the country produces such a machine and if imports are barred, only entrepreneurs who have access to information on how to construct the machine can enter the industry. The potential entrepreneur has to make up for a market deficiency. But that is not his only major function.

Important inputs not well marketed are types of management and market knowledge. Even managers of the more routine type may not be available in well-organized markets in many developing countries. Where available, their capacities may be very difficult to assess. One of the important capacities of management is the ability to obtain and use factors of production that are not well marketed. In some countries the capacity to obtain finance may depend on family connections rather than on the willingness to pay a certain interest rate. A successful entrepreneur may, at times, have to have the capacity to operate well in the political arena connected with his economic activities.

The usual characteristics attributed to entrepreneurs involve gapfilling as one of their essential underlying qualities. For example, it may be thought desirable that entrepreneurs possess at least some of the capacities to: search and discover economic opportunities, evaluate economic opporturities, marshal the financial resources necessary for the enterprise, make time-binding arrangements, take ultimate responsibility for management, be the ultimate uncertainty and/or risk bearer.³ provide and be responsible for the motivational system within the firm, search and discover new economic information, translate new information into new markets, techniques, and goods, and provide leadership for the work group. In a world of perfect markets, if such a world were possible, each of these characteristics would be marketed as a specific service. Thus, some firms might specialize in the discovery of economic opportunities and sell this information to others. A similar remark could be made of each of the capacities mentioned above. The reason that this is not the case is because some inputs are inherently unmarketable, and some are difficult to market and are frequently unmarketed. For example, we cannot have a perfect market in risktaking since, among other reasons, there is a "moral risk" problem in profit insurance. (The entrepreneur can intentionally do poorly and cash in on the policy.) Similarly, if the motivational system is the sum of all the human elements and their relations to each other within the firm rather than something specifically provided from outside the firm, then this element cannot be marketed. One of our basic points is that the conditions for perfect markets and the nature of some commodities are inconsistent with each other.

It is important to stress that entrepreneurial activities do not arise only because of market structure imperfections. This view gives too shallow an interpretation of the entrepreneurial role.⁴ First, some gaps in markets are inherent in all cases. Second, and what is perhaps less apparent, is that the entrepreneur has to employ some inputs that are somewhat vague in their nature (but nevertheless necessary for production), and whose output is indeterminate. The provision of leadership, motivation, and the availability of the entrepreneur to solve po-

³ Schumpeter [12, p. 137] is very firm on the point that the entrepreneur is not a risk bearer or uncertainty bearer: "The one who gives credit comes to grief if the undertaking fails." Furthermore, in countries with highly developed stock markets some entrepreneurs can shift the risk by selling shares.

⁴ A narrow "imperfect market" interpretation of the entrepreneurial role gives the impression that markets are perfectable, say by the elimination of monopolistic influences, and that by doing so, the significant aspects of the entrepreneurial role can be eliminated thereby. This is not the view taken in this paper. The ideas of this paper are not brought out fully by thinking that the entrepreneurs' role depends only on market imperfections.

tential crisis situations, the capacity to carry ultimate responsibility for the organizational structure and the major time-binding (implicit or explicit) contractual arrangements are of this sort. Third, and most important, the entrepreneur has to possess what might be called, for want of a better term, an "input completing" capacity. If six inputs are needed to bring to fruition a firm that produces a marketable product, it does no good to be able to marshal easily five of them. The gap-filling and the "input-completing" capacities are the unique characteristics of the entrepreneur.

As we have defined the entrepreneur he is an individual or group of individuals with four major characteristics: he connects different markets, he is capable of making up for market deficiencies (gap-filling), he is an "input-completer," and he creates or expands time-binding, input-transforming entities (i.e., firms).

Entrepreneurship is frequently a scarce resource because entrepreneurs are gap-fillers and input-completers and these are scarce talents. Other things equal, the amount of gap-filling and input-completing required determines the degree of scarcity. Gap-filling is necessary because information about some inputs are unmarketable; and because private information about markets cannot always be proven and made public information. Of course, gap-filling will also be necessary where universalistic markets have not been developed, or where the inputs are, in principle, marketable but for some reason such markets have not arisen. For any given economic activity there is a minimum quantum of various inputs that must be marshaled. If less than this minimum variety is universalistically available, the entrepreneur has the job of stepping into the breech to fill the lack of marketable inputs; i.e., he must be an input-completer.

In my "X-efficiency" paper [9] I argued that neither individuals nor groups (say, firms) work as hard or as effectively or search for new information and techniques as diligently as they could, nor is effort maintained at a constant level. The nature and degree of directed human effort of a given individual is not invariable in the sense in which the characteristics of some physical inputs and their capacities may be said to be invariable. The degree of directed effort depends on a variety of factors that determine the internal motivational state of the firm and the external motivational state of the appropriate segment of the economy. Thus, under some circumstances the level of directed effort of the human inputs may be low and, as a consequence, some firms operate under a considerable degree of slack [5] [9]. Persistant slack implies the existence of entrepreneurial opportunities.

The motivational state is likely to be composed of the following elements: (1) The system of financial rewards for effort, some of which

may be directly related to the quantity of output but some of the rewards may not be clearly related to output. (2) There may also be a system of rewards and "punishments" related to aspects of behavior other than the productive ones. For example, promotion within a firm may be related to personality traits or kinship or personal ties unconnected to the direct pursuit of the aims of the firm. (3) Finally, there is an interpersonal mechanism of group approval and disapproval, as well as approval-disapproval relations between individuals in different relative hierarchical statuses that normally influence productive behavior. The sum of these relationships is essentially the motivational state of the system. It seems clear that the degree and nature of directed effort will depend on the motivational state. This is especially likely to be true for nonroutine aspects of directed effort such as those involved in the introduction of technological change.

There is a significant relation between the entrepreneur's perceptive capacity and the fact that firms operate under some degree of slack [9]. The existence of slack and the fact that not all inputs are marketed means that the market signals for profit opportunities are blurred. Since there is no one-to-one correspondence between inputs and outputs, a knowledge of output price and input prices can no longer yield the necessary signals. On the other hand, an error in perception can be partially counterbalanced by increased effort in marshaling resources and in operating the plant.

It is noteworthy that the traditional theory does not explain the existence of firms as time-binding entities. The theory presented here suggests that since the production function is incomplete, firms become valuable storehouses of detailed experience and knowledge. In part, this means that successful firms are entities that house successful motivational systems that can be retained only through a scheme of renewable contractual arrangements of different time durations. It is in this way that the firm captures some of the long-term benefits of previous gap-filling and input-completing conquests.

A way of looking at the essential elements is to visualize the economy as a net made up of nodes and pathways. The nodes represent industries or households that receive inputs (or consumer goods) along the pathway and send outputs (final goods and inputs for the other commodities) to other nodes. The perfect competition model would be represented by **a** net that is complete, that has pathways that are well marked and well defined, that has well-marked and well-defined nodes, and one in which each element (i.e., firm or household) of each node deals with every other node along the pathways on equal terms for the same commodity. In the realistic model we have in mind there are holes and tears in the net, obstructions (knots) along the pathways, and some nodes and path-

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ways, where they exist, are poorly defined and poorly marked or entirely unmarked from the viewpoint of elements of other nodes. We may refer to this net as impeded, incomplete, and "dark" in contrast to the unimpeded and "well-lit" net that represents the competitive model. Of course, a portion of the real economy net may very loosely approximate the "unimpeded" net of the perfect competition model. Entrepreneurs working in the well-defined, non-hole, non-obstruction part of the net carry out routine entrepreneurial-managerial activities, while those that operate on the impeded, incomplete, and dark parts carry out N-entrepreneurial activities. Entrepreneurial activities will make some portions of the net less impeded through extending markets (i.e., creating new pathways) but may make others more so through the creation of monpolies, or the creation of other obstacles (e.g., high entry costs) where they previously did not exist. Inventions and the creation of new knowledge will to some extent extend the net to vague and incomplete areas, but other inventions may substitute relatively well-defined pathways and nodes for those which were ill-defined and obstruction-laden previously.

II

Although there is no universally accepted theory of development we can point to two important elements in the process: (1) Per capita income growth requires shifts from less productive to more productive techniques per worker, the creation or adopton of new commodities, new materials, new markets, new organizational forms, the creation of new skills, and the accumulation of new knowledge. (2) Part of the process is the interaction between the creation of economic capacity and the related creation of demand so that some rough balance between capacity growth and demand growth takes place. The entrepreneur as a gap-filler and input-completer is probably the prime mover of the capacity creation part of these elements of the growth process.⁵

We now know that development is not simply a process of physical and human capital accumulation in the usual sense. If that were all that were involved, then development would simply be a function of the willingness to save. Experience has shown that this is not the case. The work of Solow and others [1] [2] [13] have shown that growth cannot be explained by the contributions of the increase in standard inputs. The work of Chenery and Strout [4] emphasizes that the degree of capital absorption can be a significant constraint to growth in developing

⁶ The basic idea is that firms do not operate on their production possibilities frontier. In part, the internal motivational state of the firm determines the degree to which actual output is less than the production possibilities frontier output. Thus, costs per unit of output are not minimized. The size of the difference between actual costs and true minimum costs offers opportunities for those entrepreneurs who think they can produce at lower costs.

countries. The existence of and need for gap-filling and input-completing capacities could explain why standard inputs do not account for all outputs and why capital absorption should be a problem. Economic planning experience in many countries reveals that there is frequently a considerable divergence between plan targets and results. This divergence may be partly explained by the fact that enterpreneurship is not a normal input whose contribution can be readily determined, predicted, planned for, or controlled.

We now sketch briefly some of the basic strands of a theory from which the concept of the entrepreneur as a gap-filler and input-completer derives.

The demand side is determined by the following: (1) The maximal production possibilities set in the sense of maximum knowledge. By maximum knowledge we mean that the techniques are known somewhere in the world-knowledge that is conceivably obtainable although it may be at an exceptionally high cost. (2) We deduct from the large maximal possibilities set the subset of techniques in use and those techniques that contain the following basic characteristics: they are actually known in detail without anything more than routine search activities and the inputs required for production are marketed on a routine basis. (3) What is left is that portion of the maximal production possibilities set which forms the potential opportunities for gap-fillers. Now, gapfilling and input-completing activities are usually costly. Taking these costs into account and calculating the expected prices of marketed inputs and potential outputs, each element in the gap-filling opportunity set can be associated with a set of potential profits or losses (depending on who does the gap-filling). We reduce the gap-filling opportunity set to those possibilities that are associated with expected yields of positive net profits. This set is likely to be very much larger than what will actually be pursued by entrepreneurs. The gap-filling opportunity set is likely to be non-unique since the costs associated with gap-filling depend on the specific entrepreneur that attempts to take advantage of the opportunity. The sequence in which gap-fillers choose opportunities will determine the degree to which any one turns out to be profitable. In addition, the degree of effort put forth by different enterpreneurs and the same entrepreneur at different times will vary, depending on the personality, circumstances, and the motivating influences that exist at the time. Thus, the association between gap-filling opportunities and profitable opportunities is not likely to be a unique one-to-one correspondence.

The supply side is determined by the following: the set of individuals with gap-filling and input-completing capacities, the sociocultural and political constraints which influence the extent to which entrepreneurs take advantage of their capacities, and the degree to which potential entrepreneurs respond to different motivational states, especially where nontraditional activities are involved. Clearly, the personality characteristics of entrepreneurs are important. Apart from gap-filling and input-completing capacities, the potential entrepreneurs' response to opportunities will depend on their preference for certain modes of behavior as opposed to others. Thus, the entrepreneurial personality theories developed by Hagen [6] and McClelland [10] which connect nurture to the creation of entrepreneurial drives are significant elements on the supply side. Last, but not least, the alternatives open to individuals are importtant, since we must take into account opportunity costs of entrepreneurial acts.

In such a theory growth would depend, in part, on the degree of routine entrepreneurship, the degree to which gaps and impediments in markets exist, and the quality, motivations, and opportunity costs of the potential gap-fillers and input-completers available.

It is not possible at this stage to develop a complete and detailed model of economic development and entrepreneurship. One reason for this is that we do not have, at present, a theory of obstructed, incomplete, and "relatively dark" economic systems. However, it may be useful to sketch briefly the broad outlines of what such a model might contain if further research proved successful.

The model, if it were successfully developed, should enable us to describe the the motivational state that arises from any given state of the impeded system and the reactions to the motivational state. That is, the model should show the links between the maximal opportunity set and those opportunities that are actually perceived and pursued by entrepreneurs. We now attempt to specify the links that are likely to be involved: (1) The input gaps are in part determined exogenously. (2) Given the input gaps, and the opportunity set, the interfirm motivational state should determine the degree to which firms expand in response to the pull of profit opportunities and the push of the fear of falling behind competitive firms. The interfirm motivational state itself is determined by the number of firms in the industry, the nature of the market structure, and the energy and aims of the entrepreneurs within these firms, which in turn determines the degree of competition between firms. The interfirm motivational state is unlikely to be sufficient to determine how any specific firm behaves. Among the intervening elements is the perceptive mechanism of the firm which determines the way in which firms receive, filter, and process market information and the degree to which firms become aware of changes of relative competitive status. (3) Thus, the intrafirm motivational state, whose constituents we have described above, determines how firms react to the activities of competitors, and to changes in the opportunities the firm faces. The intrafirm motivational state depends in part on the organizational

structure of the firm and in part on the rate of change of manpower (especially managerial personnel) within the firm. The basic notion here is that as new individuals enter the firm, the existing equilibrium between decision-makers and their reactions to each other and to external opportunities may change so that the intrafirm motivational state changes accordingly. Of course, this last depends also on the degree to which new management personnel are similar or different in their capabilities and attitudes from those that they replace. (4) Finally, the inputcompleting and gap-filling capacities of the potential entrepreneurial pool determines the response of members of this pool to changes in opportunities and motivational states. An important aspect of the abilities involved is both the perception of economic opportunities and the capacity to assess such opportunities. These are presumably determined in part by factors exogenous to the system such as those involved in nurture, informal training, experience, as well as formal education of individuals. In sum, the model should in some way enable us to specify the relations of the links mentioned to the nature of economic states so that we can determine entrepreneurial reactions to changes in the economic state.

It might be helpful to classify N-entrepreneurs into different categories and determine each category's responsiveness to a given motivational state. Probably a significant part of such a model would be the interaction of different types of entrepreneurs to each other's activities (i.e., imitation, linkages, followers on "cleared" pathways, knowledge spread, etc.). Each period the response of the N-entrepreneurs to the motivational state creates a new state of the system and changes the motivational states in subsequent periods. At the same time it changes the supply of N-entrepreneurs in subsequent periods since some of those that enter foreclose their availability on subsequent occasions. Thus, the impulses created by entrepreneurial acts lead to sequences of entrepreneurial activities and changing opportunities which influence the pattern and rate of growth.⁶ In addition, basic secular factors would have to be taken into account, since each year some potential entrepreneurs retire and others enter, while, at the same time, inventions lead to changes in the technical frontier and add new elements to the impeded and incomplete part of the market net.

\mathbf{III}

To be of interest a theory needs some conjectures to tell us how some basic elements in the theory behave. Hence, to add some interest to this

⁶ It would be interesting to see under what assumptions we could derive from such a model the growth promoting backward linkages suggested by Professor Hirschman [7] [8].

paper, I will hazard the following, all of which are on an "other things equal" basis: (1) The greater the rate of growth desired, the greater the quantum of gap-filling and input-completing capacities required. (2) The supply of active gap-fillers depends on opportunity costs. (3) The greater the assets of the group related to the gap-filler by kinship or friendship ties, the greater the gap-filling capacity of the entrepreneur involved. (4) Differential gap-filling and input-completing capacities are a critical element in explaining the differential rewards of entrepreneurs. (5) The routinization of gap-filling activities reduces the rewards of entrepreneurs.

There are a set of theories about entrepreneurship which revolve around the notions that in underdeveloped countries entrepreneurs prefer traditional industries, that their behavior is tradition-bound, and that they face overriding institutional obstacles. Yet, developing countries have periods of low growth and other periods of rapid growth. My conjecture in this connection is that in fact traditionalism is not the critical element but that the motivations present—e.g., the profit rates —are such that those with gap-filling capacities are willing and able to exert themselves under some motivational circumstances and reduce the degree of exertion under others. Thus, the ebb and flow of low and high growth rates can be explained without positing institutional rigidities that would appear to be almost impossible to overcome.

Two related elements that come to mind are the facts that entrepreneurs frequently come from groups which have fairly large extended families who are often engaged in trade and that they are disproportionately recruited from elements of the population that in some sense or other are looked upon as "outsiders." The extended family aspect can be explained by the fact that gap-filling capacities depend in part on kinship relations in which there is a much higher degree of trust and through which one can draw on more diverse capacities than exist on a universalistic basis. While there are many aspects to the outsider part of the phenomena, part of it, perhaps, can be explained by the fact that to the extent that outsiders are restricted from some economic opportunities, their opportunity costs as entrepreneurs are likely to be lower than other portions of the population, and hence they more readily engage in entrepreneurial activities compared to "insiders" whose opportunity costs are higher. However, not all outsiders become entrepreneurs since low opportunity costs can only be a facilitating and not a sufficient condition for entrepreneurship.

I realize that I run the risk of being charged, to use Professor Baumol's phrase, with offering nothing more than a taxonomy. I want to suggest that this is not the case—that the characteristics of the world described in this paper and the specified nature of the entrepreneurial role is such that it does lead to potentially interesting conclusions for development problems.

Our basic assumptions are as follows: (1) Motivation internal to the firm is a basic input that is not marketed. (2) There always exists some degree of slack (or excess capacity) due to low X-efficiency. (3) To bring any enterprise into fruition requires the marshaling of a minimum quantum of inputs. (4) Some inputs are "nonexhaustible" in the usual sense; that is, they do not necessarily decrease with use. Indeed, in some cases the opposite may be the case. Knowledge and motivation are two inputs of this type.

Some possible conclusions derivable from our assumptions are as follows:

1. While entrepreneurship may be scarce because of a lack of inputcompleting capacities, some entrepreneurial characteristics may in fact be in surplus supply; that is, they are unused simply because of the lack of the input completing capacity. In addition, some may be unused because the motivational state does not bring forth an adequate entrepreneurial response. As a consequence, it is possible that in some cases, small changes in the motivational state or in the reduction of market impediments may turn entrepreneurial scarcity into an abundant supply.

2. Our analysis of entrepreneurship requires us to reconsider the literature on investment criteria. Since investment can alter the market impediments and hence alter the supply of entrepreneurship, we must consider such possible side effects in our investment criteria. Thus, a lower profit investment that releases entrepreneurial energies and capacities may be more fruitful in the long run than a higher profit investment, if profit is calculated apart from the side effects we have just mentioned.

3. Some types of input creation which would normally appear to be functional may in fact be dysfunctional when the side effects are taken into account. For example, some types of higher education provided to potential entrepreneurs may be dysfunctional in that it increases the opportunity costs of potential entrepreneurs and may as a consequence decrease the supply of entrepreneurship.⁷

4. The theory suggests that training can do something to increase the supply of entrepreneurship. Obviously, not all characteristics of entrepreneurs are trainable. However, since entrepreneurship requires a combination of capacities, some of which may be vital gaps in carrying out the input-completing aspect of the entrepreneurial role, training can eliminate some of these gaps. For example, it may be difficult to train people to spot economic opportunities, but it is possible to train them to

⁷ Somerset Maugham's story of the illiterate verger is an illustration of this possibility.

assess such opportunities once perceived. Similarly, certain managerial skills are trainable, but without them new firms might not survive because of their inability to overcome initial managerial difficulties.

For policy purposes, the theory suggests that development economists focus their attention when concerned with specific countries on studying the gaps, obstructions, and impediments in the market network of the economy in question and on the gap-filling and input-completing capacities and responsiveness to different motivational states of the potential entrepreneurs in the population.

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