

The (Forgotten?) Link Between the Entrepreneur, Increasing Returns, and Economic Growth

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The tenuous place of the concept and role of entrepreneurship is reflected in a relatively recent proposed "synthetic definition" of the entrepreneur as "someone who specializes in taking responsibility for and making judgment decisions that affect the location, form and use of goods, resources or institutions". This definition is "synthetic" in the sense that it incorporates the main historical themes of entrepreneurship: "risk, uncertainty, innovation, perception and change within the market system. Its activities include, *but are not limited to*: coordination, arbitrage, ownership, speculation and resource allocation" (Hebert and Link, 1989, p. 47). While this eclectic definition seemingly incorporates all the essential themes of entrepreneurship, it is relevant to recognize that it reflects the predominant neoclassical and Austrian focus on the theory of value and price. Particularly in the literature that has developed from the perspectives of Knight (1920), Coase (1937), Mises (1949), Penrose (1959), Kirzner (1973, 1979, 1985, 1989) and, most recently Casson (1982), entrepreneurship has become linked to the operation of the successful firm as the arbiter of personal drive and creativity. Contemporary interpretations of entrepreneurship are thus predicated on a variant of the methodological individualism that is the hallmark of neoclassical analysis (Davis 1998). While there is some commonality between these contemporary interpretations and their classical origins, more fundamentally they have wrested the entrepreneurial function from its classical moorings in which entrepreneurs as a class harness the social surplus in their quest for increasing returns. Classical writers from the Physiocrats forward concerned themselves primarily with the phenomenon of economic growth via additions to the social surplus coupled with accumulation and productive use. The process of

growth was thus envisioned as being endogenous to the economy and as involving the shift of resources from less productive to more productive uses.' While J. B. Say was the first writer to actually use the term *entrepreneur*, the Physiocrats were cognizant of the critical role that the entrepreneur has for realizing increasing returns in the process of transforming the economy by envisioning and directing the inter-sectoral shift of resources.

Classical growth theory was developed from this seminal insight, only to be "lost" when Alfred Marshall shifted the focus of analytical thinking from growth to the allocation of resources and, in effect, downgraded the classical entrepreneurial class to the neoclassical "captain of industry". This led, on the one hand, to neoclassical theories of the firm (in particular by Joan Robinson [1933] and Edward Chamberlin [1933]) in which the entrepreneur is virtually invisible and operates without reference to the macroeconomy. Despite Allyn Young's (1928) return to Adam Smith's division of labor theme to examine the relationship between increasing returns and economic progress, equilibrium theorizing also led to formal models of macroeconomic growth, which are neoclassical in their treatment of the determinants of growth (e.g., technical progress, population growth, savings, and capital-output ratios) in such a way as to bring the economy back toward a steady state growth path. Thus the link between the concept of entrepreneurship and endogenously generated increasing returns, which was an integral part of classical thinking (though the link was by no means equally articulated by all), was substantially lost until it was reestablished by Nicholas Kaldor, Allyn Young's one time student at the London School of Economics. His appreciation of the growth implications of dynamic entrepreneurship stands as a major detour from mainstream theorizing that accords no special role to entrepreneurs and treats technical innovation as exogenous (i.e., as "embodied" in gross investment), assumes constant returns, and is concerned with growth models in which key behavioral variables, i.e., the savings rate (S), capital-output ratio (V), and the rate of growth of the labor force (n) are defined in ways that cause the economy to gravitate toward a steady state growth path. 2

The Physiocratic Origins of Sectoral Analysis

From the Physiocrats to Marx the central focus of classical thinkers has been on the economy's inherent propensity toward endogenously driven change in response to opportunities to generate a surplus. ³ The major contribution that has been claimed on behalf of the Physiocrats is their recognition that "the growth of the economy must be viewed basically as a system of inter-sectoral flows" (Fei and Ranis 1966, p.4). Thus their *Tableau* envisioned the transfer of members of the sterile classes into sectors (chiefly agriculture) where nature works with man to generate a surplus. Considered as a class of income, the surplus is a pure residual. For Francois Quesnay and his followers, *Nature is* the source of this surplus, or net product, which is paid as rent to the landowning classes; their subsequent expenditures simultaneously circulates the net product at prices that support wage payments and profit residuals. While Quesnay's earliest article *Fermiers* (1756) identifies Nature as the primary source of the agricultural surplus, it also clearly recognizes the link between adopting improved techniques of production and the ongoing accumulation of capital by the tenant farmer, thereby furthering the transition from the old system of share-cropping (metayage) to the reorganization of production toward one that is capitalistic (Vaggi 1987, Chapter 5). The reinvestment of profits by tenant farmers into large-scale agricultural production (i.e., reorganization) generates dynamic increasing returns to scale, which decreases per unit input requirements. The process has been described in terms of a technical progress model in which the accumulation of agricultural capital is the source of growth (Eltis 1975). This model implicitly envisions the transition from small to large estates, which facilitates growth by shifting human and physical resources from the economy's unproductive sector(s); i.e., from those in which man does not work with Nature into those that are land based and inherently more productive. Thus, the inter-sectoral exchanges taking place in Quesnay's *Tableau* after the harvest among landlords, tenant farmers, and the artisan (or sterile) classes are inherently dynamic. The exchanges it 3

depicts reflect the process of creating the net product (surplus) that remains after the input costs of labor and capital have been replaced. They thus fulfill the requisites for the reproduction of the economy.

The earnings of tenant farmers derive from the function they perform in assisting nature in the generation of the landlord's net product. Richard Cantillon emphasizes that as cultivator *en chef* tenant farmers assume entrepreneurial responsibility, and their earnings are an uncertain part of the sum that is handed over to the land-owner as rent. Cantillon's *Essai* (1755) described entrepreneurial responsibility as two fold; bringing together and coordinating factors of production and "undertaking" the completion of projects at contractually established prices. The clear implication is that what distinguishes entrepreneurial from decision-making in general is that it is undertaken under conditions of uncertainty with respect to returns. The entrepreneurial class confronts the uncertainty of being without knowledge about the future relationship between the prices at which they will be able to sell their products and the expenses of getting their crop to market. In sum, the thinking of the Physiocrats is that growth is an endogenous process driven by tenant farmer entrepreneurship that utilizes the economy's surplus to re-deploy resources from less productive to more productive sectors to generate uncertain increasing returns. The *bon prix* established by competition covers the socially defined requirements for worker subsistence, the replacement of fixed capital plus the surplus that is the source of the rent paid to proprietors and entrepreneurial profits (which are not necessarily positive). Thus tenant farmers are neither landowners who receive rent nor part of the laboring poor. While their profits are not necessarily positive, the Physiocrats expected that ongoing increases in the demand for agricultural goods would lead to further scale economies. By having recourse to new improvements and new opportunities for division of labor and specialization, the Quesnay/Cantillon perception of the tenant farmer's entrepreneurial function implies that the improvement of agricultural techniques yields increasing returns. Thus the economy's growth is endogenous to the system and depends chiefly on whether the surplus is used 4

productively. This is an outcome that the Physiocrats argued could be aided by appropriate reforms of the tax system and a shift from *petite culture* to *grans culture* to sustain the rate of profit.⁶

Quesnay's theory of the net product matured into Turgot's surplus theory of entrepreneurial profit that comes into existence as entrepreneurs respond to differences in the conditions of production in different sectors of the economy. While the entrepreneurial role performed by tenant farmers as a social class is clear in Quesnay's *Tableau*, their role in the provision of capital is only implicit. This aspect of surplus generation is clarified in the greater emphasis given by Anne Robert Jacques Turgot to surplus as the source of capital accumulation of capital. It led to his appreciation of the role of the landowner as a capitalist. Because land is but one form of capital, the uses of capital are competitive, causing its deployment from less productive sectors to those that are more productive. If the expectation of receiving a surplus in excess of the size of the equivalent available without work or risk, an individual who owns capital will invest in alternative industrial or commercial enterprises rather than agriculture. Movements of capital underlie the supply behaviors of producers (as well as merchants) to generate what Turgot terms the *prix fondamental*; i.e., the minimum expected price that is equivalent to the rent rate on land plus a risk premium. Quesnay's *Tableau* clearly showed that it is essential for an economy to have the capability for reproducing itself; i.e., to produce an output whose value represents a net output or surplus product in excess of the requirements for its production. However, it is Turgot who is to be credited with articulating the analogy between the payment of interest on a loan and the entrepreneurial profit that may result if the recipient of a surplus chooses to invest in a new technique or process.

The Transition to British Classicism

Smith and Babbage

A substantial part of Cantillon's *Essai* was translated for inclusion in Malachy

Postlethwayt's *Universal Dictionary of Trade and Commerce* (1751-55). Postlethwayt's straightforward translation of the French term "undertaker" was descriptive of such 17~'

century English projects as the drainage of the fens of Lincolnshire and its neighboring

countries by "undertakers", who were responsible for both the technical and business

aspects of public building. When Smith wrote about "money interests" his concern was to

distinguish them from "undertaker(s) of [a] great manufacturers)". This separated the

concept of the entrepreneur from its older "government contractor" meaning, but it also

abstracted the uncertainty that the entrepreneur confronts in the possibility that a

contractual price might not exceed or even cover entrepreneurial costs. It is the talent to

innovate and bear uncertainty in the sense of confronting the unknowability of the future

which are the essential functions of Cantillon's entrepreneur, and which are conspicuous

by their absence from Smith's *Wealth of Nations* (*WN*), and in the body of classical

economics that followed. Thus the source of entrepreneurial opportunity to profit from

the division of labor, and the technical innovations it facilitates, is conceived by Smith to

depend primarily on the extent of the market to be served.

Even in Smith's day, the extent of the market was viewed as reflecting both the increased demand associated with rising living standards and reductions in the cost of transport. His famous pin factory example attributed the increased productivity that derives from division of labor to three now well known circumstances: first, the dexterity of particular workers who become specialists in particular tasks; second, the greater efficiency that derives from eliminating the need to pass from one species of work to another; finally, promoting the invention of machines which abridge labor and "enable one

man to do the work of many" (*WNp.* 175). Thus Smith clearly appreciated the relationship between division of labor, innovation, and the advantages of increases in the scale of production. It is only if the supply of labor were to become inadequate that the 6

rate increase of the surplus would diminish. This, Smith believed, is unlikely because the size of the work force responds endogenously to the demand for it. The increase in the supply of labor is also associated with increases in capital accumulation and thus an increasing surplus. This is, no doubt, a reflection of his belief that the "projector" of a business enterprise is constantly seeking out new opportunities to earn profits by being an innovator and "speculative merchant". Writing against the backdrop of mercantilism, he condemns the history of European nations since the fall of the Roman Empire for pursuing an "unnatural and retrograde order development (WN 111), and subsequently argues that the most propitious sectoral employment of capital would direct it first into the primary sector where land, mines, and fisheries whose rude produce "replaces with a profit, not only those capitals, but all the others in the country" (VIN 11, 28). Smith's view is one of the vertical interdependence of the sectors of the economy (Deck 1954); the "correct order" for the employment of capitals will direct them first to the primary sector, followed by the secondary sector (manufacturers) and the tertiary sector (wholesale, retail and merchant trade). Though Smith entertained a very different view from that of the Physiocrats of the capability of labor to produce a surplus, the *Wealth of Nations* is predicated on essentially the same conception of endogenous growth based on deploying labor and capital according to a sectoral hierarchy that is dictated by the vertical interdependence of the economy's sectors (Rima, 1998).

While Smith's sectoral hierarchy overlooked the prospect of further increasing returns by international trade for entrepreneurs and nations, his countryman Charles Babbage (1791-1871), who has only recently been

credited as the "pioneer of the computer" (Herbert Hax, et. al., 1992), noted the added opportunities for division of labor available to a country that engages in trade. Specifically, he notes that division of labor frees employers from the necessity of paying their work-people wages that correspond to the market value of the highest skill level required for the work to be accomplished. As Babbage put it, "the master manufacturer, by dividing the work to be executed . . . can purchase exactly that precise quantity which is necessary for each process" (Babbage 7

1832, p. 175-6). Thus, the more extensive the division of labor, the greater the reduction in the time required for a work-person to learn a task, so that his employment generates a profit for his employer. The implication of Babbage's account of division of labor, which proceeds in terms of Smith's pin factory example, suggests the opportunities to achieve increasing returns by technological improvements are connected both to product demands and the prices of the factor inputs used in production. Babbage viewed technological innovation as a response to the need for achieving cost reductions through improvements in machinery and/or factory reorganizations (*Babbage p. 233*); this is fully consistent with the classical view of progress as an endogenous response to the requirement of a vertically interdependent system. In addition, Babbage writes, in order to carry out the principle of division of labor (p. 169) employers must be prepared to utilize tools specifically designed for their specialized needs, possibly for use in a new production facility. He even included a chapter entitled *Inquiries Previous to Commencing Any Manufacturing* (Chapter 35) that addressed the problems involved in calculating the cost of new machines. Specifically, Babbage writes "It can never be too strongly impressed upon the minds of those who are devising new machines, that to make the most perfect drawings of every part tends essentially both to the success of the trial, and to the economy in arriving at the result" (p. 262). "Further, if exertion of moderate power is the end of the mechanism to be contrived, it is possible to construct the whole machine upon paper" (p. 261).

Babbage also had the remarkable insight that "the art of making machinery" would involve testing; i.e., entrepreneurs constructing prototypes to evaluate the technical feasibility of new technology while also recognizing that the prospects for its commercial profitability is likely to be rendered even more uncertain in consequence of ongoing improvements "by which the same operations can be executed either more quickly or better. . ." (p. 285), so that older machinery becomes commercially obsolete.

Despite the formidable uncertainties relating to the discovery process, Babbage recognized that the ability to invent new machinery and skilled workers who are "as a 8

body far more intelligent than those who only use it" (p. 363) may well ensure a country (e.g. Britain) a comparative advantage in the manufacture of machinery. He advocated freedom for domestic manufacturers of machinery to export their products, because it guarantees that domestic machine users will always have prior access to the best technology, while the skilled workers who manufacture them will constitute a more highly paid and valuable class of work-people. Attention to organizational changes necessary for establishing large manufacturing enterprises will enable English manufacturers to maximize the increasing returns inherent in large-scale production. These immensely important insights, which he examined in Chapter 22 "On the Causes and Consequences of Large Factories", provided pioneering insights to John Stuart Mill (1848, Bk I, Chapter 7) and Karl Marx (Capital, V I Chapter 14-15).

The Demise of the Classical Entrepreneur

When the term "entrepreneur" was introduced into the language of English political economy by John Stuart Mill (1848), whose father James Mill is said to have learnt it from J.B. Say himself, the notions of uncertainty and the essential role of innovation as a requisite for entrepreneurship appear not to have been transmitted with it. Jean Baptiste Say (1776-1832) was an industrial entrepreneur as well as a political economist, who described the entrepreneur as a "mediator" who is the principal agent of production. Say surely understood that entrepreneurship embraces innovation and uncertainty, since these concepts were used by Cantillon (Redlich, 1949). Mill's concern, on the other hand, was to distinguish the reward for risk bearing received by the employer cum entrepreneur from that which rewards abstinence (as did Senior). His focus reflected the essential concern of classical economic theory to explain wages, profit and rent as the incomes of the three great social classes. Yet the deepest of the French economists' insights, in particular Turgot's, about the link between the entrepreneur's (i.e., capitalist's) utilization of the economy's surplus to generate increasing returns was lost on Mill. Proceeding in the context of the gross profit on capital, Mill simply identified the entrepreneur as the 9

person "who from funds in his possession pays the wages of the laborers, or supports them during their work; who supplies the required buildings, materials and tools, or machinery; and to whom by the usual terms of the contract the product belongs to be disposed of at his pleasure". He conceived of capital as a stock of producers' goods, which, although they have a monetary equivalent, are not linked to the capitalist's role as an entrepreneur, the source of his funding, or the mechanism by which funding is created. Rather, Mill's principle concern was that increases in the size of the market would encourage firms to increase their scale of production, with the likely joining together of small firms, which he feared might compromise the economy's degree of price competition (1848, Bk 1, Chap IX).⁹ That is, Mill's interest in economies of scale was not their relationship to growth, but that they would compromise what subsequently came to be described as "pure competition".

The counterpart of Mill's change in focus from Smith and Babbage is his seeming acquiescence to the mid-19th century expectation of the inevitability of the stationary state ([1848], 1965, III: 752)¹⁰. Even more important in the context of the question being explored here, it shifts the focus from the role of the capitalist-entrepreneur from reallocating labor and capital from less productive to more productive sectors of the economy to their reallocation within the individual firm or industry, which became Marshall's view of entrepreneurship as a "coordinating" activity.

Unlike Mill, Alfred Marshall did not believe that decreasing long run costs are incompatible with pure competition. He attributed the declining long-run supply curves that characterized England's important manufacturing industries to the presence of *external* economies that are equally available to all firms. Marshall maintained that the internal economies a firm gains by enlarging its size to achieve greater advantages of large-scale production and organization are self-limiting; first, because transportation costs tend to rise so fast in some industries as to restrict the market each firm can serve and, second, the business talents of the descendants of present business leaders are inferior to those of their forbears (1920, p. 316). These observations led Marshall to 10

conclude that the market would continue to be dominated by the forces of pure competition, so that increases in the long run output of an industry always come about from an increase in the *number of* firms, rather than an increase in the size of business firms.

For Marshall enterprise was essentially the activity of "coordinating" the variable inputs which a firm uses to produce outputs with given production functions and full and perfect information about their prices and the prices of the outputs in whose production they participate. Whether as a single business or various businesses in the same trade, the entrepreneur became transformed into a fourth factor of production, which Marshall termed "organization" (Stigler, 1941, p. 100). In the neoclassical theory of the firm, organization is the fixed factor that coordinates inputs to transform them into outputs. As Marshall explains in *Industry and Trade* (1919), the organization is the vehicle through which "the appropriate business ability and the requisite capital are brought together; it requires risk-bearing (pp. 612-13), and business connections" (p. 618). The "earnings of management" reward the (successful) efforts of "captains of industry" and reflect additions to the value of the total product in consequence of their "exceptional abilities or good fortune" (p. 624n) Yet, Marshall's treatment of the firm relates to an "optimizer", not an entrepreneur. The "captains of industry" he envisions do not begin to comprehend Cantillon's coupling of entrepreneurship with uncertainty, innovation, and the quest for increasing returns. Marshall's focus is simply on making decisions which are then replicated into an indefinite future until they are impinged upon by exogenous forces, in particular, "general improvements" in the industrial environment; these Marshall identified as "external" to firms in the sense that they are equally available to all. His external economies served as a conceptual device to re-enforce his view that pure competition rules the economy's markets except under the relatively rare instance of monopoly. Much of the insight that Babbage had already provided into the link between technical progress and the construction of larger scale plants and increasing returns as new knowledge was thus lost sight of (Rosenberg, Chapter 2). This insight into the 11

process of achieving increasing returns is precisely a role of entrepreneurship that was articulated by Joseph Schumpeter (1911) as the source of profit. Thus it is not difficult to understand why the term *entrepreneur* became substantially obsolete after Alfred Marshall published his *Principles* (1890).

In the same vein it is not difficult to understand how Marshall's reliance on external economies as the source of increasing returns decoupled that concept from its classical origins. Smith in particular offers both a theory of competitive equilibrium and a theory of economic evolution. The latter is predicated on his explanation of technological development and structural change. Marshall's analysis of equilibrium tendencies, while appearing to preserve intellectual continuity, not only envisions external economies as arising in particular firms or industries, which provoked Sraffa's famous critique (1925, 1926), but also served to separate the phenomenon of increasing returns from the self generating process of growth.

Increasing Returns: Market Competition vs. Growth

The most forward-looking post-Marshallian interpretation about the relationship between increasing returns and market competition came from Allyn Young's return to Adam Smith's theme of division of labor in 1928. The occasion was his Presidential address to Section F of the British Association for the Advancement of Science, on the subject of "Increasing Returns and Economic Progress". Writing at a time when England was already experiencing the depression that reached America in the 1930's, and when British industry was viewed as being less efficiently organized and directed than those in America and other Western countries, Young noted that "the most important single factor in determining the effectiveness of its industry appears to be the size of the market" (Young, 1928, p. 122). The buying power of its customers, i.e., the capacity of the market to absorb a large annual output of goods, is the critical factor that identifies a market that is sufficiently large to generate increasing returns. This is itself predicated on "fresh applications of the fruits of scientific progress to industry . . . [and] initiates responses 12

everywhere in the industrial structure which, in turn, have a further unsettling effect. Thus change becomes progressive and propagates itself in a cumulative way" (ibid. p. 533). Except for the impetus that comes from new knowledge, economic progress is secured principally by division of labor to more fully realize the economies of capitalistic or roundabout methods of production. For all practical purposes, Young reaffirmed Adam Smith's linkage of division of labor to the extent of the market and, in contradiction to Marshall, *the prospects that the economy as a whole has for increasing returns* via intersectoral resource shifts that alter the parameters on which future decisions relating to processes and organizations are made. Perceiving that each extension of the market alters the parameters on which future decisions relating to processes and organization are made. Young observes that "Even with a stationary population and in the absence of new discoveries in pure or applied science, there are no limits to the process of expansion [to generate increasing returns] except the limits beyond which demand is not elastic and returns do not increase" (ibid. p. 533-4). From this he observed that "the apparatus that economists have built for the analysis of supply and demand in their relation to prices [which] does not seem particularly helpful for the purpose of an inquiry into these broader aspects of increasing returns. In fact . . . reliance on it [i.e., the demand-supply apparatus] may divert attention to the incidental or partial aspects of a process that ought to be seen as a whole" (ibid.).

The foregoing was a significant reservation for a scholar coming out of Marshall's tradition. It was, in fact, a reservation that Young had already communicated by letter to Frank Knight in 1922 when he expressed his thoughts about general equilibrium; "I have yet to see that the method of general equilibrium grants us anything at all that gets us anywhere".

The theoretical problem associated with Marshall's "external economies" as the source of increasing returns and competitive equilibrium involved such British notables as J. H. Clapham, A. C. Pigou, D. H. Robertson, and Gerald Shove, came to a head with the publication of Piero Sraffa's well known 1925 and 1926 papers. Sraffa's argument, in

brief, is that it is necessary to dispense with the assumption of perfect competition in favor of monopoly theory, because decreasing supply price is incompatible with it. Further, "external economies" are incompatible with partial equilibrium. Young's correspondence with Knight reveals his belief that it is necessary to abandon "the static view" in favor of a dynamic approach (Knight AAY folder 10/6/28)." This correspondence was the prelude to his 1928 Presidential address and its central message that "No analysis of forces making for economic equilibrium . . . will serve to illumine this theme of movements away from equilibrium departures from previous trends are characteristic of it" (p. 528). In turn, this observation leads to his final thought, namely, "the division of labor depends upon the extent of the market, but the extent of the market depends upon the division of labor. In this circumstance lies the possibility of economic progress" (p. 539). Young thus anticipated an important aspect of the schisms to come between neoclassical theory and competing paradigms of contemporary theory.

While Young understood the economy's potential for realizing increasing returns, and anticipated the endogenous growth theory subsequently developed by his LSE student, Nicholas Kaldor, the absence of a first "cause" of an initial divergence from equilibrium and hence divergences in growth rates among different economies is an inadequacy of his theory of cumulative causation. Given that the accretion of information and knowledge and their transmission is critically related to the productivity of an economy (and hence to theorizing about economic growth), other thinkers have emphasized the necessity for recognizing human agency and the social structures through which human agents operate as a basis for causality. The role of information has become the focus not only of Austrian theorizing about the entrepreneur, but also of contemporary theorizing about the firm.

Entrepreneurship Austrian Style

While Marshall developed his theory of the firm within the framework of an equilibrium theory of price, Joseph Schumpeter's firm is contiguous with an entrepreneur 14

who strides onto the stage as the prime mover in the process of competitive rivalry (and economic development) through his innovative activity. The profits enjoyed by Schumpeter's innovator come to him by virtue of a "new combination" which creates a differential between his expenditures and the revenues he is able to generate. The types of creative and imaginative activities Schumpeter specifically identified include the introduction of a new good (or improvement in the quality of existing goods), the introduction a new method of production, the opening of a new market, in particular, a new export market, identification of a new raw material or a source of supply, and/or the creation of a new type of industrial organization, particularly those forms of business that confer monopoly power. ¹² Thus for Schumpeter perpetual innovation and change is inherent in the process of creative destruction, which is the essential characteristic of capitalism, innovation, and change (1912, 1928, 1934). His entrepreneur is a distinct personality type whose vitality directs his energies to ferreting out and exploiting opportunities for profit long in advance of general business awareness that such opportunities might even exist. He is not an inventor nor a capitalist risk-bearer who lends funds. What he does have is a unique talent for acquiring information, along with soundness of judgment that enables him to shift resources into new projects or assets that others undervalue. While a significant number of these innovators have their initial impact on particular sectors, their larger consequences derive from their effect on the economy's structure, impacting substantially all its critical variables; notably the rate of output growth, the price level, real wages, profit rates, and the demand for credit. ¹³

Consistent with Schumpeter's thinking about entrepreneurship, Ludwig von Mises perceived of the "pure entrepreneur" as an "imaginary figure" whose astuteness enables him to identify opportunities not previously recognized by himself or others (Mises 1949, pp. 253-54). The "entrepreneur [is one] who judges the future prices of [his] products more correctly than others do, [and] buys some or all of the factor(s) of production at prices which seem from the point of view of the future state of the market are too low" (Mises, *ibid.* 253-4). Reflecting the Austrian conception of production as the process of 15

"transforming" higher order goods (capital in particular) into "near goods" whose utilities stand closer to the consumer, Mises describes the successful entrepreneur as the first to perceive, or to anticipate, the existence of a discrepancy between the price of a consumption good and the corresponding input prices. While the concept of increasing returns is not part of the lexicon of Austrian economics, *the outcome of increasing returns* is clearly encapsulated in the actions of "entrepreneur(s) who judge the future prices of [their] products more correctly than others do, [and] buys some or all of the factor(s) of production at prices which seem from the point of view of the future state of the market are too low" (Mises, *ibid.* 257-4).

Mises's interpretation of entrepreneurship within the context of competitive rivalry and its relationship to profit lends itself to being interpreted as an arbitrage activity (Kirzner 1973, p.85). Entrepreneurial actions are thus inherently speculative in the sense that entrepreneurs act on their perceptions about the existence of opportunities that others have left out of account. The variables on which an entrepreneur acts are not merely *unknown*, but exist only within the imaginations of individuals uniquely capable of bringing their judgments to bear on "news" that has not yet crystallized into knowledge (Shackle 1969, 1972). Shackle maintains that one can only imagine the skein of possibilities epitomized by the best and the worst scenarios (Shackle 1986, pp. 283-286). This is a perspective that is clearly incompatible with the equilibrium analysis that derives from Marshall's approach; and it also repudiates George Stigler's assertion (1961) that a probability calculus is a reliable basis for choice. The latter is implicitly predicated on a static continuum in which the future is a reliable replication of the present, and which is inconsistent with the changing and dynamic environment in which the entrepreneur necessarily functions. The problem of acquiring knowledge does not exist, because market participants are assumed to have perfect foresight about the future. ¹⁴

Kirzner views ownership and entrepreneurship as "completely separate functions" (*Ibid.* p. 47). Thus the existence of two distinct but interdependent markets; i.e., the 16

product market and the factor market, follows from the joining of the Mises and Kirzner interpretations of the entrepreneurial function (Perlman and McCann 2000, pp. 286-9). The entrepreneur profits by recognizing that "future product prices will not be fully adjusted to today's input prices, which is the essence of "the unavoidable uncertainty that surrounds entrepreneurial activity" (ibid. p. 86). For Kirzner the entrepreneur's "entire role arises out of his alertness to hitherto unnoticed opportunities" (ibid, 1973, 39 original emphasis). This is an interpretation of entrepreneurial activity that lends itself to interpretation as a quest for increasing returns by shifting inputs from less productive sectors into those that are more productive. What is missing from the Mises-Kirzner perspective of entrepreneurship as arbitrage is that the opportunities for the pursuit of increasing returns are not extended a la Schumpeter to the endogenously generated opportunities that set creative (but often painful) *macroeconomic* processes of adaptation into motion. Thus, with the exception of Schumpeter, Austrian perspectives reflect a *detour* from the linkage that classical economists from the Physiocrats forward had already established between entrepreneurship, increasing returns (i.e., productivity enhancing technical knowledge) and economic growth.

A Return to Classical Perspectives

Nicholas Kaldor was a student at the London School of Economics between 1927-1930, which brought him into contact with Allyn Young, who was visiting from Harvard University. After his move from LSE to Cambridge, Kaldor's early interest in microeconomics shifted to macro, influenced first by Keynes' *General Theory* and, subsequently, by the several Cantabridgeans who later came to represent the Post Keynesian paradigm. Despite his involvement in practical matters, in particular policies relating to taxation, tariffs, and economic theory, empirical contributions to macroeconomics were always his chief concern. After the publication of Keynes's *General Theory* he became a major critic of mainstream thinking about distribution in his *Keynesian Theory of Income Distribution (1956)*. He was also critical (following Sraffa)

of the weakness of the neoclassical supply curve and the related notion of diminishing returns as limiting the size of firms that assured competitive equilibrium outcomes. These reservations led in the direction of his challenge to both Joan Robinson and Edward Chamberlin's assumption that imperfectly competitive firms confront conventional demand curves. The case, Kaldor argued (along lines reminiscent of Bertrand and Cournot), is that firms need to take the price-output decisions of their rivals into account, which anticipated his own perception of the theme of entrepreneurial dynamism. This is a theme that evolved over some four decades in Kaldor's work during which he also made seminal contributions to thinking about increasing returns and their sectoral relevance, their relationship to the profit share, investment, aggregate capital-output ratios and, ultimately, to technical progress and economic growth. Entrepreneurial dynamism emerges as the connecting link between returns and economic growth in the economy's separate sectors. Among modern economists Kaldor thus comes closest to articulating the appreciation that early classical economists had about the impact on economic growth of the entrepreneurial quest for increasing returns.

Return to Sectoral Analysis

Allyn Young's "Increasing Returns" (1928) paper separated Marshall's increasing returns concept from its particular industry setting, and extended it to the economy as a whole. Yet the implications of Young's anticipation of an endogenous growth model went substantially unnoticed. As Kaldor put it, *"Economists ceased to take any notice of it" (Young's article) because "it was so many years ahead of its time that the progress of economic thought has passed it by . . . partly because its criticism of general equilibrium theory could not be appreciated at a time when that theory itself was not properly understood"* (1972, p. 1243, italics added). What followed from Kaldor's dissent from mainstream economic theory, was his concern with explaining differences in the growth performances of dynamic capitalist economies.

Kaldor's theory linking sectoral returns and economic growth is appropriately viewed against the backdrop of his theory of income distribution. Among its unique features is that the share of profits in national income depends on the level of investment that, in turn, is dependent on the aggregate growth rate. The link between profits and investment derives from savings out of entrepreneurial (as distinct from rentier income) profits. The point of departure of Kaldor's growth theory is his inference that the industrial sector operates under conditions of increasing returns, while land based activities are subject to diminishing returns. The differences between these sectors has major implications for the process of growth and economic development world-wide. This is, in part, the case because increasing returns compromise (a la Sraffa) the prospects for competitive equilibrium, but also because trade and factor mobility between "more developed" regions and "less developed" regions become dis-equilibrating rather than equilibrating with respect to income and employment. Accordingly, Kaldor's "stylized facts" relate to three major generalizations or "laws". First, the faster the rate of growth of manufacturing industries, the faster will be the rate of growth of total national output. The empirical relation between productivity growth and output in manufacturing industries that Kaldor established for a cross-section of countries during the inter-war period has come to be called Verdoorn's Law. Following P. J. Verdoorn's paper (1948), Kaldor's second law maintains that there is a strong positive relationship between the rate of productivity growth in manufacturing industries and the growth of manufacturing output. Third, the faster the growth rate of manufacturing sector, the faster the growth of productivity outside manufacturing. That is, the greater the rate of growth of manufacturing output, the more rapidly labor will be transferred from other sectors that are either characterized by diminishing returns or in which there is apparent or disguised unemployment; i.e., there is no positive relationship between employment and output growth. The industrial sector will automatically generate increasing returns if there is factor mobility and an increase in its stock of capital.

Following Young, Kaldor recognizes that for self-sustaining growth to take place, returns must increase and the demand for commodities must be elastic, which is the case for industrial products even in a mature economy. Because, as Young observed, economies of scale are the outcome of new processes, subsidiary industries, and product differentiation, their presence cannot be observed simply from size variations in individual firms or particular industries, which is where Marshall expected to discern them. Thus, in Kaldor's view growth may be impeded by a supply constraint. In the case of the UK (in the mid-1960's), he believed that the inelasticity in the supply of labor was a limiting influence on her growth potential that was not confronted by any other advanced country except Germany (1967, pp. 41-2). The problem of the UK, as Kaldor saw it, was that she had reached a stage of "maturity" in which the agricultural sector had become so small that there were no long any low productivity sectors from which labor could be tapped. However, his subsequent empirical studies modified this conclusion to reflect the role of demand and the balance of payments. His finding was that in an open economy economies of scale generate improvements in a country's competitive position so that the growth of export sales generates (via the foreign trade multiplier) further export growth. Together with relative domestic and foreign prices, the growth of world income determines the growth of exports. The price levels among trading partners are, in turn, determined via the markup process by the growth of wages and labor productivity. Thus, Kaldor's return to classical sectoral analysis stands not only as a substantial critique of the equilibrium approach of contemporary mainstream, but also offers an important building block toward the development of non-neoclassical alternatives, especially as it relates to explaining economic growth (Rima 1993). His perceptive understanding of the link between the institution of capitalism as a social mechanism for encouraging entrepreneurial behaviors that generate economic growth extends the thinking of both Schumpeter and Roy Harrod to examine the critical question of the role of the entrepreneur in explaining different rates of progress among human societies.

Kaldor's Entrepreneur

Kaldor's belief was that different rates of progress among human societies are less attributable to fortuitous circumstances, e.g., favorable natural environments or major discoveries (though these are no doubt important conditioning factors), than they are to modern attitudes toward "risk taking and money making". The modern businessman or "entrepreneur, . . . with his distinctively speculative bent and his interests and energies concentrated on profit making, is clearly the product of capitalistic society". (Ibid., p. 67). The institutions of capitalism embody a social mechanism for "giving expression to the individuals' egos, optimism, and even recklessness. Growth rates are likely to be highest where these characteristics of entrepreneurship are most pronounced. Contrariwise, it is an economy in which businessmen react slowly and less aggressively to current events that is likely to grow at a slow rate.

Linking these observations to Roy Harrod's (1939) somewhat vague concepts of warranted and "natural" growth rates, and returning to the classical view in which entrepreneurs represents a class of society that receive and generate profits, Kaldor suggests that "the push and pull of entrepreneurial behavior" will "bend" the natural rate of growth upward. Entrepreneurial expectations, Kaldor suggests, also underlies the link between the economy's cyclical behavior and its long-term growth rate. It is when expectations are optimistic and "highly volatile" that the expansionary phase of the cycle is likely to lead to a long boom that is capable of carrying the economy to a higher plateau. In turn, high entrepreneurial expectations may well produce subsequent expansions that proceed from a higher "floor" that leads to a new ceiling. Thus, for Kaldor, Schumpeter's hero has a far greater role than spearheading innovations. In a capitalistic society, i.e., in a society where investment decisions are made by a multitude of entrepreneurs in the light of profit expectations, the entrepreneur is "the purveyor of economic expansion generally, and not just of the new technique of production (1954, p. 71). The process, as the Physiocrats recognized (though without the precise articulation that this reconstruction of classical thinking about growth suggests), reflects the quest by 21

entrepreneurs as a class to generate increasing returns by directing human and physical resources from those that are less productive to those that have a greater capability for producing surplus.

Notes:

1. What distinguishes Marx from other classical growth theorists is his Hegelian philosophic framework in which the imperatives of changing "modes of production" generates conflicts that culminate in the revolutionary overthrow of capitalism, along with the bourgeois capitalist whose entrepreneurial initiatives drive the shift of labor into the production of constant capital.
2. The seminal source of this type of modeling is R. M. Solow's "A Model of Growth" in *Quarterly Journal of Economics*, 1956.
3. For Sraffa it subsequently followed that the necessary conditions for profits to be present in the exchange values of commodities, is that surplus is generated in the production process. (Sraffa 1960, Chapter 1). The surplus is the social product that remains after deducting both the replacement of the means of production and the subsistence requirements of workers.
4. Pressman (1994, pp. 142-54) has argued that the farmer's profit at least initially, comes at the expense of rent.
5. The Physiocratic growth model is thus fundamentally different from the formal models employed by contemporary growth theorists who assume perfect competition and postulate universally diminishing returns to scale, ostensibly on the premise that increasing returns necessarily predisposes to concentration and monopoly.
6. Initially the term *entrepreneur*, which had been in use in France at least since the 12th century, related to the responsibility of master builders who were also members of the clergy to plan and oversee the construction of public and religious buildings. The designation "Architect du Roi" was adopted to distinguish men whom the King had chosen for membership in the Academy of Architecture, which was established in 1676 to distinguish its most outstanding artists from those master masons who were mere contractors or entrepreneurs. Lay-master builders did not come into

prominence until the 13th century, when the secularization of society ended both the dominance of the clergy, and their entrepreneurial role. Entrepreneurial activity then shifted its focus to

other major quasi-public building and construction activities, such as France's southern and central canal system.

7. Turgot's argument that the payment of interest for money used as capital is akin to the rent that can be earned if money is lent instead of used to buy land is the basis for his refutation of the usury argument of the churchmen (*Reflections* 1766). His focus on profits (and interest) is clearly incompatible with the Physiocratic view of the exclusive productivity of land. Gilbert Faccarello (1998) credits Turgot's follower Pierre-Louis Roderco with an understanding of the full implications for the surplus approach of Turgot's departure from Physiocratic principles.
8. Irma Adelman and Erik Thornbecker have observed that the 18th century Physiocrats and the later classicists "were really addressing themselves to the problem of growth" . . . [their] major contribution lay in the recognition for the first time that the growth of the economy must be viewed basically as an inter-related system of inter-sectoral flows" (1966, p. 4).
9. A. A. Cournot was the first to call attention to the incompatibility between increasing returns to scale and price-taking behavior (1838, pp. 59-60).
10. Unlike Ricardo, for whom the prospect that the country would become unable to generate a surplus was "yet far distant" (Works I, p. 109), Mill speculated it could be "a very considerable improvement on our present condition" ([1848] 1965, III, 754).
11. Cited by Charles Blicht in "Allyn Young on Increasing Returns", *Journal of Post Keynesian Economics*, Spring 1983, v. no. 3, p. 363, quoted from F. Knight "Unpublished Papers and Manuscripts, Joseph Regenstein Library, University of Chicago.
12. Heinrich von Thiinen is properly credited for his anticipation of these Schumpeterian themes in the second volume of *The Isolated State* (1850). He recognized that there may be income which remains from gross profit after payments on capital, interest, wages of management, and insurance to defray risks that are not established; i.e., the entrepreneur becomes a residual claimant by virtue of his role as "inventor and explorer in his field". However, the fact that von Thiinen's work was not translated until

1767 suggests his early insight into the role of entrepreneurship went unrecognized.

13. Expressing his agreement with Schumpeter about the role of the credit system in stimulating innovational investment, J. M. Keynes notes "It is only necessary to add to this that {once started} the pace at which the innovating entrepreneurs will be able to

carry on their projects . . . will depend on the degree of complacency of those responsible for the banking system" (Keynes 1930 *A Treatise on Money*, London: Macmillan, vol.1, pp. 95-96)

14. Fritz Machlup (1962) suggested what in retrospect appears to be both a perceptive and even prophetic approach to the problem of knowledge and its relation to the dimension of time with his observation that the only systematic knowledge that is available is the stock that is derived from past experience. Past knowledge is the basis on which we are able to understand the present, and become able to contemplate the future possibilities that underlie expectations about the future. It requires imagination to envision the spectrum of possible states that *might* emerge from that which exists in the present (and which is preferred to that of the present) and whose outcome invariably also reflects the actions that others are likely to take. It is also relevant, as Ludwig Lachmann would express it, that "knowledge always belongs to the individual mind" (1977, p. 91). As information becomes available, it facilitates planning based on an individual's interpretation of the flow of information that comes to him, and his expectations of the likely actions of other participants. Indeed, his interpretation of the information to which he has access may well be more important in his quest for increasing returns than the information itself. It follows that the economics of information-like the economics of entrepreneurship-cannot be given a meaningful analysis within the paradigm of equilibrium economics.

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