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Entrepreneurs “from within”? Schumpeter and the challenge of endogenizing 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. With regard to this life-long objective, this work provides an explanation of why it was impossible for Schumpeter to offer a convincing endogenous theory of the emergence of novelty. We show that Schumpeter’s view of the apparition of pure novelty is centered around an individual and elitist dimension of entrepreneurship and an energetic and vitalist axiom of social change, which is by nature hardly compatible with endogenous evolution. Furthermore, our revisiting of the last writings of Schumpeter shows that, when it comes to the issue of the emergence of pure novelty, the impossibility persisted until his death. Contrary to the claim of some commentators, even the old Schumpeter remained stuck into an individualistic, elitist and energetic view of the generation of pure novelty.

JEL codes: B15; O3

Keywords: Schumpeter; entrepreneur; economic evolution; endogenous change; innovation

> "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 half century ago, economic theory of innovation is still occupying Schumpeter's conceptual edifice. This was largely true in 1976. It remains true in 2021. Antonelli (2015) even suggested that Schumpeter should be counted among the fathers of the systemic and interactive theories of innovation that developed from 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, or at least a beginning of theory. Some authors have showed that this preoccupation was central throughout his life (Becker et *al.*, 2005).

It is indeed 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 exogeneous shocks as explanation for economic development" (2005, p. 111).

The main character in the Schumpeterian model, the one who is in charge of the introduction of novelty and innovation, is the entrepreneur. It is the action of the entrepreneur that, by introducing innovation, continuously modifies equilibrium conditions, thus generating economic changes. This central role attributed to entrepreneurs leads however to an interesting paradox: whereas the explicit aim of Schumpeter is to offer a theory of endogenous economic development, to do so he relies on a character (the Schumpeterian entrepreneur) who is largely

exogenous to the economic sphere. This paradox has, for instance, been put forward by Becker et *al*. (2005) and Encinar and Munoz who conclude that: "Is it not a paradox to state that something that has no economic significance is the principal determinant of (endogenous) economic change?" (2006, p. 257).

This entrepreneur paradox is the starting point of our work. By using Schumpeter's papers all along his academic career (including some papers that are less known by contemporary scholars), we argue, in line with Becker *et al.* (2005), that the issue of the endogenous explanation of economic development was an unsolved life-long companion of Schumpeter. But, in opposition to Antonelli (2015) we argue that Schumpeter never became a systemic thinker. Indeed, and most of all, we show that the theory of novelty endorsed by Schumpeter is irreconcilable with its objective of endogenizing economic development. We suggest that this is why Schumpeter struggled in vain during decades to solve this problem but was never able to develop a coherent theory of endogenous economic change.

More precisely, our work adds to the existing literature on the following points:

- We clarify the origins of the entrepreneur paradox that we relate to two fundamental topics in Schumpeter's writings: First, the explanation of economic development "from within", without having recourse to "external factors"; second, the problematic of the emergence of pure novelty;
- We explain why Schumpeter was never able to solve this paradox. In particular, we show that Schumpeter's view of the apparition of pure novelty is centered around an individual dimension of entrepreneurship and an energetic and vitalist axiom of social change. 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 economic sphere, it becomes automatically hopeless for him to develop a pure endogenous theory of economics development;
- We show that this paradox remained all along his career. At the end of his life, as mentioned by most commentators, Schumpeter's thinking evolved and moved slowly to something that is closer to a systemic view of the innovation process, with an entrepreneur who reacts to a specific socio-economic context (the so-called positive externalities put forward by Antonelli, 2015). But, our revisiting of the last writings of Schumpeter tends to suggest that, when it comes to the question of the emergence of

pure novelty, he remained stuck into an individualistic, elitist and energetic view and therefore was incapable of solving the entrepreneur paradox.

Overall, our reformulation of Schumpeter's research agenda and theory of social change sheds a new light on what has been considered so far by the extant literature as puzzling points in Schumpeter's thought. In particular the shift between the "young Schumpeter" from the first German version of *Theory of Economic Development* (1911, *TED* in following), often coined as "Schumpeter Mark I", and the "older Schumpeter" from *Capitalism, Socialism and Democracy* (1942, *CSD* in the following), often coined as "Schumpeter Mark II". With regard to the question that we believe Schumpeter considered as central, namely, the emergence of pure novelty, our work demonstrates that these dichotomies are, at best, confusing, as they miss the remarkable constancy in Schumpeter's thought all along his life.

In the next section, we present the entrepreneur paradox that we link to the question of the emergence of pure novelty. In section 3, we focus on the central elements that compose Schumpeter's theory of the production of pure novelty, and which make it impossible for Schumpeter to solve the paradox. Section 4 shows, by revisiting the last writings of Schumpeter, that this impossibility persisted all along his life. Section 5 concludes.

2. "From within": The "entrepreneur paradox" and the issue of endogenizing novelty

2.1 At the origins of the "entrepreneur paradox"

If there is at least one element in Schumpeter's thought that is hardly contestable, it is his objective of building an endogenous theory of economic change. This goal is explicitly emphasized in most of his writings, from the youngest to the last ones. For instance, in *Theory of Economic Development* (1911, *TED* in the following) he began by reminding to the reader his primary objective, which is to show that development is endogenous to the economic sphere:

> "By development, we shall understand only such changes in economic life that are not forced upon it from without but arise by its own initiative, from within. Should it turn out that there are no such changes arising in the economic sphere itself, and that the phenomenon that we call economic development is in practice simply founded upon the fact that the data change and that

> the economy continuously adapts itself to them, then we should say that there is *no* economic development." (Schumpeter, 1934 [1911], p. 63)

The same is found in his later writings. For instance, in *Business Cycles* (1939, *BC* in the following) he starts immediately in the introduction by casting the reader's attention to the fundamental distinction between "internal factors" and "external factors" of economic change:

> "Among the factors which determine any given business situation there are some which act from within and some which act from without the economic sphere. Economic consideration can fully account for the former only; the latter lust be accepted as data and all we can do about them in economic analysis is to explain their effects on economic life. Hence, we arrive at the very important concept of factors acting from without (let us call them external factors), which it stands to reasons we must try to abstract from 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" (Schumpeter, 1939, p. 7)

This willingness to endogenize economic change is no better illustrated by the use of the term "from within" that appears constantly in his writings, as illustrated, for instance, by his most famous quotation where he coined the term creative destruction[1], 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)

In sum, Schumpeter's explicit objective was to build a theory that breaks with the economic circuit which he considers rightly as being unable to explain truly dynamic problems such as the economic cycle. Such a theory must be endogenous in the sense that it must go beyond the exogenous perturbations of the economy and focus on elements internal to the system that cause its modification.

However, and quite paradoxically, in this quest for an endogenous explanation of economic change, Schumpeter wishes to remain within the realm of the Walrasian model. According to Graça Moura (2003), based on the typology of Lawson (1997), Schumpeter's conception of science, be it natural or social science, is the one of a "closed system", i.e. of a world of

[1] "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)

regularities, abstract laws, from which it is analytically possible to deduce events' occurrence in the form "whenever event x then event y". 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). Without the concept of equilibrium, it becomes indeed difficult to find the laws or functional relations of the system and thus to erect economic theory as a true science.[2]

Unfortunately, as Graça Moura (2003) observes, such an approach is untenable insofar as Schumpeter intends to endogenize economic changes. There is a clear mismatch between Schumpeter's objective and his methodology. It is not possible to explain within a "closed system" a phenomenon that is fundamentally part of an "open system" world. In a Walrasian general equilibrium model, the data are indeed fully given so that they entirely determine the behavior of the agents. There is no room for introducing radical changes into the closed economic circuit. Accordingly, changes cannot appear but as exogenous shocks that bring novelty from outside the system.

In short, Schumpeter's adoption of the Walrasian framework prevents him from fully explaining the continuous and systematic nature of change. To elucidate this last point, Schumpeter therefore is obliged to rely to the notion of entrepreneur, i.e. the actor in charge of the introduction of innovation, the one who "disrupts any equilibrium that might be attained" (Schumpeter, 1937, p. 166). In other words, 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"). Schumpeter justifies this point in explaining that the entrepreneur is endowed with a "conscious rationality" (Schumpeter, 1934, p. 63) enabling him to break with routines and traditions for introducing new things. It is this *ad hoc*, unexplained, entrepreneurial rationality which is at the origin of economic changes. 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. As stated by Becker et *al.* "while hedonic, rule followers merely adapt to changing circumstances, the energetic entrepreneur identifies new combinations and pushes them through" (2006, p. 356).

[2] This point appears clearly in the following quotation: "Our objects of investigation are certain relations of dependence or functional relations. The fact that economic quantities stand in such relations to one another legitimizes their separate treatment provided that they are uniquely determined […] If a system of equations yields absolutely nothing but the proof of a uniquely determined interdependence, this is already very much: it is the founding stone of a scientific structure." (Schumpeter, p. 1908, p. 33-34).

However, this central role attributed to entrepreneurs leads to a paradox: whereas his ambition is to offer a theory of endogenous economic development, Schumpeter relies to do so on a character (the Schumpeterian entrepreneur) who is largely exogenous to the economic sphere. Paraphrasing Antonelli (2015, p. 111), the entrepreneur "is an outsider who enters the economic system guided by animal spirit". For Schumpeter, the entrepreneur is an exceptional, privileged character, endowed with extraordinary mental characteristics that allow him to think outside the box and overcome all the obstacles. As a consequence, nothing in the Schumpeterian entrepreneur enables to explain and to understand the real origin of novelty. To coin Encinar and Munoz, "Schumpeter considers the entrepreneur as a black box from the point of view of economic theory" (2006, p. 259). In the same vein, Cantner uses the theatrical expression "deus ex-machina of change" (2016, p. 702) to describe the entrepreneur in Schumpeter.

This view of the entrepreneur means that, paradoxically and conversely to what he claimed, Schumpeter failed to offering a genuine endogenous theory of economic development. The reliance on the entrepreneur only allows to provide a name, a label to economic development, it allows to describe it more or less accurately, but does not explain how it is generated (Becker et *al.*, 2005). In other words, Schumpeter has never been able to develop a theory of innovation, that is a theory that would explain why and how innovation emerge (Rutan, 1959; Becker et *al.*, 2006). The concept of the entrepreneur masks this failure but it does not solve it.

Interestingly, Schumpeter himself realized that to rely on the figure of the entrepreneur is a dead-end in order to offer an endogenous explanation of economic development. In a text written in 1932 but only rediscovered and translated in English in 2005 (Becker et *al.*, 2005) he writes that the concept of 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)

2.2 A reformulation of Schumpeter's research agenda behind the "entrepreneur paradox": Explaining the emergence of novelty

In our view, the "entrepreneur paradox" illustrates the existence of two very different research questions in Schumpeter's research. The first one is related to the diffusion of the 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 etc.). This is essentially an *ex post* research question as it focuses on what happens once novelty is brought in the economic life. By contrast, the second question focuses on the origins of the innovation, that is to say on how pure novelty can emerge in the economic life. Here, the meaning of the term "from within" is far more ambitious as it aims to explain the creative sources of the innovation *ex ante*: how can radically new practices and behaviors arise endogenously in the economic circuit? Although not always explicit, this second research question is undoubtedly for Schumpeter the "greatest unmet scientific challenge" (Becker et *al.*, 2006, p. 356).[3]

These two research questions are reflected by the well-known distinction established by Schumpeter between invention and innovation. This distinction takes on its full meaning in an *ex post* research issue that is interested in the economic consequences of innovation, its diffusion in the economy, etc. It allows quite conveniently to evacuate the *ex-ante* question related to the origin and emergence of innovation, 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) [4]

But, as a consequence, this distinction remains completely artificial in an *ex ante* problematic which is concerned with the origin of the emergence of innovation and, above all, which seeks to endogenize the emergence of change. Explaining the economic change "from within" without considering how and why new knowledge occurs is tantamount to stopping in the middle of the road. As emphasized by Witt:

[3] On this point see also Velardo (2020).

[4] Note that this quote seems to contain a confusion about the significance of the term endogenous (or internal). The fact that innovation is an economic problem, an economic fact, does not automatically make it an endogenous process. For example, growth is naturally an economic problem. However, there are many models of exogenous growth.

> "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).

Put differently, an endogenous explanation of economic change requires considering invention and innovation as a continuum in order to trace backing their causal relation within the phenomenon of novelty. This also explains why the question of novelty intrigues Schumpeter in a much broader sense and leads him to systematically pay attention to phenomena far beyond economics, related for examples to science, politics or arts. In this perspective, his understanding of economic change can be considered as a local application of a broader theory of social change.[5] The real enigma that must be solved is not so much about the entrepreneurial activity (introducing innovation and its diffusion in the economic sphere) but rather about the emergence of novelty in social life.

As will be argued in section 4, the theory developed by Schumpeter throughout his academic life, based on a functionalist vision of the entrepreneur, allows to accounting properly for the endogenous *ex post* effects of innovation into the economic circuit. For example, Schumpeter investigates the localization of the innovation (entrepreneurial function), its diffusion (innovation clustering or radical/incremental innovations) and its effects on the economy (creative destruction). But it does not address, as such, the actual chain of causations that lead novelty to emerge at a first time "from within". Yet, our reformulation of Schumpeter's research agenda suggests that this second question is the critical one for him.

In the next sections, we show that in Schumpeter's thought the production of pure novelty remained paradoxically largely in the hands of the *individual* figure of a "creator personality", endowed with exceptional abilities. More precisely, Schumpeter remained deliberately faithful to an *elitist* and *extra-rationalist* conception of change. For sure, as argued by Graça Moura (2003), and as recalled in section 2.1, because his Walrasian model is only able to describe the innovation as a "shock", Schumpeter had no choice but to describe the entrepreneur as literally

[5] This idea is stressed, for instance, in *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).

extraordinary. However, we go further and contend that Schumpeter's emphasis on the exceptional entrepreneur features is not only the mere logical consequence of his unsuitable approach (suggesting that the entrepreneur's paradox would be less the result of his actual opinion than the logical consequence of his methodological mismatch), but the purposely outcome of his "theory" of the production of novelty.

3. Schumpeter's approach to the emergence of novelty

3.1 The individual dimension of creation

Schumpeter's research agenda was to provide a general framework accounting for the emergence of radical, disruptive novelty in every areas of social life. Such a theoretical ambition cannot be confined to pure economic theory, but is more a matter for 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 making possible to account for behaviors that do not conform to the hedonistic (and static) rational conduct from the Walrasian framework.[6] Schumpeter himself saw socio-economics as a conceptual bond between history and pure economics, what he called a "reasoned history" (1939, p. 220), in order 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. Hierarchy between social classes is directly linked to leadership. Some social functions involve a greater level of leadership, such as ones performed by warlords in the medieval era as waging war obviously supposes faculties of command. Leadership therefore "provides a criterion for ranking socially

[6] 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[7], 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 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 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 is in fulfilling *new* useful social functions. Therefore, the individual is the "active unit of evolution" (Festré and Garrouste, 2008, p. 375) which manifests itself as an act of transgression. Social change, despite the multiple refinements formulated by Schumpeter, remains the action of "genius" individuals who, in contrast with Marxian sociology, are able to conflict with their social-class interest, allowing them to climb

[7] In "Social Classes" Schumpeter refers to "group leadership" or "class leadership" in order to explain social order. This leadership is the result of the rise of the social importance of the function performed by a given social group so that it gains "further functions — presiding at group meetings, leadership in other group concerns" (Schumpeter, 1927, p. 139) that culminate in institutions objectivizing its leadership position. Thus, this kind of leadership is "not concerned with the individual leadership of the creative mind or of the genius […] social leadership means to decide, to command, to prevail, to advance." (1927, p. 165).

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 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) to create something new that breaks the consensual state of the world and/or (b) to successfully convince others that such 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 criterions are rarely meet within the same entrepreneur, which allows to characterize 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"[8] 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 are instead a form of gift for which individuals differ "as they differ in their ability to sing" (Schumpeter, 1927, p. 165).

[8] 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).

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[9]	(b)

Of course, Schumpeter did not fail to point out that individual leadership has also a holistic dimension as any new enterprise must be functionally adequate to the social structure in which the individuals evolve. Entrepreneurial actions can indeed 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 with capitalism – and that has indeed fascinated Schumpeter throughout his life – is its intrinsic capacity to systematically translate *individual leadership into an entrepreneurial function*.

[9] As we will show in the section 4 Schumpeter argues that the functional role of entrepreneurship can be embodied in collective organizations and institutions.

Capitalism is the only system able to place this "special case of the social phenomenon of leadership" that is entrepreneurship (1928b, p. 65) at the top of the social hierarchy.

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 let in the hand of individual leaders. In other words, making explicit the conditions of possibilities that turn individual leadership into a (entrepreneurial) function, which is the capitalist era, is *not* equivalent to proposing an endogenous explanation of novelty. Even more, we argue that such an endogenous perspective is ultimately incompatible with Schumpeter's ontological scheme, which offers an *elitist* but also an *extra-rationalist* vision of individual leadership.

3.2 The energetic and vitalist axiom of social change

We have shown that for Schumpeter the ultimate engine of social change relies on the feat of individual leaders; moreover, aptitude for leadership is an endowment which is unevenly distributed in the society. 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 Schumpeter choses to follow. 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 analysis tends to show that creative leaders go against the mainstream, mobilize a rationality that is quite different from the hedonistic-optimizing reaction of others to a given economic context. He repeatedly insists on the fact that entrepreneurial action rests on intuition, or even "flashes" and "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)

Let us elaborating this point in paraphrasing Langlois (2002) in his discussion of Herbert Simon and Schumpeter notion of "bounded rationality". As Langlois observes "[Simon's] innovation, in short, is to suggest that one may only approximate true rationality; he does not ultimately call the notion itself into question." He adds: "Simon like Schumpeter is 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." (2002, p. 19).

Against Langlois, we argue that Schumpeter does not endorse entirely this rationalist view. For sure, Schumpeter does believe that the progress of science does affect the creative process and, in doing so, the entrepreneurial function (cf. also section 4.2). 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.

It is then not by chance, or because of an inappropriate methodology, that Schumpeter offers an individualistic and elitist vision of social change. It is because of his conception of the entrepreneurial activity is *itself* envisioned as something extraordinary in the sense that it implies of choosing to "leap into the unknown" not with *but against* rational procedure. 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, defines 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, that 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).[10]

In our view, this conclusion of the conference of 1949 is very representative of the Schumpeter's approach of social change: novelty is always an act of creation which is, by no mean, reducible to any *ex ante* rationalization. For sure, the validation process of novelty in science and economics are different: new theories are validated by their explicative power whereas validation of new goods and services is done through market mechanisms. However,

[10] We find exactly the same argument in the following citation quoted by Phelps: "Without the creation of new viewpoints, without positing new aims, mathematical would soon exhaust itself in the rigor of logical proofs and begin to stagnate as it would run out of content. In a way mathematics has been best served by those who distinguished themselves more by intuitions than by rigorous proofs" (Felix Klein, lectures on mathematics in the XIXth century, cited by Phelps, 2013, p. 19).

it remains that both proceed from extra-rationalist ingredients as the reason comes only in a second step and essentially on a practical level, that is during the validation process.

The conception of science and entrepreneurship endorsed by Schumpeter echoes somehow to 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 phenomenon into a broader and more comprehensive way in going beyond ideas and propositions that are widely accepted as scientifically truth. 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 excess 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 Schumpeter[11] 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 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, it 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)

[11] 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).

In addition, the literature has stressed how much the work of Schumpeter parallels with the Nietzschean vitalism of the *Übermensch* (e.g. Santarelli and Pescialli, 1990; Shionoya, 2008, Muller, 1999)[12]. In particular:

> "Two of the most pervasive themes of Schumpeter's œuvre are Nietzschean. The first is the role of the superior few as a source of creativity; the second is the ressentiment of the many against the claims of the creative, and the stultifying effects of the resulting egalitarianism. These motifs run throughout Schumpeter's writings, from his earliest works through his posthumously published *History of Economic Analysis*" (Muller, 1999, p. 242).

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.

Furthermore, following the path of his professor von Wieser (1914), Schumpeter places the effective action of the individual leader far above his reasoning[13] by "getting things done" (1911, p. 94). 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). Typically, 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, the 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"[14]:

> "In seeking to understand the factors that account for the success of a corporation official, that lift him above his fellows, we find, first, that extraordinary physical and nervous energy have much more to do with outstanding success than is generally believed. It is a simple fact that such industrial leaders must shoulder an often unreasonable burden of current work, which takes up the greater part of the day. They come to their policy-making "conferences" and "negotiations" with different degrees of fatigue or freshness, which have an important bearing on individual success. Moreover, work that opens up new possibilities—the very basis of industrial leadership—falls into the evening and night hours, when few men manage to preserve their full force and originality. With most of them, critical receptivity to new facts has by then given way

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

[13] 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).

[14] This idea is also expressed in the last version of *TED*, Schumpeter wrote: "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).

> to a state of exhaustion, and only a few maintain the degree of resolution that leads to decisive action. This makes a great difference the next day. Apart from energy itself, that special kind of "vision" that marks the family entrepreneur also plays an important part—concentration on business to the exclusion of other interests, cool and hard-headed shrewdness, by no means irreconcilable with passion." (Schumpeter, 1927, p. 122)

In line with the previous section, Schumpeter explains that the energetic-dynamic agent can actually takes 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. In so doing, Schumpeter is inevitably *but purposely* inclined to associate, despite his many successive theoretical refinements, the emergence of novelty with a demiurgic figure of the entrepreneur (as a "creator personality"). One could however argue that this energetic conception of individual action remains confined to the early work of Schumpeter, as noted by many commentators. Against this common viewpoint, the next part will show that the old Schumpeter still constantly refers to the individual and energetic figure of the entrepreneur, allowing us to argue that, at least when it comes to the question of the emergence of novelty, his position has not varied.

4. The persistence of the "entrepreneur paradox": A reinterpretation of the late Schumpeter

4.1 Was the late Schumpeter becoming a systemic thinker?

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 in 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 department. Schumpeter envisioned this shift in a context of a 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 economic change. For some commentators, the energetic conception of individual action described in this paper would therefore remain confined to the early work of Schumpeter only. In the second half of his life, Schumpeter would have moved 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 publication, *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, entrepreneur (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).

Against these viewpoints, we argue that, when trying to explain the emergence of pure novelty, the distinction between two Schumpeter is wrong. First, a careful reading of *Creative Response in Economic History* leads to introducing serious qualifications to Antonelli's conclusion. Overall, the discussion all along 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 it otherwise, there is no clear

sign that Schumpeter would be willing to depart from the centrality of the energetic and individualist view of economic development.

Furthermore, and more fundamental, a detailed reading of all the old Schumpeter writings (for instance *BC* published in 1939 and *CSD* published in 1942, to quote the most famous ones), clearly suggests that, at least with regard to the central question of the emergence of pure novelty, Schumpeter has been remarkably consistent. All these writings clearly 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 intervene 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. To say that the entrepreneur is a "function" rather than an "extraordinary man" does not solve in anyway the tricky issue about the geneses of novelty. 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 (what he calls growth) but it adds nothing to the fundamental question of the emergence of novelty (what he calls development). On the contrary, we argue in the next section that Schumpeter mark II, which is so often used in the literature to suggest that Schumpeter was on his way to endogenize economic development, could even be considered as evidence that energetic individual leaders are absolutely necessary in order to generate radical novelty.

4.2 Schumpeter Mark II as evidence that energetic individual leaders are necessary for economic development (as opposed to growth)

In *CSD*, but not only here, Schumpeter insisted on the rationalization, routinization, bureaucratization of the innovation process within very large companies and on its immediate consequence, namely the disappearance of the entrepreneur, and therefore the probable transformation of a capitalist economy into socialist one. As things become more and more predictable and computational, the entrepreneurial function is then replaced by the 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 action such as risky venture, unconventional way of thinking, "evangelization" of the masses, etc. In other words, Schumpeter makes the (bitter) observation of the almighty power of the scientific progress, which, coupled with the democratic spirit, tend to erode the social structures of capitalism.

Interestingly, a detour about Schumpeter's understanding of social change enables to show that this process of rationalization of the entrepreneurial function is part of a wider historical process that Schumpeter called "patrimonalization" that is the process of consolidation of social leadership through times (Schumpeter, 1927). However, and quite paradoxically, this consolidation of the ruling class is, at the same time, the process by which its own decline begins. Schumpeter exemplifies, for instance, this point through 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 patrimonalization of the nobility described by Schumpeter can be viewed as a local application of a broader process of rationalization close to the Weberian notion of *Entzauberung*. It is indeed economic rationality that led the warrior to abandon his function for being a landlord as it is economic rationality that push the landlord to be replaced by the entrepreneur in performing a new and much more crucial function in the (capitalist) world to come. The conclusion of Schumpeter is that economic rationality tends to inevitably patrimonalize the entrepreneurial function itself.

One possible interpretation of this analysis, widely disseminated, is to consider that Schumpeter is finally endogenizing economic change. It is no longer energy and extra-rationalist entrepreneurs who are at the source of change, but large companies motivated by economic profit. However, in our view, this reading of *CSD*'s thesis as a *substitute* of the individual entrepreneur by the routinized science is misleading. It 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 adaptive response that only causes incremental leaps). It is indeed very important to remind that Schumpeter drawn a fundamental distinction between the mere adaptation to normal economic circumstances (convergence towards an equilibrium) and the breaking down of these circumstances by the introduction of radically new things. Adaptation to normal economic circumstances leads to economic growth, while the breaking down of these circumstances by the introduction of radical novelty leads to what he calls "development", which he considers as a phenomenon quite different and of more economic significance than mere growth.

In *CSD*, Schumpeter accurately describes an industrial world with growth instead of development. A first textual evidence of this can be traced in the way Schumpeter details the "advantages" of large firms. These are indeed less of a creative nature (ability to create new ideas and applications) than strictly economic. Large companies have 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 the 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, the component (a) in Figure 1 related to the emergence of radical novelty, remains dramatically amputated.

This reading of the late Schumpeter, in which only the energetic individual can be at the origin of radical novelty and economic development, helps to elucidate many puzzling aspects of *CSD*. First, it explains why Schumpeter seems to identify the full achievement of the late capitalism with the "stationary state" of the economy. Consider in particular his rejection about the hypothesis detailed in the Chapter XII of *CSD* according to which all innovations would soon be realized. Schumpeter argues 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. Then, the stationary state in the mind of Schumpeter does not correspond to a situation without any economic growth, on the contrary. It 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 current state of the art, it is far from economic development as being a *qualitative* jump toward a new state of the world.

Second, it clarifies the relationship that Schumpeter made between organizations, leadership and the entrepreneurial function. As noted by commentators, the late Schumpeter portrays the entrepreneurial function in a more depersonalized way than before in arguing that even the State could take the role of the entrepreneur. This idea, while already latent in his early writings from 1912, is indeed increasingly salient over time. It seems at odd with the individualistic emphasis

demonstrated before, but it is not. The component (b) in Figure 1 of the definition of entrepreneurship clearly refers to the holistic dimension while the component (a) constitutes its individualist counterpart. Put differently, in saying that leadership can be "embodied" by institutions, Schumpeter is simply noting the gradual advent of scientific methods (of marketing for instance) characterizing the mass consumer society to come. However, once again, this is unrelated with the creative dimension of entrepreneurship referring to its individualistic component, remaining in the hands of some individuals endowed with special creative capabilities.

Third, this reading also explains why Schumpeter conjectures so easily the advent of socialism as a spin-off of late capitalism. For Schumpeter, socialism is precisely the economic regime of the substantive rationality, proceeding from computational capabilities and techniques. Thus, as science push back the knowledge frontiers, the domain of the 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. As demonstrated in the previous section, the explicit clash that Schumpeter makes between, on one hand, the imaginative and creative capabilities on the entrepreneurs, and, on the other hand, the rationalist conception of knowledge tend to prove the contrary. It is then difficult to see how the progressive rationalization of the world could result in the same innovative outputs than the ones produce by the entrepreneurs (cf. Figure 2).

This leads us to the last, but not least, consequence, namely 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 come to replace capitalism. Indeed, as seen above, with regard to the generation of rational incremental innovation socialism is likely to overperform capitalism. Yet, if socialism is capable of reproduce and optimize itself, it is not able to disrupt itself and to generate economic development. 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. But 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 also mimic the creative part entrepreneurship and disrupt the economy as the entrepreneurs would have done.

Figure 2. The evolution of entrepreneurship over capitalism history

	Most representative agents:	**Types of behavior:**	**Type of innovation:**	**Type of dynamic:**	**Type of entrepreneurial task:**
Early capitalism (including feudal survivals)	"creator personality" entrepreneurs	Extra-logic, non-rational *ex ante*, creative	Radical innovation	Development	create novelty (a)
Late capitalism (latent socialism)	Managers, organizations (R&D departments, State)	"conscious rationality", calculative, productive	Incremental innovation	Growth	diffuse novelty (b)

The whole Schumpeterian pessimism can then be sketched as follow: reason cannot rationalize its own limitations; the claim of reason is such that it relegates to the dustbin of obscurantism everything that it cannot consciously understand according to its own standards.[15] 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. On this point, *CSD* is in perfect continuity with Schumpeter's previous writings: the entrepreneurial function can only flourish through and by means of extra-capitalist elements. Schumpeter even goes so far 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 the 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. Thus, the extra-rationalist bulwarks of capitalism echo the extra-rationalist elements of the entrepreneur, the latter could not survive without the former.

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

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: ultimately, the capitalist adventure must be, in turn, promptly justified or rejected. 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 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* tends to prove that, according to Schumpeter, in an economy where the entrepreneur has disappeared and where change is rationally planned, there can be incremental innovation, growth, but 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. Only the extra-rationalist entrepreneur can be the source of the rupture. In other words, Schumpeter is unable to endorse a rationalist view of the emergence of pure novelty. On this point, it is clear that Schumpeter's vision remained remarkably consistent throughout his academic career: The spark of novelty can only be found in the energy of leaders nourished and supported by an extra-rational matrix.

5. Conclusion

This work explored the question of the endogenization of economic change in Schumpeter's work. We have insisted that Schumpeter throughout his life, remained the thinker of the extra-rational individual entrepreneur. He remained convinced that pure novelty could only be generated by extraordinary individuals motivated by the sublime. He applied this theory of the emergence of pure novelty not only in economics but also in the fields of art, science, politics, etc. It was therefore impossible for him to fully endogenize pure novelty, although he tried as much as possible. 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).

More recent research in innovation economics has pointed to the possibility of endogenizing, at least in part, the emergence of novelty. But this implies to move away from the individual entrepreneur and to insist on the structure of the system (institutions, culture, interactions between agents, etc.) that generates positive feedbacks and makes novelty emerge. 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). 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). Phelps put forward the importance of the "modern" culture, based on individuals' taste of curiosity, challenge, creation, exploration, etc., as the main explanation of economic development. 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).[16]

Schumpeter had not been able to take this step. By contrast with Phelps, for Schumpeter, the entrepreneur remains rare and depicted in sharp contrast with the rest of the population. One could possibly argue that his insistence on capitalism as a necessary condition for innovation contributes to highlight the importance of institutions such as private property or competition. But this view remains *ex-post* and never goes further. In the end, Schumpeter remained stuck in an individualistic and energetic theory of innovation which therefore cannot explain the emergence of these extraordinary individuals who are at the origin of pure novelty.

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

[16] Systemic theories of innovation are perfectly illustrated by the existence, very often identified through history, of parallel inventions (see for instance, Isaacson, 2015). 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 were "in the air of times", due to arrive at this precise moment, and only to be seized by entrepreneurs.

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 for Schumpeter's ambitions to endogenize the innovation process entirely. It shows a Schumpeter constantly balanced between absolutely irreconcilable conceptions: on the one hand, consistent with his Mitteleuropa background (extra-rationalism, vitalism, 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 unsuitable analytical tools which distances 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).

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