

Entrepreneurs “from within”? Schumpeter and the emergence of pure novelty

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Abstract

The development of a dynamic model of endogenous economic change was a major challenge for Schumpeter throughout his academic career. This requires, among other things, explaining the emergence of pure novelty. With regard to this life-long objective, this article offers an explanation of Schumpeter’s failure to develop a complete endogenous theory of pure novelty. We show that Schumpeter could not depart from an individual and elitist dimension of entrepreneurship and from an energetic and vitalist axiom of social change, which is by nature hardly compatible with endogenous evolution. Consequently, if Schumpeter has been able to provide a consistent explanation of the diffusion of innovation within the economy, he couldn’t provide an endogenous explanation of the apparition of pure novelty in the first place. Furthermore, our revisiting of the last writings of Schumpeter shows that, contrary to the claim of some commentators, even the old Schumpeter (Mark II) remained stuck in an individualistic, elitist, and energetic view of the apparition of novelty. These findings have important implications to understand Schumpeter’s thinking and, in particular, his vision of capitalism, socialism, and economic development.

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“It may equally be said of the study of technological innovation that it still consists of a series of footnotes upon Schumpeter. Although the footnotes may be getting longer, more critical and, happily, richer in the recognition of empirical complexities, we still occupy the conceptual edifice that Schumpeter built for the subject”

Rosenberg (1976, p. 524)

1. Introduction

As Rosenberg wrote a half-century ago, the economic theory of innovation is still occupying Schumpeter’s conceptual edifice. This was largely true in 1976. It remains true in 2023. Antonelli (2015) even suggested that Schumpeter should be counted among the fathers of the systemic and interactive theories of innovation that developed in the 1980s (Kline and Rosenberg, 1986). If this were the case, it would imply, among other things, that Schumpeter would have developed an endogenous theory of economic change that explains the apparition of pure novelty. Some authors have claimed that this preoccupation was central throughout his life (Becker *et al.*, 2005).

It is well acknowledged that the main concern in the huge scientific production of Schumpeter was to understand the dynamics of capitalism (McCraw, 2007; Andersen, 2009). Schumpeter viewed capitalism as a self-transforming system in which the continuous introduction and selection of innovation played a major role. As opposed to neo-classical equilibrium analysis, in which economic change exclusively comes from exogenous shocks that oblige economic actors to passively adapt (this change can be analyzed by an analytical method that he was the first to coin as “comparative static”), Schumpeter, from its very first publications until the last ones, continuously insisted on the endogenous nature of economic development. As Becker *et al.* stressed, “the objective of Schumpeter is to exclude exogenous shocks as explanation for economic development” (2005, p. 111).

To do so, Schumpeter relies on the entrepreneur who is in charge of the introduction of novelty and innovation. It is the action of the entrepreneur that, by introducing innovation, continuously modifies equilibrium conditions, thus generating economic changes. Related to the entrepreneur, the literature has identified two main views successively endorsed by Schumpeter: the “young Schumpeter” from the first German version of *Theory of Economic Development* (1911, *TED* in following), often coined as “Schumpeter Mark I” (Phillips, 1971),

considering the entrepreneur as the demiurgic figure introducing novelty in the economic circuit, and the “old Schumpeter”, coined as “Schumpeter Mark II”, insisting on the role of large firms in the emergence of innovations, and which therefore could be considered as an attempt to endogenize innovation (Freeman, 1982).

To our view, this literature on the entrepreneur and its evolution through time neglects the existence of two very different research questions in Schumpeter’s agenda. The first one is related to the diffusion of innovation in the economic realm and its effects in terms of market structure (concentration, instability, etc.) and further business opportunities emerging “from within” (subsequent innovations introduced by other agents, business cycles, etc.). This is essentially an *ex-post* research question as it focuses on what happens once the novelty is brought into economic life. By contrast, the second research question is far more ambitious as it aims to explain the creative sources of the innovation *ex-ante*, that is to say, how pure novelty can emerge endogenously in the economic circuit. Although not always explicit, this is undoubtedly for Schumpeter the “greatest unmet scientific challenge” (Becker et al., 2006, p. 356).

Our work examines this second research question. We provide a detailed analysis of Schumpeter’s theory of pure novelty which, we show, is based on an individual dimension of entrepreneurship and an energetic and vitalist axiom of social change. We also examine whether Schumpeter modified significantly his theory of novelty throughout his academic career. By doing so we are able to add two points to the existing literature:

- First, we show that Schumpeter's theory of the emergence of pure novelty is irreconcilable with its objective of endogenizing economic development. Since Schumpeter is inclined to attribute the emergence of pure novelty only to extraordinary people moved by a source of energy that is largely disconnected from the socio-economic sphere it was impossible for him to develop a perfectly endogenous theory of the apparition of pure novelty. In other words, we show that Schumpeter’s inability to provide an endogenous theory of pure novelty is not only the logical consequence of a methodological mismatch (Graça Moura, 2003) but the purposely immediate result of his “theory” of the production of novelty.
- Second, we show that the Mark I and Mark II dichotomy understates the remarkable consistency in Schumpeter’s thought about the explanation of the apparition of pure novelty. Our revisiting of the last writings of Schumpeter suggests that even the “old”

Schumpeter remained stuck in an individualistic, elitist, and energetic dimension of entrepreneurship in order to explain pure novelty. Put differently, while Mark I and Mark II dichotomy remains fruitful to understand the *ex-post* Schumpeter's research question, we argue that this distinction cannot be held regarding the *ex-ante* research question related to the source of novelty.

Overall, our work provides new insights and research avenues to the Schumpeterian literature, which has been prompted to reduce Schumpeter's thought into the Mark II paradigm (see for instance the neo-Schumpeterian growth theory) or make him a pioneer in the systemic view of the innovation process (Antonelli, 2015). We believe that these findings have important implications for understanding Schumpeter's thinking and, in particular, his vision of capitalism, socialism, and economic development.

In the next section, we reformulate Schumpeter's research agenda and argue that the development of an endogenous explanation of pure novelty was an important part of it. In sections 3 and 4 we explore Schumpeter's theory of novelty. We show that it is based on an individual dimension of entrepreneurship (section 3) and from an energetic and vitalist axiom of social change (section 4). Section 5 offers a reinterpretation of the old Schumpeter and shows that, at least when it comes to the explanation of pure novelty, Schumpeter's thinking remained incredibly stable and consistent through time. Section 6 concludes.

2. A reformulation of Schumpeter's research agenda: Explaining the emergence of pure novelty "from within"

The main intellectual agenda of Schumpeter is to account for the dynamics of capitalism through an endogenous explanation for economic change. In his mind, an endogenous explanation must refer to internal factors of the socio-economic sphere¹, by contrast to other

¹ With this regard, it is important to specify what exactly we take to be "the socio-economic sphere" to which Schumpeter refers. There are indeed two levels of analysis in Schumpeter: i) A strong version of external and internal factors that essentially refers to the economic circuit. In this framework, all the variables that are not purely economic are considered as external; ii) A more relaxed version that refers more to the capitalist order and in which determining between internal and external factors is more complicated. As Schumpeter always juggles between the two it is difficult to know what he is talking about exactly. Garça Moura (2015) as shown the tensions between these two levels of analysis and how they are somehow conflicting. The position adopted in this work is the second one. This is why we go beyond Schumpeter's pure economics and pay attention also to its sociology of economics.

kinds of causes (political, etc.) that must only “be accepted as data” so that “we must try to abstract from them when working out an explanation of the causation of economic fluctuations properly so called, that is, of those economic changes which are inherent in the working of the economic organisms itself” (1939, p. 7). This willingness to provide an endogenous explanation is no better illustrated by the use of the term “from within” which appears constantly in his writings, as illustrated, for instance, by his most famous quotation where he coined the term creative destruction², or when he relates his meeting with Walras:

“Walras would have said (and as a matter of fact he did say it to me the only time that I had the opportunity to converse with him) that of course economic life is essentially passive and merely adapts itself to the natural and social influences which may be acting on it, so that the theory of a stationary process constitutes really the whole of theoretical economics and that as economic theorists we cannot say much about the factors that account for historical change [...] I felt very strongly that this was wrong and that there was a source of energy within the economic system which would of itself disrupt any equilibrium that might be attained” (Schumpeter, 1937, p. 166)

Importantly, Schumpeter’s intellectual challenge of endogenizing economic change implies accounting not only for the emergence and diffusion of innovation but also explaining the origin of novelty brought into the economic sphere in the first place (Velardo, 2020). To our view, this, therefore, leads to the coexistence of two very different research questions in Schumpeter’s agenda: One is related to the diffusion, once it has been produced, of novelty within the economic sphere. As stated in the introduction, this is an *ex-post* research question that focuses mostly on the impact of novelty on firms, markets, and economic structures. It allows accounting properly for the endogenous *ex-post* effects of innovation into the economic circuit. For example, Schumpeter investigates the locus of innovation (entrepreneurial function), its diffusion (innovation clustering or radical/incremental innovations), and its effects on the economy (creative destruction and economic development).

The second research question focuses on the origins of pure novelty. Within this second part of his research agenda, the real question that Schumpeter seeks to solve relates to the emergence, in the first instance, of pure novelty in social life. Note that Schumpeter’s interest in the emergence *ex-ante* of pure novelty goes much beyond economics. It led him to systematically pay attention to phenomena related, for example, to science, politics, or arts. From this

² “The opening up of new markets and the organizational developments from the craft shop and factory to such concern as US steel illustrate the same process of industrial mutation – if I may use that biological term, that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one.” (Schumpeter, 1942, p. 83)

perspective, his understanding of economic change can be considered as a local application of a broader theory of social change. This idea is stressed for instance, in *Business Cycles* (BC):

“The writer believes, although he cannot stay to show, that the theory here expounded is but a special case, adapted to the economic sphere, of a much larger theory which applies to change in all spheres of social life, science and art included” (1939, p. 97).

The coexistence of these two research questions is reflected by the well-known distinction established by Schumpeter between invention and innovation. This allows quite conveniently to evacuate the *ex-ante* question related to the origin of novelty and to focus only on innovation, that is the diffusion and impact of novelty within the economics. As explained by Schumpeter himself:

“As soon as it is divorced from invention, innovation is readily seen to be a distinct internal factor of change. It is an internal factor because the turning of existing factors of production to new uses is a purely economic process and, in capitalist society, purely a matter of business behavior” (1939, p. 86)

By focusing exclusively on innovation (as distinguished from the process of emergence of the invention in the first place), Schumpeter is able to propose an endogenous theory of change. Innovation indeed reacts to causes that are internal to the economic sphere (competition, market power, market concentration, imitation, etc.). However, this does not solve the problem of the endogenous emergence of novelty in the first place.

To explain pure novelty Schumpeter largely resorts to the figure of the entrepreneur. It is the entrepreneur who is the actor in charge of the introduction of novelty, the one who “disrupts any equilibrium that might be attained” (Schumpeter, 1937, p. 166). The entrepreneur is the only economic agent who is not constrained by the functional relations of the model (although he is supposed to act “from within”). All the other agents are supposed to act as “stabilizing forces” of the system in trying to adapt themselves to the new situation, bringing gradually the economy to a new equilibrium. Schumpeter justifies this importance of the entrepreneur by explaining that he is endowed with a “conscious rationality” (Schumpeter, 1934, p. 63) enabling him to break with routines and traditions for introducing new things.

However, this central role attributed to the entrepreneur by Schumpeter leads to a paradox (Becker, 2005; Encinar and Munoz, 2006). Indeed, the Schumpeterian entrepreneur is largely exogenous to the socio-economic sphere. Paraphrasing Antonelli (2015, p. 111), the entrepreneur “is an outsider who enters the economic system guided by animal spirit”. As a

consequence, nothing in the Schumpeterian entrepreneur enables to explain and to understand the real origin of novelty. To coin Cantner, the entrepreneur in Schumpeter is the “deus ex-machina of change” (2016, p. 702). The entrepreneur only allows to provide a name, a label to economic development, but it does not explain how it is generated (Becker et al., 2005). Interestingly, Schumpeter himself realized that. In a text written in 1932 but only rediscovered and translated into English in 2005 (Becker et al., 2005) he writes that the concept of the entrepreneur (that he calls “creator personality”) is “merely a descriptive term that helps identify novelty, but nothing has been explained thereby” (Schumpeter, 1932 [2005], p. 113). This short confession leads Becker et al. to conclude:

““Development”’s dismissal of entrepreneurship as the explanation of discontinuities is the rare instance where Schumpeter himself indicates that he is still searching for an entirely adequate explanation of the novel social phenomena he had characterized as discontinuities. But as a close reading of Schumpeter’s works through time reveals, the problem of accounting for discontinuities that “Development” identifies is probably a life-long companion of Schumpeter’s academic career. Thus, Schumpeter continued to adapt his explanation of discontinuities as well as his concept of development indicating that he apparently never got it quite right.” (2005, p. 111)

This failure to endogenize the emergence of pure novelty was also emphasized by Witt (2002):

“In his methodological considerations Schumpeter emphasizes the endogenous causation of economic change. In his theory of economic development, by contrast, the exclusive focus on innovations—submitting that entrepreneurs do not have to search for, discover, or invent the new combinations—is, in effect an attempt to avoid an explanation of the emergence of novelty. (It corresponds to the somewhat artificial distinction between inventive and innovative activities that Schumpeter makes.) An explanation of how new knowledge is created, and what the feedback relationships between search, discovery, experimentation, and adoption of new possibilities look like, and the respective motivations—all this would be necessary in order to really be able to treat economic change as being endogenously caused” (2002, p. 15).

So, ultimately, why was Schumpeter unable to conceive of a truly endogenous theory of novelty? Some authors have suggested that Schumpeter remained constrained by his methodological choices and, in particular, his desire to stick to a Walrasian-inspired analytical framework. For instance, Graça Moura (2003), based on Lawson (1997), argued that Schumpeter’s conception of science is one of a “closed system”, i.e. of a world of regularities, abstract laws, from which it is analytically possible to deduce events’ occurrence in the form “whenever event x then event y”.³ As Graça Moura (2003) observes, such an approach is untenable insofar as Schumpeter intends to endogenize economic changes, as it is not possible

³ Regarding economics, these regularities are deduced from the concept of equilibrium that Schumpeter considers as the *magna carta* of the discipline and which explains his admiration for Walras (Schumpeter, 1954; Arena, 2002).

to explain within a "closed system" a phenomenon that is fundamentally part of an "open system" world. This suggests that Schumpeter's failure to endogenize novelty would simply be the result of his methodological mismatch.

In this paper we provide an alternative explanation. We argue that Schumpeter's inability to build an endogenous theory of pure novelty is not only the mere logical consequence of his unsuitable methodological approach but the purposeful outcome of his "theory" (or instead his absence of theory) of how novelty is generated. To understand that, it is necessary to go back to the Schumpeterian theory of the emergence of pure novelty, which we do in the next two sections.

3. An individual and elitist explanation of pure novelty

Schumpeter's theoretical ambition – to provide a general framework accounting for the emergence of novelty in every area of social life – cannot be confined to pure economic theory but is more a matter of Schumpeter's socio-economic work. Indeed, Schumpeter's sociological work could be considered as a "logical priority" (Festré and Garrouste, 2008, p. 374) to his economic analysis by accounting for behaviors that do not conform to the hedonistic (and static) rational conduct from the Walrasian framework.⁴ Schumpeter himself saw socio-economics as a conceptual bond between history and pure economics, what he called a "reasoned history" (1939, p. 220), to explain the phenomenon of development. Then, to understand correctly how Schumpeter attempted to tackle the issue of novelty in economics, one must look at his analytical effort made in socioeconomics.

In "Social Classes" (1927) Schumpeter built a theory of social order and social change in complex society through a set of key concepts including social class, social functions, and leadership. Social classes are supposed to perform socially necessary functions that complement each other and sustain a specific social order over time. The hierarchy between social classes is directly linked to leadership. Some social functions involve a greater level of leadership, such as the ones performed by warlords in the medieval era as waging war obviously supposes faculties of command. Leadership therefore "provides a criterion for ranking socially

⁴ For sake of clarity, we put aside purposely the many issues that arise in integrating consistently the socio-economic theory of Schumpeter into his vision of economics (on this issue see e.g. Graça Moura, 2015).

necessary functions above and below one another and not simply for placing them beside each other as mere social necessities” (Schumpeter, 1927, p. 158).

Now, and important for our discussion, even though Schumpeter makes it clear that leadership can be embodied collectively, social leadership remains “always clearly discernible in the actions of the individual and within the social whole.” (*Ibid.* p. 165) Leadership is indeed defined as an “aptitude” which is “something that shows itself immediately in the physical individual —much like the color of hair or eyes [...]” (*Ibid.* p. 161). Though the individual difference in aptitude for leadership “do not fall into sharply marked categories” (*Ibid.* p. 164) as “most individuals possess it to modest degree, sufficient for the simplest tasks of everyday life” (*Ibid.* p. 165), there is only a minority who has enough to use it as a “special function”. This is because leadership “emerges only with respect to ever new individual and social situations and would never exist if individual and national life always ran its course in the same way and by the same routine.” (*Ibid.* p. 278). It is then novelty, defined as “doing what has not been done before” (1928b, p. 380), that gives to the individual the opportunity to reveal himself as a leader:

“Leadership only has a function when something new has to be carried out [...] other functions usually associated with the leader-function are accessory, non-essential and conceptually separable from it. If only the execution of routine activity would do when an army is in action [...] ; if a political body would never encounter new situations [...] ; if science would not always run into new problems [...], then, generally speaking, an organization would still be required, which in the first two cases also would require an administrative hierarchy. Finally, one would also need a somehow structured individual or collegial apex for such a hierarchy – but there would be no need of any “leading men.”” (Schumpeter, 1928a, p. 248)

Put differently, “social” or “group leadership” is the social and institutional consolidation of what has been first an *individual* form of leadership expressed by “leading men” who have succeeded in exploiting *new* opportunities that are in fulfilling *new* useful social functions. Therefore, for Schumpeter, without any possible doubt, the individual is the “active unit of evolution” (Festré and Garrouste, 2008, p. 375). Social change, despite the multiple refinements formulated by Schumpeter, remains the action of special individuals who, in contrast with Marxian sociology, are able to conflict with their social-class interest, allowing them to climb the social ladder, and then alter gradually the social structure as a whole, in getting “along unconventional paths” (Schumpeter, 1927, p. 133):

“Apart from favorable or unfavorable accidents, we have considered it to be the rule, in cases of ascent or descent within the class, that the class member performs with more or less success than his fellows those activities that he must perform in any event, that are chosen by or imposed

on him within his class limitations. [...] But there is, of course, still another way that is particularly apposite to the transgression of class barriers. That is to *do something altogether different* from what is, as it were, ordained to the individual. [...] artisan families like the Wurmsers and Fuggers may develop into great merchant dynasties; the modern worker may, in familiar fashion, push his son into the so-called new middle class, or, as we have seen, himself become an entrepreneur—which does not, of itself, *constitute* class position, but *leads* to class position” (Schumpeter, 1927, p. 133)

From here, we can appreciate the analytical difference between class leadership and individual leadership (cf. Figure 1). The first lies in the nature of the function to be carried out without direct concern for novelty. By contrast, the second lies in the individual feat itself, that is regardless of his initial class position, in creating something that *did not exist before* and that the individual succeeds *in asserting it to others*. As displayed in Figure 1, individual leadership consists then (a) creating something new that breaks the consensual state of the world and/or (b) successfully convincing others that such a new element is valuable despite their spontaneous reluctance to novelty. We find here the well-known characteristics of the entrepreneur, both as a “creator personality” in introducing novelty in the social realm (case (a)), and as a “function” in making novelty acceptable for consumers and further imitators (case (b)). For sure, as detailed in *Entrepreneurs* (1928a), these two criteria are rarely met within the same entrepreneur, which allows the characterization of various “ideal types” ranging from the mere manager to the great captain of industry.

To sum up, regardless of space and time, for Schumpeter the *individual action of exceptional men* (as opposed to the masses) remains the originator of social change within the social structure and, ultimately, transforms the economic system as a whole. Schumpeter’s analysis of the entrepreneur remains “elitist”⁵ as it relies on a strong dichotomy between those who lead and those who follow. A dichotomy based on a very unequal distribution of “aptitude for leadership” that cannot be “learned” but is instead a form of gift for which individuals differ “as they differ in their ability to sing” (Schumpeter, 1927, p. 165).

Then, even if entrepreneurship as a leadership is the result of specific socio-economic conditions (labeled by Schumpeter as the capitalist order), the engine of social change remains in an *ad hoc* entrepreneurial rationality that contrasts with the other agents populating the economy. As stated by Becker et al. “while hedonic, rule followers merely adapt to changing

⁵ Witt noticed that: “in fact, this is the figure [the entrepreneur] on whom the whole burden of explaining economic evolution has been imposed by Schumpeter. In support of the explanation little more is offered than a psychological characterization of the exceptional entrepreneurial personality resembling a kind of an elite theory” (2002, p. 15). The influence of elite theory on Schumpeter has been well documented in the literature (Andersen, 2009).

circumstances, the energetic entrepreneur identifies new combinations and pushes them through” (2006, p. 356). In the next section, we scrutinize further this point in showing that Schumpeter does not only offer an *elitist* but also an *extra-rationalist* ontology of entrepreneurship.

Figure 1. The different types of leadership and their characteristics in the capitalist system, inspired by *Entrepreneurs* (1928a):

	Nature of leadership:	Roles in the social order:	Roles in the social change :		
Bourgeoisie	Class/group leadership	Social order maintaining function (political power)	Capital provider function (financing novelty)		
Masses	None	Social order stabilizing function (routinized behavior)	Consuming function of successful novelty (innovation)		
Entrepreneurs	Individual Leadership	None / perturbator	(a) “creator personality”: create novelty (b) “entrepreneurial function”: diffuse novelty successfully (innovation)	Types:	Related roles:
				Founder or promoter	Mostly (a) then (b)
				Modern captain of industry	(a) and (b)
				Factory owner or merchant	Mostly (b) then (a)
				Manager, public/private organization	(b)

4. An energetic and vitalist axiom of social change

For Schumpeter, the ultimate engine of social change relies on the feat of individual leaders. A necessary step towards an endogenous explanation of novelty would then be to look at the internal process by which these leaders manage to create something new. How the state of the economic system at a given moment induces the act of creation and change by individual leaders? This question can, for instance, be examined through their motivations which could be

of an economic nature and explicitly aim to modify the economic circuit. But this is not the direction taken by Schumpeter. His analysis of the entrepreneur's motivations is very clear on this point:

“First of all, there is the dream and the will to found a private kingdom, usually, though not necessarily, also a dynasty [...] a sensation of power and independence [...] from spiritual ambition down to mere snobbery [...] Then there is the will to conquer: the impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success, but of success itself [...] the financial result is a secondary consideration [...] Finally there is the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity [...] Only with the first groups of motives is private property as the result of entrepreneurial activity an essential factor in making it operative” (Schumpeter 1934 [1911], p. 94)

While economic motivations are certainly present, they are clearly not the most important in explaining the emergence of novelty. The Schumpeterian entrepreneur cares about expected profits only as “a secondary consideration”. According to Schumpeter, the entrepreneurs' main sources of motivation are mostly to be found outside the economic sphere. In other words, Schumpeter does not represent the creative leader as reacting to the economic conditions of the system. On the contrary, Schumpeter's analysis tends to show that creative leaders mobilize a rationality that is quite different from the hedonistic-optimizing agent. He repeatedly insists on the fact that entrepreneurial action rests on intuition, or even “flashes” and the “ability to perceive new opportunities that cannot be proved at the moment at which action has to be taken” (1946, p. 157), that is to say on faculties that cannot be reduced to substantive rationality. Actually, his statement is even stronger than that. Schumpeter goes so far as to say that substantive rationality is not merely unrelated but *opposed* to the creative process:

“What has been done already has the sharp-edged reality of all the things which we have seen and experienced; *the new is only the figment of our imagination*. Carrying out a new plan and acting according to a customary one are things as different as making a road and walking on it. How different a thing is becomes clearer if one bears in mind the impossibility of surveying exhaustively all the effects and counter effects of the projected enterprise. *Even as many of them as could in theory be ascertained if one had unlimited time and means must practically remain in the dark.* [...] *Thorough preparatory work, and special knowledge, breadth of intellectual understanding, talent for logical analysis, may, under certain circumstances be sources of failure*” (Schumpeter, 1934 [1911], p. 85, italics are ours)

Some commentators have observed that Schumpeter, like Simon, does not ultimately question the notion of rationality itself, but considers that it can only be approximated in real life. Put otherwise, Schumpeter would be “convinced that improvements in computational and management technique will provide closer and closer approximations to true rationality and may even unbound rationality in some spheres.” (Langlois, 2002, p. 19). Against these views, we argue that Schumpeter does not endorse entirely this rationalist view. For sure, he believes

that the progress of science does affect the creative process and, in doing so, the entrepreneurial function (cf. also section 5). However, to say that the rationalist course of knowledge is progressively supplanting the entrepreneurial function does not prove as such that Schumpeter does adhere to a conception of rationality à la Simon. If this were true, it would imply that Schumpeter would see the creative dimension of entrepreneurial leadership (imagination, intuition, ingenuity, etc.) as mere “crutches” that the entrepreneur resorts to because of his limited abilities or because of his lack of knowledge. But, as illustrated in the previous quotation, Schumpeter, instead, describes a fundamental clash between, on the one hand, creative capabilities, and, on the other hand, the rationalist view of the bounded (and substantive) rationality model. Getting more knowledge and having more calculative procedures are not only useless but are, at some point, counterproductive for introducing new things in the economic realm.

Interestingly, Schumpeter does not confine this extra-rationalist route of novelty to entrepreneurship. In a conference given in 1949 entitled “Science and Ideology” he explained how ideology, defined as individual’s beliefs and convictions resulting from his social position and interests, influences scientific work (Velardo, 2020). However, and quite revealing of Schumpeter’s view about the emergence of radical novelty, this influence is not necessarily seen as negative, quite the contrary. Ideology, Schumpeter claimed, is a set of preconceptions that are, though not evidenced by the rigorous examination of reason, a necessary step of the scientific process (Heilbroner, 1993). Ideology feeds what Schumpeter calls the “vision” of the scientist, which is a pre-scientific conception of the world made of values and ideals that motivate the scientific endeavor:

“It is pertinent to remember another aspect of the relation between ideology and vision. That prescientific cognitive act which is the source of our ideologies is also the prerequisite of our scientific work. *No new departure in any science is possible without it.* Through it we acquire new material for our scientific endeavors and something to formulate, to defend, to attack. Our stock of facts and tools grows and rejuvenates itself in the process. And so though we proceed slowly because of our ideologies, we might not proceed at all without them” (Schumpeter, 1949, p. 359).

This extra-rationalist conception of the act of creation echoes somehow the broader intellectual background of his epoch, characterized by a “vitalist” conception of knowledge and science. For example, Schumpeter mentions the work of Henry Bergson twice in the third volume of the *History of Economic Analysis* (1954), and Leontief, in his 1950 article, recognized the existence of a “remarkable affinity” between “Schumpeter's economic development and Henry Bergson's

equally famous creative evolution” (Leontief, 1950, p. 106). For Bergson people are energized by a vital impulse (“*élan vital*”) and organize themselves for creative evolution. In the view of Bergson, our intelligence is an important but limited means of access to reality that must leave room for intuition. Intuition allows us to understand observed phenomena in a broader way going beyond ideas and propositions that are widely accepted as scientifically true. In particular, Bergson proposes a non-deterministic conception of the evolutionary process of Tarde in arguing that the successive movements of creation/imitation in human history do exceed the causal chains of events identified by the use of reason. According to Phelps “Bergson clearly understands that creativity would no longer exist if we had reached a world of determinism” (2013, p. 282).

We find here the key idea of Schumpeter⁶ according to which reason can only invest novelty *retrospectively*, that is to say by amputating novelty from its seminal movement. The causal reconstitution conducted by the reason remains artificial because made after the facts, missing the vital impulse of the process. Bergson illustrates this point in almost Schumpeterian terms:

“The finality it [our reason] understands best is the finality of our industry, in which we work on a model given in advance, that is to say, old or composed of elements already known. *As to invention properly so called, which is, however, the point of departure of industry itself, our intellect does not succeed in grasping it in its upspringing, that is to say, in its indivisibility, nor in its fervor, that is to say, in its creativeness. Explaining it always consists in resolving it, in the unforeseeable and new, into elements old or known, arranged in a different order.* The intellect can no more admit complete novelty than real becoming; that is to say, here again it lets an essential aspect of life escape, as if it were not intended to think such an object.” (1907, p. 164, italics are ours)

In addition, the literature has stressed how much the work of Schumpeter parallels with the Nietzschean vitalism of the *Übermensch* (e.g. Santarelli and Pesciulli, 1990; Shionoya, 1997, Muller, 1999).⁷ As opposed to most hedonistic and passive economic actors (the masses), the entrepreneur is looking for hurdles to overcome, for problems to solve. In line with Nietzsche philosophy, there is in the entrepreneur a willingness to endanger oneself. To use Phelps words, entrepreneurs are looking for the high level of flourishing (testing, creating, exploring) that is associated with vitalism.

⁶ Even though Schumpeter did not acknowledge any intellectual filiation with Bergson, the many similarities that unite these two authors might not be accidental: Both are readers of Gabriel Tarde’s *Les Lois de l’imitation* (1890), who has been identified as one of the most influential thinker on Schumpeter’s thought (Taymans, 1950; Marco, 1985; Djellal and Gallouj, 2017), as well as on Bergson’s one (Bouaniche, 2017).

⁷ Interestingly, Schumpeter also mentions Nietzsche next to Bergson in his *History of Economic Analysis*.

Furthermore, following the path of his professor von Wieser, Schumpeter places the effective action of the individual leader far above his reasoning.⁸ Change only arrives by “getting things done” (1911, p. 94). Again, this echoes the philosophy of Bergson who considered that only action and instinct can generate something radically new and so that we “must thrust intelligence outside itself by an act of will”.⁹ In his “Contribution to a Sociology of Imperialism”, Schumpeter refers to this will of action as a stock of “energy” that leaders are supposed to have in excess (1919, p. 25). The energetic agent can take very diverse social forms according to the period and the institutional environment considered. In warlike societies, this excess of energy is devoted to fighting and finds “its natural complement in war” (Schumpeter, 1919, p. 25), whereas, in capitalist societies, energy is channeled into entrepreneurship, which is only the continuation of war by other means. Indeed, routines and social norms have an “energy-saving function” as “they have become subconscious”, allowing an “enormous economy of forces” in daily life activities (1934, p. 86). By contrast, and for the reasons mentioned above, entrepreneurial action requires a tremendous stock of energy. This “energetic” conception culminates with the dichotomy between the “energetic-dynamic man” as opposed to the “hedonistic-static man”:

“A new and another kind of effort of will is therefore necessary in order to wrest, amidst the work and care of the daily round, scope and time for conceiving and working out the new combination and to bring oneself to look upon it as a real possibility and not merely as a day-dream. This mental freedom *presupposes a great surplus force over the everyday demand and is something peculiar and by nature rare*” (Schumpeter, 1934, p. 86).

In sum, a careful analysis of his writings and of the historical and intellectual context surrounding him shows that Schumpeter is inevitably *but purposely* inclined to associate the emergence of novelty with a demiurgic figure of the energetic individual creator. However, many commentators have suggested that this energetic conception of individual action remains confined to the early work of Schumpeter. The next section shows that, when it comes to the question of the emergence of pure novelty, this position was remarkably stable throughout his life.

⁸ Note that this is also true for Bergson who locate social change in the action of great individuals, the “great men” or the “privileged beings” (Bergson, 1932, p. 86).

⁹ “Thousands and thousands of variations on the theme of walking will never yield a rule for swimming: come, enter the water, and when you know how to swim, you will understand how the mechanism of swimming is connected with that of walking. Swimming is an extension of walking, but walking would never have pushed you on to swimming. So you may speculate as intelligently as you will on the mechanism of intelligence; you will never, by this method, succeed in going beyond it, you may get something more complex, but not something higher nor even something different, you must take things by storm: you must thrust intelligence outside itself by an act of will.” (Bergson, 1907, p. 193).

5. The persistence of the energetic entrepreneur: A reinterpretation of the late Schumpeter

Several authors have noted the evolution of Schumpeter's thought over time. It is thus common in the literature to distinguish between the young and the old Schumpeter or between Schumpeter Mark I and Mark II (Langlois, 2002). This distinction consists of a shift in how innovative activities are conducted, moving from individual innovators in small enterprises to large firms endowed with bureaucratic and depersonalized R&D departments. Schumpeter envisioned this shift in a context of prodigious progress of rationalist attitudes in the society. In this regard, it is tempting to consider Mark II period as a step further in Schumpeter's difficult quest for endogenization the emergence of pure novelty. For some commentators, in the second half of his life, Schumpeter would have therefore been able to move away from the initial vision of the exogenous entrepreneur to embrace an almost systemic vision of the innovation process. This view seems to be endorsed, for instance, by Freeman, who explained that the main differences between Schumpeter Mark I and Mark II “are in the incorporation of endogenous scientific and technical activities conducted by large firms” (Freeman 1982, p. 214).

To our knowledge, Antonelli (2015) is the one to have pushed this statement the furthest by describing Schumpeter as a pioneering thinker of the systemic approach of innovation. To support his argument Antonelli relies on one of Schumpeter's last publications, *The Creative Response in Economic History* (1947), published three years before Schumpeter's death. This paper can be considered as the last paper in his life where he detailed his main ideas about capitalism, development, innovation, entrepreneurship (and its decline), credit, and profit. Therefore, for Antonelli this paper “should be considered the result of the successful attempt by Schumpeter to synthesize, into a single integrated and coherent framework, the main results of his life work on the role of innovation in the economy and in economics” (Antonelli, 2015, p. 100). And, in particular, the main point that Antonelli retains from this paper is that “The late Schumpeter is much closer to the notion of innovation as an emerging property of a system, than the scholars of the entrepreneurial animal spirit would suggest” (*Ibid.*, 2015, p. 111).

“[For Schumpeter] Firms are able to implement a creative response if the externalities made available by the system are sufficient to support their innovative efforts. If the system is unable to support the firm, its reaction will be adaptive. The quality of the system in terms of externalities is the crucial sorting device. The characteristics of the system determine whether the adaptive or creative response will fail or succeed. The inclusion of system characteristics as

a key factor in determining the outcome of individual behavior seems to be a late discovery for Schumpeter, and the result of a final effort to bring together the different threads of his analysis in an integrated framework” (Antonelli, 2015, p. 102 and 103).

However, a careful reading of *Creative Response in Economic History* leads to introducing serious qualifications to this conclusion. Overall, the discussion in the paper remained focused on the individual view of the entrepreneur. Schumpeter insists on its pivotal position in the innovation process: “the mechanisms of economic change in capitalist society pivot on entrepreneurial activity” (1947, p. 150). He stresses that “it is in most cases only one man or a few men who see the new possibility and are able to cope with the resistances and difficulties which action always meets with outside of the ruts of established practices” (*Ibid.* p. 152). Put otherwise, there is no clear evidence that Schumpeter would be willing to depart from the centrality of the energetic and individualist view of economic development in the 1947 paper.

We argue that if the functionalist vision of the entrepreneur developed by the late Schumpeter might be well suited to describe and capture the most salient features of the innovation process *ex-post*, it adds nothing to the fundamental question of the emergence of novelty in the first place. All the old Schumpeter writings (for instance *BC* published in 1939 and *CSD* published in 1942, to quote the most famous ones), share the same entrepreneur’s energetic ontology and the same extra-rationalist sources of novelty. Even though they distinguish themselves from the young Schumpeter by a stronger emphasis put on big profit-making corporations, the latter intervenes only *ex-post*, after the novelty has been created. In other words, regarding the issue of novelty, the evolution of Schumpeter’s thinking through time is clearly more formal than substantial. The consequences that Schumpeter draws from his analysis of the so-called Mark II innovation model offer evidence that, in his mind, energetic individual leaders are absolutely necessary in order to generate pure novelty. This is revealed by the fact that, for Schumpeter, their disappearance precisely coincides with the end of development (as opposed to growth) and with the advent of a socialist mode of economic organization.

The old Schumpeter insisted on the rationalization, routinization, and bureaucratization of the innovation process within very large companies. As things become more and more predictable and computational, the entrepreneurial function is then replaced by firms’ scientific activity within R&D departments or even by the planification of the socialist State. The individual leadership of the entrepreneur becomes obsolete. Production of innovations no longer requires any leadership activities such as risky ventures, unconventional ways of thinking, “evangelization” of the masses, etc. In other words, Schumpeter makes the (bitter) observation

of the almighty power of scientific progress, which, coupled with the democratic spirit, tends to erode the social structures of capitalism. The likely consequence of this routinization of the innovation process is the disappearance of the entrepreneur, the domination of large corporations, and the transformation of the capitalist economy into a socialist one.

One possible interpretation of this analysis, widely disseminated, is to consider that Schumpeter is finally endogenizing economic change since it is no longer energy and extra-rationalist entrepreneurs who conduct it, but large companies motivated by economic profit. However, in our view, this reading of *CSD*'s proceeds from confusion between Schumpeter's notion of development (triggered by a creative response that generates a qualitative leap, etc.) with the notion of growth (triggered by an adaptive response that only causes incremental leaps). It is indeed very important to remind that Schumpeter drew a fundamental distinction between the mere adaptation to normal economic circumstances (convergence towards an equilibrium), which leads to economic growth, and the breaking down of these circumstances by the introduction of radically new things, which leads to what he called "development" and which he considered as a phenomenon quite different and of more economic significance than mere growth.

In *CSD* and elsewhere the "old" Schumpeter accurately described a world with growth instead of development, thus explicitly suggesting that the routinization, bureaucratization, and thus the rationalization of innovation are only compatible with growth, but not with development. This is evident when he talked about the possible advent of a steady state. Unlike other authors, for Schumpeter, this steady state would not be without innovation and growth, on the contrary. Consider, for instance, his rejection of the hypothesis detailed in Chapter XII of *CSD* according to which all innovations would soon be realized. Against that, Schumpeter argued that if the stationary state can happen, it is not a matter of technology (exhaustion of innovative opportunities) but of culture, which lies precisely in the vanishing of the entrepreneur figure. The stationary state in the mind of Schumpeter is a situation of steady growth sustained by continuous incremental innovation that can be rationally planned. However, this mechanized and routinized progress remains a matter of *quantitative* improvements of the existing and is far from economic development as being a *qualitative* jump toward a new state of the world.

In this new economic regime, there is no doubt that the "advantages" of large firms will overtake the ones of individual entrepreneurs. Large companies have indeed greater means to implement appropriate research, but the results of this research seem to be first *incremental*, as Schumpeter

refers to improvements rather than radical innovation. Likewise, it is “because the monopoly enjoys a disproportionately higher financial standing” (*CSD*, p. 101) that large firms could dominate in later capitalism. More significantly, Schumpeter uses the term “expropriation” (e.g. *CSD*, p. 134) for describing the antagonistic relationship between large firms and entrepreneurs, which suggests that the success of the former is due to their great capacity to appropriate the benefits of the innovation, not to their capacity to create. In short, Schumpeter recognizes the predominance of large firms in modern capitalism to the detriment of small entrepreneurial structures, primarily because of their market power, which is first related to economic rather than creative considerations. Large firms have a competitive advantage to produce and exploit incremental innovations. But this advantage only concerns the functional nature of entrepreneurship, that is the component (b) of individual leadership in Figure 1. However, its creative counterpart, component (a) in Figure 1 related to the emergence of radical novelty, remains dramatically amputated.

This explains also why Schumpeter conjectured so easily the advent of socialism as a spin-off of late capitalism. For Schumpeter, socialism is precisely the economic regime of substantive rationality, proceeding from computational capabilities and techniques. Thus, as science pushes back the knowledge frontiers, the domain of substantive rationality expands and, with it, the possibility of socialism (Langlois, 2002; Graça Moura, 2003). Yet, it is worth asking about the type of change such a computational system can actually generate. Does Schumpeter really think that socialism would be able to foresee and plan the flow of radical development in the long run? Of course not. The explicit clash that Schumpeter makes between, on one hand, the imaginative and creative capabilities of the entrepreneurs, and, on the other hand, the rationalist conception of knowledge tends to prove the contrary. It is then difficult to see how the progressive rationalization of the world could result in the same innovative outputs as the ones produced by energetic entrepreneurs.

Consequently, and most of all, the persistence of individual, energetic, and extra-rationalist thinking explains Schumpeter's pessimism (and barely hidden irony) about the possibilities of success of socialism. Many commentators have indeed pointed out that Schumpeter's assumption of a viable and persistent socialist society, as set out in *CSD*, should not be taken literally (Langlois, 2002; Muller, 1999; Boettke et al., 2017). Due to the increasing rationalization of thinking Schumpeter fears indeed that socialism might overperform capitalism with regard to the generation of rational incremental innovation and therefore replace

it. Yet, if a planned economy could perfectly anticipate and integrate many (incremental) advances in its “system of equations”, just as forecasters are able to anticipate and integrate sectoral progress with Moore's or Rock's Law, it is not able to disrupt itself and to generate economic development. It is one thing to say that the rationalist route for knowledge is progressively supplanting the entrepreneurial function. It is however quite another thing to say that such a bureaucratization of the economic life could truly mimic the creative part of entrepreneurship and disrupt the economy as the entrepreneurs would have done.

Indeed, in *CDS* Schumpeter still argues that the entrepreneurial function can only flourish through and by means of extra-capitalist elements. Schumpeter even goes so far as to ask if capitalism is not the mere extension of the same feudal regime (1942. p. 139) as the political authority inherited from feudalism equip capitalism with a “protecting framework not made of bourgeois material” (Ibid. p. 138). These institutional survivals provide, on one hand, the “personal force” (Ibid. p, 133) of the entrepreneur, and, on the other hand, the “extra-rational loyalties” (Ibid. p. 144) of the masses to the social order. Now, by extending its empire to all aspects of social life (including morals, traditions, institutions, etc.), capitalist rationalism undermines its symbiotic relationship with the “non-bourgeois stratum” (Ibid. p. 167) of the past and thereby opens the way to its own rationalization.¹⁰

The whole Schumpeterian pessimism can then be sketched as follow: Reason cannot rationalize its own limitations in relegating to the dustbin of obscurantism everything that it cannot consciously understand according to its own standards.¹¹ Yet, the entrepreneurial activity is made of an extra-rationalist aspect, or “extra-logical functions” (Langlois, 2002 p. 18), that is found ultimately in the “energetic surplus” of some rare individuals. As rationalization of economic change progresses, this extra-rationalist aspect of the entrepreneurial activity is gradually doomed to vanish and so does the possibility to generate radical novelty. It follows that bureaucracy replaces the entrepreneur not so much because of its innovative advantage but

¹⁰ Interestingly, a detour about Schumpeter's understanding of social change shows that this process of rationalization of the entrepreneurial function is part of a wider historical process that Schumpeter called “patrimonialization”, i.e. the process of consolidation of social leadership through times (Schumpeter, 1927). However, quite paradoxically, this consolidation of the ruling class is, at the same time, the process by which its own decline begins. Schumpeter exemplifies this concept first to the decline of the nobility when its military function was gradually replaced by the State army. Following the view of Dyer (1988) and Graça Moura (2003), we argue that the concept of patrimonialization echoes the process of rationalization from the Weberian notion of *Entzauberung*. Indeed, it is economic rationality that led the warrior to abandon his function of being a landlord as it is economic rationality that pushes the landlord to be replaced by the entrepreneur in performing a new and much more crucial function in the (capitalist) world to come.

¹¹ See for example how much Schumpeter, at the end of *CSD*, despises the myriad of groups of leftist intellectuals who criticize capitalism in the name of (a misplaced) rationalism.

because of its cultural suitability with the immoderate (and illusory) claim of the reason to control the world in its every detail and, symmetrically, to disregard everything that cannot be purely intellectualized.

In conclusion, the pessimistic nature of *CSD* clearly suggests that, according to Schumpeter, in an economy where the entrepreneur has disappeared and where change is rationally planned, there can be incremental innovation, i.e. growth, but no production of pure novelty and therefore no development at all. Scientific progress conveyed by large and bureaucratic organizations could lead to steady economic growth but could not replace the creative action of the individual entrepreneur. Routinized science performed by corporate organizations or the State is a *very* imperfect substitute for the individual entrepreneur. In saying that leadership can be “embodied” collectively by institutions, Schumpeter is simply noting the gradual advent of scientific methods characterizing the mass consumer society to come. However, this holistic dimension, referred to as component (b) in Figure 1, is unrelated to the creative dimension, the individualistic component (a) in Figure 1, which remains in the hands of some individuals endowed with special creative capabilities. On this point at least, Schumpeter's vision remained remarkably consistent throughout his life: the spark of novelty can only be found in the energy of leaders nourished and supported by an extra-rational matrix. Put it otherwise, if Schumpeter shifted from an individual to a more corporate-based explanation of how innovation spreads and affects the economy (*ex-post* research question), the Mark I and Mark II dichotomy vanishes when considering the origin of novelty inducing development (*ex-ante* research question).

6. Discussion and conclusion

This work explored the question of the emergence of pure novelty in Schumpeter's work. We have evidenced that Schumpeter remained deliberately faithful to an elitist and extra-rationalist conception of change in which the production of pure novelty is in the hands of the individual figure of a “creator personality”, endowed with exceptional abilities and motivated by the sublime. Schumpeter relies on an entrepreneurial ontology which largely exceeds the pure “internal factors” of the socio-economic sphere and which is thus unable to endogenize pure novelty. As put by Becker *et al.* “much as he tried throughout his career he failed to generate any explanation of novelty [...] Schumpeter himself arrived at the conclusion that he could not

provide such an explanation” (2005, p. 357). Our work suggests that Schumpeter inability to provide an endogenous theory of pure novelty is less the consequence of an inappropriate methodology than the purposeful outcome of his theory (or instead his absence of theory) of how novelty is generated. His conception of the entrepreneurial activity envisioned as something extraordinary, in the sense that it implies choosing to “leap into the unknown” not with but against the rational procedure, prevent him from developing further a theory of how knowledge is grasped and generated by individuals.

Of course, Schumpeter did not fail to point out that entrepreneurial actions can take place in very different eras and contexts as they consist, in a very broad sense, to do “something altogether different”. In the medieval era for instance, because society placed value on security and military conquest far more than on the production of new goods and services, the entrepreneurial function could only grow slowly, at the margins of the feudal system. By contrast, what is fascinating about capitalism – and that has indeed fascinated Schumpeter throughout his life – is its intrinsic capacity to systematically translate *individual leadership into an entrepreneurial function*. However, while this later point allows for a better account of the formal diversity of leadership throughout history, it remains silent on the issue of the emergence of novelty, which is entirely left in the hand of individual leaders. In other words, making explicit the conditions of possibilities that turn individual leadership into an (entrepreneurial) function, which is the capitalist era, is *not* equivalent to proposing an endogenous explanation of novelty.

What can we learn from Schumpeter’s struggle for explaining novelty? On the one hand, despite a questionable and undoubtedly mystifying entrepreneurial ontology, Schumpeter’s “theory” of novelty identifies antecedents of innovation that are still richer than the ones conceptualized by many scholars today and, in particular, by neo-Schumpeterian literature. Indeed, neo-Schumpeterian growth theorists have heavily relied on the conventional interpretation of Mark II according to which innovative opportunities can be modeled according to *ex-ante* known probability distribution (Henrekson et al., 2022). In such a framework, the entrepreneurial function can certainly be routinized as a set of calculable risks. However, this can only account for what the recent entrepreneurship literature might call “discovered business opportunities”, or what Schumpeter would have called adaptive response or growth, by contrast to “created business opportunities”, or what Schumpeter would have called creative response or

development.¹² Indeed, once uncertainty is introduced, i.e. when opportunities are to be created, part of the explanation has to deal with subjective knowledge, skills, and intuitions borne by individuals. As noted by Henrekson et al.:

“Specifically, by assuming that entrepreneurial decision-making follows an implicit distribution, the [neo-Schumpeterian] literature is effectively applying a form of backward induction, where behavior is assumed to follow a deterministic pattern that is observable *ex post*. Although this may be sufficient to explain historical growth rates, it hampers our understanding of the growth process. This makes it less likely to be helpful in advising us on how to induce innovation and growth through a proper design of policy instruments.” (2022, p. 16)

Then, along with other pioneers such as Knight or Kirzner, it is still useful to rely on Schumpeter’s thought and insights for conceptualizing further the antecedents of innovation, especially in cases where innovative outputs are considered as truly new or radical.

But, on the other hand, Schumpeter’s overemphasis on the extraordinary traits of the entrepreneur leads him to largely understate the importance of the structure of the system (institutions, culture, interactions between agents, etc.) that generate positive feedback and makes novelty emerge. More recent research in innovation economics has pointed to the possibility of endogenizing, at least in part, the emergence of novelty. In other words, an endogenous theory of innovation has to be systemic. As explained by Witt: “in all these cases there seems to be a common, abstract causation of evolutionary change: the emergence of novelty within, and its dissemination throughout, the system under consideration. If this is true, endogenous change originates, in the last resort, from the capacity of the system under investigation to produce novelty” (2002, p. 11).¹³ Similarly, Phelps (2013) emphasized the democratization of creative and entrepreneurial activity allowed by capitalism which authorizes the massive production of entrepreneurs (a vision eloquently represented by the title of his book “Mass flourishing”). This modern culture is seen by Phelps as a property of capitalism thus leading him to praise “a system for the generation of endogenous innovation decade after decade as long as the system continues to function” (2013, p. 14). In considering entrepreneur as an exceptional character endowed with extraordinary mental characteristics Schumpeter was

¹² On the distinction between discovered and created business opportunities see, e.g., Alvarez and Barney 2010; Leyden and Link 2015. In contrast with discovered opportunities, created opportunities contain elements of Knightian uncertainty. Accordingly, created opportunities proceed from the decision-making of entrepreneurs based on their subjective assessments constantly adjusted through of trial-and-error process.

¹³ Systemic theories of innovation are perfectly illustrated by the existence, very often identified through history, of parallel inventions (see, for instance, Isaacson, 2014). The fact that major innovations appeared at the same time but independently, from different innovators and in different places, suggests that it is the system that makes the innovations emerge. The latter was "in the air of times", due to arriving at this precise moment, and only to be seized by entrepreneurs.

not predisposed to take that route, though he did some significant steps in this direction in his latest writing.¹⁴ By contrast with Phelps, for Schumpeter, the entrepreneur remains rare and depicted in sharp contrast with the rest of the population.

However, the fact remains that, even from an endogenous and systemic perspective, the process of the emergence of novelty, and therefore the direction of economic change, remains very largely undetermined and impossible to predict exactly *ex-ante* (Witt, 2002). On that last issue, Schumpeter was clearly right. One of his main themes is indeed the indeterminacy of the process of the emergence of novelty: “Novelty is the true core of everything that must be accepted as indeterminate in the most profound sense” (Schumpeter, 1932, p. 113). In one of the last written records left just before his death, he even proposed a principle of indeterminateness of the emergence of novelty:

“Without committing ourselves either to hero worship or to its hardly less absurd opposite, we have got to realize that, since the emergence of exceptional individuals does not lend itself to scientific generalization, there is here an element that, together with the element of random occurrences with which it may be amalgamated, seriously limits our ability to forecast the future. That is what is meant here by “a principle of indeterminateness”” (Schumpeter, 1949, p. 195)

This last quote sounds like the end of Schumpeter’s ambitions to endogenize the production of pure novelty and, as a consequence, the entire innovation process. It shows a Schumpeter constantly balanced between absolutely irreconcilable conceptions: on the one hand, consistent with his Mitteleuropa background (extra-rationalism, vitalism, the importance of hierarchy, etc.), Schumpeter follows his “pre-analytical” vision according to which economic and social dynamics depend on exceptional creative men. On the other hand, his positivist and rationalist conception of science (such as endorsed by the American economists’ circles to which he belongs later) leads him to consider analytical tools which distance himself even more from any satisfactory explanation for novelty. As he admits in a relatively unknown article on rationality: “life is ontologically irrational” (cited in Graça Moura, 2017).

¹⁴ Schumpeter goes closer in that direction at the end of his life in noting that entrepreneurial activity does not need to be spectacular: it can be the introduction of new food recipe such as a “Deerfoot sausage” (1947, p. 151). This echoes the idea that individual leadership aptitude is “probably distributed according to the normal curve” (1919, p. 164) suggesting that there exists room for modest entrepreneurship initiatives that could parallel the vision of Phelps. However, this is not really what Schumpeter has in mind for explaining the creative destruction cycles. These social changes remain in the hand of major innovations proceeding from the action of exceptional individuals (those located at the end of the normal curve who fully possess both the two individual dimensions of leadership mentioned in Figure 1).

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