

Entrepreneurship and Comparative Advantage

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Introduction

The past several decades have witnessed numerous attempts at incorporating the concept of entrepreneurship into mainstream economic theory. The revival of this concept was spurred by the acute realization of its absence from economic theory, as well as by the ever-growing interest of policy makers in finding out how entrepreneurship can lead to economic growth (Audretsch and Thurik, 2001). As a result, these concerns have also gradually permeated the field of international economics. The purpose of this paper is to explain the connection between entrepreneurship and international specialization, and thus to offer a blueprint for incorporating entrepreneurship into the study of international trade. The mutual benefits of specialization and exchange are demonstrated whenever we find a minimum relative difference between the productivity of resources; however, we argue in this paper that the concrete pattern of specialization—manifest in exchanges between individuals, firms, or states—cannot be discovered from outside the market. Rather, comparative advantage has an irreducible entrepreneurial component, and international specialization is an entrepreneurially-driven phenomenon.

To this end, the paper is structured as follows: Section I gives an overview of the progressive elimination of the concept of entrepreneurship from international trade theory. Section II deals in detail with entrepreneurship as judgment, i.e. allocation of privately owned resources in the context of uncertainty. Section III then endeavors to show the indelible connection between trade specialization and entrepreneurial activity: we argue that differences in productivity—which represent the basis of comparative advantage—are the result of entrepreneurial judgment, thus making specialization a speculative, entrepreneurial phenomenon.

I. Entrepreneurship in international trade: brief overview of theory development

The 19th century French liberal tradition saw entrepreneurs as “the heart of economic production and distribution”: early theorists like Richard Cantillon and Jean-Baptiste Say explicitly recognized the fundamental role of entrepreneurs in allocating economic resources, and commended the arbitrage they perform in the market (Hebert and Link, 2006, pp. 15-37). Per contra, the British Classical School did not see entrepreneurship as a fundamental concept in economic theory. Adam Smith is believed to have employed a few underdeveloped entrepreneurial elements when writing about the *adventurers*, *projectors*, or *undertakers*; yet in his work, the capitalist and entrepreneurial functions were theoretically indistinguishable (Reekie, 1984). Despite Jeremy Bentham’s criticism on this point, Smith’s idea was passed on to David Ricardo, who further subsumed entrepreneurship under all other agents of production (Hebert and Link, 2006, p. 28). Later on, John Stuart Mill, although familiar with the works of both Bentham and Say, did not follow the contributions of either, focusing exclusively on land, labor, and capital as the main agents of production (Hebert and Link, 2006, p. 30). As a consequence, the first expositions of the principle of comparative advantage provided by the British Classical School failed to mention any role for the entrepreneur as such: comparative advantage was originally described as the ability of a *country* to produce a good at a lower relative labor cost than another country. This aggregated approach was furthermore the result of the separation between domestic and international theories of value, which had also originated with Ricardo and Mill.

While both French liberals and British Classical economists extolled the virtues of free trade, competition, and specialization, being well-known for their *laissez-faire* position on foreign policy issues, there existed an important point of contention between the two schools. On the one hand, domestic trade and international trade were analyzed by the British economists and their followers as two different economic phenomena, in a general equilibrium framework. On the other hand, the French Liberal School of economics argued that the same fundamental economic principles are at work in both domestic and international trade—the difference

between the two phenomena being merely quantitative, not qualitative—and argued for a causal-realist analysis of the market process.

Notwithstanding, it was the “unfortunate legacy” (Redlich, 1966) of the Classical School that was carried through after the marginalist revolution and consequent paradigm shift, and that shaped the development of international trade theory and the role ascribed to entrepreneurs. For the Lausanne school and English school, economic models became “essentially an instrument of optimality analysis of well-defined problems which need no entrepreneur for their solution” (Baumol, 1968, p. 67). Since the uncertainty of economic action had no meaning in a frictionless barter system—which postulates profit maximizing agents, production functions and international equilibrium prices—“the entrepreneur became a mere automaton, a passive onlooker with no real scope for individual decision-making” (Hebert and Link, 2006, p. 69). Many scholars, like Casson (2003 [1982]), Baumol (1968), and Kirzner (1997) have drawn attention to the disappearance of both the entrepreneur and his actual *raison d’être* from neoclassical theories. In fact, the elimination of entrepreneurship from international economics was the result of the methodological choices of 20th century economists. As Hebert and Link argue, “the entrepreneur was gradually extruded from economic analysis when economists attempted more and more to emulate the physical sciences by incorporating the mathematical method” (Hebert and Link, 2006, p. 48). For example, “in order to arrive at a determinate mathematical solution, Walras expunged all of the things from his model that gave meaning to the entrepreneur. Mathematical nicety and practical necessity inevitably clashed, and Walras was not able to reconcile the two” (Hebert and Link, 2006, p. 68).

By the same token, time and capital heterogeneity could not be easily accommodated in mathematical models, so they were also eliminated by assumption and necessity. The idea of homogeneous capital became associated with the Cobb-Douglas production function (Cobb and Douglas, 1928) and used explicitly or implicitly in the overwhelming majority of international trade models. Capital was understood and modelled as “shmoo” capital, i.e. “an infinitely elastic, fully moldable factor that can be substituted costlessly from one production process to another” (Foss and Klein, 2012, p. 107). This assumption reinforced the absence of entrepreneurship from

economic analysis: if capital was assumed to be a single good with one price, “the entrepreneur would only have to choose between capital-intensive and labor-intensive production methods (or among types of labor)” (Foss and Klein, 2012, p. 110), and his judgment would therefore no longer be needed for such calculations.

International trade theories have shared the evolutionary fate of mainstream economic analysis, because Pareto (2007), Ohlin (1933), Samuelson (1948), and Krugman (1979) developed their theories within the same *non-entrepreneurial* paradigm. The major contributions to international trade theory have each given the production-function and homogeneous capital concepts their seal of approval. Samuelson (1948) himself coined the term “shmoo capital” and Ohlin (1933) explicitly reduced international specialization to a choice between capital-intensive and labor-intensive production processes, in countries with predetermined factor endowments. Unsurprisingly then, Ricardian and factor-endowments models have stopped short of developing past the two countries, two goods assumptions (Jones, 1961), and the naturally given productivities of land and homogeneous capital were thought to be the only causes determining the international pattern of specialization.

Throughout the 20th century, the conventional underpinnings of trade theory were criticized and tested empirically, their premises relaxed and their effects quantified, but the entrepreneur was never found (Chenery, 1961). A feeble return to entrepreneurship in international economics began in the 1950s, when large multinational firms became an alternative unit of analysis in international trade apart from nation states (Mtigwe, 2006). Product life-cycle theory (Vernon, 1966) was developed as a less static version of comparative advantage, yet without the explicit purpose of incorporating entrepreneurship into previous trade theories. Similarly, international portfolio theory, internationalization theory, and theories of international entrepreneurship and networks (Dunning, 1988; Penrose, 1959; Oviatt and McDougall, 1994) gave entrepreneurship a more prominent and articulate role in international trade, without manifestly trying to reconcile the two fields. Furthermore, economists took the

revival of entrepreneurship with a grain of salt,¹ especially since the concept had been brought back via sociology, psychology, anthropology, history, and management, rather than through economic theory. Moreover, the lack of general agreement on the meaning of entrepreneurship made explaining the role it plays in international trade almost impossible. Nowadays, the entrepreneur can be “an innovator, a leader, a creator, a discoverer, an equilibrator, and more” (Foss and Klein, 2012, p. 26). When restrained to pure neoclassical reasoning, the entrepreneur is thought to maximize both utility and the value and desire to succeed. More generally, entrepreneurship is seen as innovation (Aghion and Howitt, 1998) characterized by boldness and imagination (Lumpkin and Dess, 1996), leadership (Witt, 1988), or alertness and discovery (Kirzner, 1997).

Notwithstanding these difficulties, the “Austrian” tradition in entrepreneurship does lend itself to the study of international trade, as we shall see in the next section. Authors such as Mises (1998 [1949]) and Rothbard (2004) have offered a satisfactory and operational definition of entrepreneurship as judgment, or decision making under uncertainty. What distinguishes this approach from other theories of entrepreneurship can be summarized as follows: “Judgment must be exercised in mundane circumstances... for ongoing operations as well as new ventures. [...] Those who specialize in judgmental decision-making may be dynamic, charismatic leaders, but they need not possess these traits. In short, decision making under uncertainty is entrepreneurial, whether it involves imagination, creativity, leadership, and related factors or not” (Foss, Foss, Klein, and Klein, 2007). For the purpose of our paper, we believe this to be the view that can offer a correct understanding of the function entrepreneurs perform in international trade, fully reconcilable with the principle of comparative advantage. For this reason, the next section is a brief overview to prepare our case, an outline of the Austrian approach to the theory of entrepreneurship.

¹ One shortcoming of modern theories of the firm and of entrepreneurship was identified by Edith Penrose as “biological analogies,” i.e. lines of reasoning which “suggest explanations of events that do not depend upon the conscious willed decisions of human beings” (Penrose, 1952).

II. Entrepreneurship, capital, and uncertainty

Reclaiming the Cantillon-Say tradition, the Austrian school of economic thought sees the entrepreneurs as occupying the central role in the market process, as their fundamental task is to decide upon the allocation of resources under uncertainty (Mises, 1998 [1949]; Rothbard, 2004 [1962]; Foss and Klein, 2012; Salerno, 2008). Uncertainty is the inescapable background against which all economic activity takes place, and thus “the term entrepreneur [...] means acting man exclusively seen from the aspect of the uncertainty inherent in every action” (Mises 1998 [1949], p. 254). Consequently, entrepreneurial judgment consists in estimating unknown future events and situations, and planning the processes of production accordingly. Put simply, a process of production represents a transformation of given resources through arrangement and combination. However, as Mises argues, “[p]roduction is not something physical, natural and external; it is a spiritual and intellectual phenomenon. Its essential requisites are not human labor and external natural forces and things, but the decision of the mind to use these factors as means for the attainment of ends. [...] Production is alteration of the given according to the designs of reason” (Mises, 1998 [1949], pp. 141-42). In other words, processes of production are created and shaped by the intellectual purpose and plan of the entrepreneurs.

Second, the possibilities for combining factors of production are multiplied past the number of available technological alternatives,² given that “our world is endowed with a wide variety of relatively *nonspecific* resources, which to a greater or lesser degree are substitutable for one another over a broad range of production processes” (Salerno, 1990, p. 55; emphasis in the original). This means that what to produce, in what quantities, and where and when are not technological questions, but the fundamental task of entrepreneurial judgment in its drive to fulfill consumer demand. In short, entrepreneurs are the driving force of the market: they allocate resources to producing those commodities which best satisfy the most urgent needs of the

²We acknowledge that physical heterogeneity does impose certain restrictions on the entrepreneurial allocation of resources. A particular type of land and machinery, due to its physical attributes, may appear suited for use only in certain production processes. Nonetheless, it is not immediately inferable which particular stages of production entrepreneurs can devote resources to. The range of possibilities, although limited by natural conditions, is still indefinite.

consumers. In like manner, it is also entrepreneurs who allocate resources internationally—through production and price arbitrage, moving both capital and consumer goods across national borders—to the best possible satisfaction of the most urgent needs of consumers.

Third, an entrepreneur's actions are motivated by the fact that he believes “the market has *underpriced and undercapitalized the factors* in relation to their future rents. If his belief is justified, he makes a profit. If his belief is unjustified, and the market, for example, has really overpriced the factors, he will suffer losses” (Rothbard, 2004, p.512; emphasis in original) It follows that entrepreneurs can effectively surmount the uncertainty of future conditions (both domestic and international) only by allocating privately owned factors of production, and thus bearing any potential losses.

Because of this indelible connection between entrepreneurs and the allocation of resources, the theory of heterogeneous capital is a natural complement to the theory of entrepreneurship (Foss and Klein, 2012, p. 114). The Austrian tradition conceives any production process as a hierarchy of stages and a complex structure of capital goods. Also called goods of the higher order, or factors of production, capital goods have different physical characteristics and varied technical uses, as well as different attributes and productivities according to specific entrepreneurial purposes and plans. They are thus (1) relatively nonspecific, i.e. limitedly substitutable for each other, (2) complementary to one another, i.e. employed in different combinations at each stage in production, and (3) time sensitive, i.e. committed in the present for the production of consumer goods in the future, their conversion being time-consuming and costly. Consequently, capital is neither an arbitrary (or simply technological) combination of goods, nor the same homogeneous good, but “an intricate, delicate interweaving structure...” (Rothbard, 2009, p. 967). It is a combination of heterogeneous assets, “a direct reflection of [the entrepreneur's] needs, an integrated whole, no essential part of which can be diminished or increased without affecting the realization of the end it serves” (Menger, 2007, p. 76). Combinations of capital goods and production configurations must therefore be connected to the relative scarcity of resources and to the relative urgency of consumer needs, appraised and anticipated by entrepreneurial judgment.

To sum up, as Mises writes, “it is impossible to eliminate the entrepreneur from the picture of a market economy. The various complementary factors of production cannot come together spontaneously. They need to be combined by the purposive efforts of men aiming at certain ends and motivated by the urge to improve their state of satisfaction” (Mises, 1998 [1949], p. 249). What holds everything together in a production process or a firm, and what brings factors of production together for the satisfaction of the most urgent needs of the consumers, is not technological information or the natural productivity of resources. It is entrepreneurial judgment, the entrepreneur’s intellectual purpose and plan, his personal control and supervision (Salerno 2008, p. 197).

III. Entrepreneurship and comparative advantage

The theory of heterogeneous capital, integral to the Austrian theory of entrepreneurship, is to be found at the opposite pole from the theory of homogeneous capital present in neoclassical economic analysis. By the same token, the analysis of international trade put forth by Mises reformulated the law of comparative advantage in a more comprehensive and dynamic form than its neoclassical counterpart.

For Ludwig von Mises, the Ricardian law of comparative advantage is a particular case (i.e. the case of countries) of the more general *law of association* which states that, “collaboration of the more talented, more able, and more industrious with the less talented, less able, and less industrious results in benefit for both. The gains derived from the division of labor are always mutual. [...] [H]igher productivity achieved under the division of labor is present because its cause—the inborn inequality of men and the inequality in the geographical distribution of the natural factors of production—is real” (Mises 1998 [1949], pp. 158-60). If capital and labor are bound to the national soil, it is goods that move across borders; when capital and labor are free to move between countries, “the tendency inheres to draw labor forces and capital to the locations of the most favorable natural conditions of production without regard to political and national boundaries [...] from the countries with less favorable conditions of production capital and labor flow to the countries with more favorable conditions of production”

(Mises, 1983 [1919], p. 92). Comparative advantage is therefore better understood as the ability of an *individual* or a *firm* to produce a good or service at a lower cost than another,³ i.e. to have a higher relative efficiency in production, given the range of possible goods to be produced at a certain point in time.

In the neoclassical framework, as mentioned above, comparative advantage is considered to be the outcome of naturally given productivities of land and capital; consequently, specialization is not the outcome of individual conscious choice, but of underlying natural tendencies. In what follows we argue against this proposition and show how, in fact, it is entrepreneurial judgment that determines comparative advantage and the pattern of international specialization. The law of association informs us that unrestricted production and market exchange take advantage of the more propitious conditions, leading to the specialization of individuals and groups according to their comparatively more suitable characteristics for one branch of production or another, and this market process is driven by entrepreneurs. As we shall see, decisions to specialize require “a comparison between the expenditure of factors of production of various kinds and of the output of products of various kinds”, a comparison which “cannot be achieved without the aid of money calculation” (Mises, 1998 [1949], p. 162). As this task cannot be performed outside the market, specialization too cannot be accomplished outside the entrepreneurial nexus.

a) Differences in productivity as a result of entrepreneurial judgment

First of all, even if not man-made, natural elements are definitely man-used, and as such considered economic resources only if perceived as means to attain an end. Even the term *natural resource* contains the implicit judgment of its first owner that his property is useful as

³ The analytical coup of Mises’s revised version of the principle of comparative advantage lay primarily in the incorporation of money prices into the analysis of comparative costs. Mises was critical of the opportunity cost theories of trade, arguing that their authors “do not want to calculate in terms of money. They prefer to resort to those methods of utility analysis which they consider a means for making value calculations in terms of utility... these attempts to eliminate monetary terms from economic calculation are delusive. Their fundamental assumptions are untenable and contradictory and all formulas derived from them are vicious. No method of economic calculation is possible other than one based on money prices as determined by the market” (Mises, 1998[1949], p. 162).

means to attain a particular goal; as one example, until its use as a fuel was recognized in the 19th century, oil was considered to be a nuisance, and not an economic resource. It follows that physical and technical attributes of natural elements become economic attributes through the process of human valuation. As a consequence, “as capital goods are used in production, they are transformed from general-purpose materials and components to intermediate products specific to particular final goods” (Foss and Klein, 2012, p. 114). Furthermore, as entrepreneurs do not begin anew all production, they do not “operate only with natural resources untouched by previous utilization. There are also the capital goods produced in the past and not convertible or not perfectly convertible for new projects. [...] Their structure, quality, quantity, and location is [sic] of primary importance in the choice of all further economic operations” (Mises, 1998 [1949], p. 714). Consequently, if the attribute *factor of production* is not an objective quality, any factor-based theory of trade must be at the same time an entrepreneurial theory of trade. It follows that the relative productivity of resources can be meaningfully understood only if and after resources and capital are transformed by entrepreneurs into capital goods specific to particular production processes.

Because heterogeneous factors of production are better suited for attaining some ends and less suitable or useless for others, their productivity will vary depending on their employment. But in this case, computation in kind is of no avail in determining where, when, and how these resources should be employed most productively; technological information cannot help discern the relevance of alternative production processes for human wants and desires. Rather, this is fundamentally the task of entrepreneurial judgment. Central to this duty is the tool entrepreneurs use to make different production alternatives commensurable and comparable, and apprehend their relative productivity: economic calculation.

b) Specialization as a speculative phenomenon

As the vehicle of economic calculation, “money prices have offered that common denominator through which heterogeneous production factors (and particularly their combinations) obtain a

unitary expression. Production aggregates and combinations of goods, technologies and production networks become—at least from the point of view of monetary calculation—commensurable” (Topan, 2009, p. 130). At the same time, the entrepreneurs’ actions are always oriented toward the future, and are therefore concerned with the estimation of *future* prices and the *future* rents of capital goods, as well as the appraisal of their current value. Consequently, as Mises argued, “the essential items that enter into this calculation are estimates emanating from the entrepreneur’s specific understanding of the future state of the market. [...] [S]uch computations are as a rule an inherent part of the entrepreneur’s speculative anticipation of uncertain future conditions” (Mises, 2008, pp. 26-7).

In other words, comparisons of input and output required to choose among different production processes are based not on past prices, but on entrepreneurial estimation of future prices (Hülsmann, 1997). At the same time, when comparing productive alternatives, the entrepreneurs judge not only the most profitable allocation of their assets, given the particular conditions of the market at the time, but *implicitly* their comparative advantage, i.e. the particular production process in which to *specialize* and trade. In fact, the choice of production and specialization is accomplished as part of the same future oriented decision-making process that determines the most efficient allocation of resources. Consequently, as any decision to produce is a speculative endeavor, it follows that the decision to specialize and trade is by the same token also a speculative phenomenon. International specialization, like all entrepreneurial decision-making, is based on the judgment of *future* market conditions, *future* prices for final goods, and *future* rents of capital goods.

Consequently, the profit and loss system, which informs entrepreneurs about the relevance of their decisions, will also inform them where their comparative advantage lies at a particular point in time and space, given a particular range of technological and economic possibilities. As Mises argued, the monetary price structure of the market, the division of labor and specialization, and the allocation of resources are all at once brought into existence, “accomplished *uno acto*... as different aspects of one indivisible phenomenon” (Mises, 1998 [1949], p. 338).

c) Specialization as an entrepreneurial phenomenon

In performing their market function, entrepreneurs bring about both the allocation of resources in the production of goods and services, and the pattern of specialization in accordance with the law of comparative advantage. As a result, what makes for relatively more efficient production with heterogeneous resources are not just natural endowments, but the knowledge and appraisal of the best use of resources in relation to consumer demand. Furthermore, “such knowledge is not given, but has to be created or discovered... [and] heterogeneity is an endogenous outcome of entrepreneurial activities” (Foss and Klein 2012, p.118). This, in turn, means that the naturally given heterogeneity of resources is superseded by the heterogeneity of capital assets in determining the relative productivity of specialization alternatives, for only entrepreneurial activity can direct resources toward the satisfaction of the most urgent needs of consumers.⁴

The question of where comparative advantage lies at a particular point in time becomes in this manner a question about how and where entrepreneurs employ resources, how they arrange capital assets and in what particular combinations. Being future oriented and thus speculative, as well as requiring time to be brought to fruition, international specialization is a process permeated with uncertainty, as well as tributary to human error. Moreover, it is also subject to frequent modifications: costs incurred and estimations of future market conditions can change and thus shift profitability from the production of one good to another. As entrepreneurs respond to these changes in consumer preferences and other market data, their appraisal of resources and their decisions regarding the allocation, proportion and combinations of capital assets also changes, modifying the pattern of comparative advantage accordingly.⁵

⁴ As Mises argued, “capital goods as such are dead things that in themselves do not accomplish anything. If they are utilized according to a good idea, profit results. If they are utilized according to a mistaken idea, no profit or losses result. It is the entrepreneurial decision that creates either profit or loss. It is mental acts, the mind of the entrepreneur, from which profits ultimately originate” (Mises, 2008, p. 20).

⁵ The dynamic reality of the market and of entrepreneurial judgment points to the opposite of what critics of the concept of comparative advantage call its *static* nature. Recent models have endeavored to change the assumptions of the neoclassical Ricardian model in order to make it a dynamic explanation of international trade, but without taking into consideration the entrepreneurial element. In fact, dynamic comparative advantage refers to shifts in

These insights point to two important conclusions that could potentially change the future landscape of international trade studies: on the one hand, while the law of comparative advantage informs us that specialization is feasible and beneficial where a minimum diversity exists, the concrete pattern of this specialization cannot be ascertained outside the market nexus. Through the profit and loss system, consumers on the market are those who sanction the relevance and efficiency of entrepreneurial specialization decisions. On the other hand, this means international specialization and comparative advantage are not naturally given, as the neoclassical paradigm suggests, because they are contingent on the incessant change of consumer preferences. Nevertheless, if the international specialization pattern can only be determined and planned from within the market through entrepreneurial decision making, this implies that any modification from outside the market can be achieved only at the expense of an optimal allocation of resources. Since it goes beyond the purpose of the present paper to expand on the policy implications of our theoretical approach, suffice it to say that government policy makers are, by definition, non-entrepreneurs; consequently, trade policies aiming to alter the pattern of specialization will be confronted with the impossibility of economic calculation characteristic of all central planning.

IV. Conclusion

Entrepreneurship is making a long-awaited return in theories of international trade, a return that could prove vital for advancing a more consistent and harmonized approach to international economics. The present paper offers a blueprint for a meaningful integration of the two fields by pointing to the fact that the international division of labor, and the entrepreneurial allocation of resources, are congeneric social phenomena. We have shown that entrepreneurial judgment, by allocating resources to the most economically efficient processes of production, brings about the pattern of specialization, with each economic actor's comparative advantage

competitiveness that occur over time due to changes in three categories of non-entrepreneurial economic parameters: long-run world prices of tradable outputs and inputs, social opportunity costs of domestic factors of production (labor, capital, and land), and production technologies used in farming or marketing.

being revealed through the profit or loss system. Hopefully, the insight that international trade is fundamentally an entrepreneurially-driven phenomenon will represent a fruitful avenue for future research in both fields.

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