

Schumpeter's *Theory of Economic Development*: 100 years of development

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Abstract This article sheds light on the impact of Schumpeter's *Theory of Economic Development* over the last 100 years, and identifies insights from that work that are less well-known, but that have the potential for informing current developments in evolutionary economics. We identify these insights by tracing the development of Schumpeter's ideas in *Theory of Economic Development*, which he revised heavily between the first and second German and the English editions. We not only report material lost in the process and developments in Schumpeter's thinking that can be read off of the revisions, but also indicate how the newfound material can inform and inspire evolutionary economics today.

Keywords Joseph A. Schumpeter · Theory of Economic Development · Evolutionary economics · Entrepreneur · Entrepreneurship · Variation · Selection · Retention

JEL Classification B15 · B25 · B31 · B52

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1 Introduction

The Theory of Economic Development (TED) is Schumpeter's most famous work. It is widely considered the founding work in the literature on entrepreneurship and economic evolution.

The core ideas Schumpeter presents in TED are well-known, and have proven a great inspiration for scholars in different branches of economics and management. There is, first and foremost, his general theory of entrepreneurship as a new combination of already existing material or immaterial components. There is also his idea that resistance to entrepreneurship plays a crucial role in blocking economic development, and that only a very strong and forceful individual can break through this resistance.

What is much less well-known is that TED developed substantially during Schumpeter's career. It is the only one of Schumpeter's books that Schumpeter changed substantially over time, reflecting important developments in his thinking. Over a 23-year period that spanned most of the first half of his career, Schumpeter made many major revisions between the first German edition (1911, also identified as 1912), the second German edition (1926), and the English edition (1934) of TED. These revisions, we shall try to show, provide a unique opportunity to shed light on the development of Schumpeter's thinking on economic development. One hundred years after its publication, there are still some little known aspects of the book that represent untapped potentials for further development of theories of economic evolution.

In the remainder of this article, we first take a brief look at the reception of TED in the literature. We then turn to a brief overview of the advances in Schumpeter's thinking on economic development between the first German and the English editions, and bring to the reader's attention the content of TED that had effectively been hidden away from English-speaking readers who only got to know the book in its 1934 edition (and subsequent, unaltered, editions). Finally, we indicate how some of that content and development of TED further enriches Schumpeter's contribution to evolutionary economics, and how it might inspire present-day research in evolutionary economics and related fields.

2 TED and its reception

In Schumpeter's own words, TED is '[f]undamentally [...] an attempt at framing a purely theoretical description of the nature and mechanism of economic change, its motive power and the phenomena incident to it' (Letter to David T. Pottinger, 4 June 1934, in Hedtke and Swedberg 2000: 271). Schumpeter considered 'economic evolution as a distinct process generated by the economic system itself' (Schumpeter 1937: 3). In his theoretical description, he was therefore looking for causes from *within* the economic system. In TED, he identified these causes in the process of innovation, famously defined as 'new combinations', which are brought about by the entrepreneur and

disrupt the equilibrium of the steady state. (For an overview of the core ideas presented in TED see Swedberg 1991).

When TED originally appeared in 1911, it was not received well. As Schumpeter himself said, 'when this book first appeared in 1911, both the general view of the economic process embodied in it and about half a dozen of the results it tried to establish seemed to many people so strikingly uncongenial and so far removed from traditional teaching that it met almost universal hostility' (Schumpeter, letter to David T. Pottinger, June 3, 1934, in Hedtke and Swedberg 2000: 270).¹ Referring to the hostility that his book encountered, Schumpeter must first of all have thought of Böhm-Bawerk's (1913) article (Swedberg 1991: 39). In a 36-page essay, Böhm-Bawerk (1913) delivered a 'devastating attack on the interest theory in TED' (Swedberg 1991: 39). Böhm-Bawerk considered the 'dynamic' interest theory 'a complete failure and misleading' (1913: 2), 'completely amiss' (1913: 12), and wrote that 'Schumpeter got inebriated on a highbrow idea' (1913: 2). The reception in the international literature was not overwhelmingly positive either. Here is an example from the *Economic Journal*:

[Schumpeter] often answers possible questions, which if asked are better left unanswered. He is not satisfied with presenting to us his building, he presents us with all the scaffolding which he has used, and takes us over all the paths he has trodden. This, combined with frequent repetition, makes his book cumbrous. The reader, who could not understand him if half the explanations were omitted, will hardly wade through the work in its present condition. Still no one who takes a real and thorough interest in economics ought to pass it by. L. B. Naymier (1913, p. 106).

While Schumpeter's first book, *Das Wesen und der Hauptinhalt der theoretischen Nationalökonomie* of 1908, had inspired thirteen reviews, the first edition of TED of 1911 merely inspired seven (Augello 1990). Since TED is generally considered Schumpeter's most important work, its cool reception is quite remarkable. This may reflect a general hostility towards Schumpeter's early work on the part of a majority of the German economists who belonged to the German Historical School (Shionoya 1997). Indeed, the first edition of TED provoked some heavy criticism (e.g., Böhm-Bawerk 1913). There is also the fact that Schumpeter's book appeared just before the outbreak of World War I, and that little academic discussion took place as long as the war lasted.

Looking back at the 100 years of its life in the scientific literature, what was the impact of TED? We carried out a citation analysis including citations to

¹A notable exception is the favorable review by John Bates Clark (1912) in the *American Economic Review*.

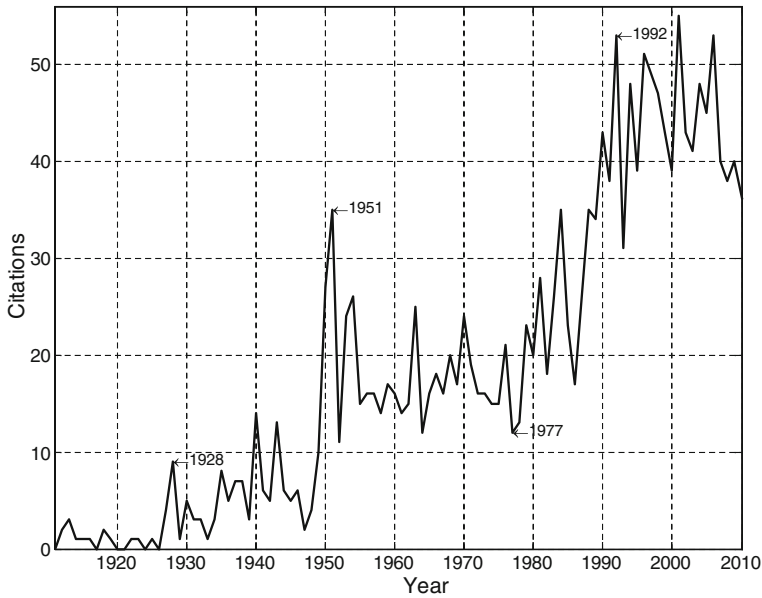


Fig. 1 Citations to *Theory of Economic Development* in JSTOR

the German or English editions of TED in all of JSTOR.² Figure 1 plots the citations per year.

As Fig. 1 shows, the citation analysis reveals a number of interesting insights about the reception of TED. These can be summarized in three observations that coincide with enormous gains in the book's popularity: 1) the publication of the second, revised editions in 1926 and 1934, 2) Schumpeter's death in 1950, and 3) the onset of the entrepreneurial age in the 1980s. During the first seventeen years, TED attracted almost no attention—it almost fell dead from the press, at least measured by an average citation of 1.06 per year in *all* journals present in JSTOR. Then, its popularity took off around 1928 after the publication of the German second edition (in 1926). There is a similar slight effect after the publication of the English edition in 1934. During the period of 1928–1949, there were on average 5.72 citations to TED. Then, after Schumpeter's death in 1950, we see a spike (shown in Fig. 1), capturing a surge of interest in Schumpeter's works. This effect on interest in TED was lasting,

²We carried out the search in JSTOR (complete, without limiting the search to particular disciplines such as 'economics'). We did not use any filters for content (such as articles, etc.). The search term used was (Schumpeter) AND ("Theorie der wirtschaftlichen Entwicklung") OR ("Theory of Economic Development") in the field 'full text'. This search identified 2101 hits. We manually counted up the hits per calendar year, excluding publications that were considered not to refer to the book's content, such as front matter, back matter, JEL overviews per subject matter, books received for review, pure bibliographic references (e.g., bibliographies) except for those that contain a description of or comment on *Theory of Economic Development*. Where publications carried a double year of publication (e.g. 1919/1920), we counted them in the first year. The search was last updated on 18 September, 2012.

as measured by average citations of 18.37 during the years 1950–1976. So far, the sources of the remarkable long-term rise of interest in TED are related to the publication of the second editions and Schumpeter's death. However, the even stronger surge of interest in TED during the period of 1977–2010 cannot immediately be attributed to any single event. During those years, the book received an average of 36.18 citations per year. Some of the increase in average citations can probably be attributed to the increase in journals and journal pages, but this is probably not the whole story. And it is, in any case, quite remarkable that TED over a 100 year period steadily increased in popularity, thus marking it as one of the rare few works that gained iconic status.

Why has the literature on Schumpeter peaked since 1981? One reason is probably the change in attitude towards the market; another is the attitude to Keynes, Schumpeter's main competitor. In 1984, for example, Herbert Giersch published an article in *American Economic Review* entitled "The Age of Schumpeter". His main argument was that Schumpeter's time might now have come; and that the reasons for this were two. Keynes' ideas did not fit economic reality any longer, and people were regaining "faith in the regenerative forces of a decentralized market system," (Giersch 1984:105).

In which literatures, however, was TED most present, and in which literatures is it most present today? Drawing on a second citation analysis, we compared the citations to TED in *selected* journals in economics and management that are commonly seen as belonging to the set of high-status or top journals.³

The upper panel shows the comparison of citations to TED in top journals from economics (dotted graph) and management (unbroken graph) over the 100-year 'life' of *TED*. The two graphs jointly mimic the graph we reported in Fig. 1. That is, the citation pattern to TED in all of JSTOR is no different from the *joint* citation pattern to TED in selected top journals in economics and management. But as the upper panel of Fig. 2 shows, the decomposition of citations to management and economics journals reveals a clear and interesting shift in citation patterns. Before 1985, there were more citations to TED in the top economics journals, but after 1985, there were almost no citations in the top economics journals. At the same time, there was a huge increase in citations to TED in the top management journals. In short, we take this

³In this citation analysis, we examined references to TED and to Nelson and Winter's (1982) 'An Evolutionary Theory of Economic Change' in the top five economics journals and the top five management journals. (Economics: *The American Economic Review* first published in 1886, *Econometrica* first published in 1933, *The Economic Journal* first published in 1891, *Journal of Political Economy* first published in 1892, and *The Quarterly Journal of Economics* first published in 1886. Management: *Academy of Management Journal* first published in 1958, *Academy of Management Review* first published in 1976, *Administrative Science Quarterly* first published in 1956, *Organization Science* first published in 1980, and the *Strategic Management Journal* first published in 1990.) We conducted a search of these ten journals using the JSTOR database, with the search string (((Schumpeter) AND ("Theorie der wirtschaftlichen Entwicklung") OR ("Theory of Economic Development"))). The search covered the 100 years from 1911 to 2011 and was last updated on 18 September 2012.

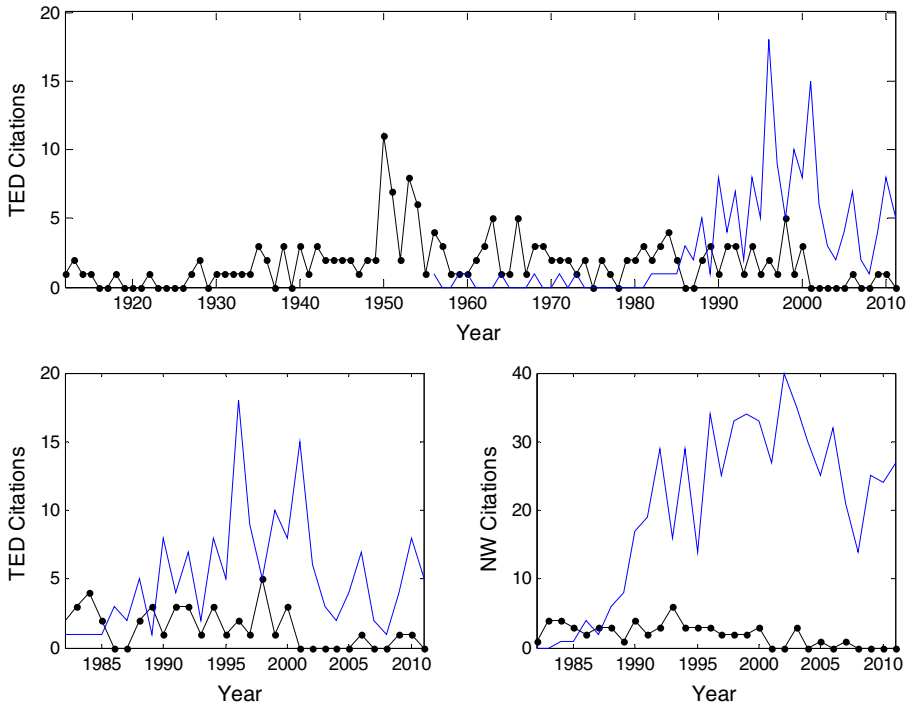


Fig. 2 Citations to *TED* compared to citations to Nelson and Winter (1982) in the top 5 economics and the top 5 management journals (JSTOR)

evidence as a clear indication that *TED* was broadly seen as inspiration for important topics in management, while economists had lost interest. What are these topics? A quick scan of the cited articles will, not surprisingly, show that a bulk of the articles citing *TED* concern entrepreneurship and innovation. Another group of articles relate to strategic advantage, and, perhaps more surprisingly, a third group of articles concern complexity and systems dynamics (in some sense). The latter group of articles thus relate to the remnants of the systems perspective that Schumpeter developed in the seventh chapter of the first edition of *TED* and later toned down in the German and English second editions.

In a nutshell, therefore, *TED* has had two phases during its life in the scientific literature. In the first, before 1985, it primarily ‘lived’ in the economics literature. In the second, after 1985, it was ‘picked up’ by the management literature, where *TED* became increasingly popular.⁴ The lower left panel of Fig. 2 shows citations to *TED* in top economics and management journals in

⁴This is further supported by an analysis of the content of a sub-sample of the top management journal sample. The most frequently cited of Schumpeter’s works in the *Academy of Management Journal* and the *Academy of Management Review* in the period 1961 to 1997 is indeed *Theory of Economic Development*. The second most cited work is *Capitalism, Socialism, and Democracy*. In the *Academy* journals and the three other leading management journals, the citation frequency for any other writings by Schumpeter is very low.

the window from 1982 to 2011. The lower right hand panel of Fig. 2 shows citations to Nelson and Winter's (1982) classical book, *An Evolutionary Theory of Economic Change*. Nelson and Winter (1982) explicitly acknowledged inspiration from Schumpeter, and they also ended up sharing a similar citation pattern! As was TED, Nelson and Winter's (1982) book was mainly cited in the management literature, at least when we consider the top journals featured here. The citation patterns thus indicate that the study of economic development and evolution during the period from 1985 to 2011 was driven by management scholars. That is, TED draws a very long shadow, in the sense that it becomes associated with research that aims to explain the basic forces of economic innovation and entrepreneurship.

We shall now leave the discussion of the reception of TED. Before turning to the changes that Schumpeter made in this work after its first edition, it should be noted that one can also view the very reception of economic ideas in Schumpeterian terms. By this we mean that the most exciting way of developing Schumpeter's ideas would be to use them as pieces in new combinations, and in doing so, also break down the resistance that exists within mainstream economics to new theories.

If one proceeded in this way, one should quickly be able to make a distinction between articles in the secondary literature that simply advocate Schumpeter's ideas and articles that try to use Schumpeter's ideas in entrepreneurial combinations, in the form of new theories. The material in JSTOR unfortunately does not allow us to carry out an analysis of this type, but we nonetheless wanted to point to the possibility of using a Schumpeterian approach to the very notion of reception.

3 Developments of *Theory of Economic Development*

The first edition of TED was published in the German language (*Theorie der wirtschaftlichen Entwicklung*) in 1911 (although the publisher's listing was 1912). In 1926, the second German edition was published in which Schumpeter had made very substantial revisions. The English translation from 1934 was prepared on the basis of the second German edition, by Redvers Opie and with Schumpeter's active contribution (interview with Wolfgang Stolper, 4 August 2001; Stolper 1988). Because of this, any content that had been deleted from the first edition in the revision for the second edition would have been lost to readers of the English edition (1934) or subsequent editions. As Schumpeter himself remarked in the preface to the second German edition (1926), two of the most substantial changes consisted in deleting a whole chapter, chapter 7 on 'The View of the Economy as a Whole', and in substantially revising chapter 2 ('The Fundamental Phenomenon of Economic Development').⁵ In the latter

⁵English translations of chapter 7 and of the 1911 version of chapter 2 are available in Becker et al. (2011).

chapter, Schumpeter laid out the core of his theory of economic development. Schumpeter also implemented smaller changes throughout his book.

To trace the development of Schumpeter's thinking about economic development in TED, we carried out a comparative exercise through which we traced each and every change between the three editions word by word, sentence by sentence, and chapter by chapter. This comparative exercise brought to the fore much suppressed content as well as important developments in Schumpeter's thinking about development. (For more detail see Becker and Knudsen 2002; Becker et al. 2011).

In comparison to later editions, the notion of the entrepreneur was much richer and occupied an even more central role in the first German edition (1911). Across all the different editions of TED, Schumpeter's definition of innovation is 'new combinations', and the entrepreneur has the key role in bringing about such combinations. In the first edition (1911), what defines an entrepreneur and what allows the entrepreneur to bring about new—rather than existing—combinations is the capacity to 'push these through' against resistance. The will required to push innovation through against all resistance characterizes the entrepreneur. It sets him apart from those who just discover new combinations but are unable to carry them through. In the first edition, Schumpeter (1911: 479) goes so far as to argue that 'inventions do arise when the entrepreneur needs them, and if the personality of the entrepreneur is not in place in order to make use of every new invention, the inventions will never turn into practice.' What defines an entrepreneur and sets him apart from non-entrepreneurs is therefore a particular personality trait: entrepreneurs are 'energetic' types who do not merely adapt to changing circumstances, but can push through new combinations against resistance. They are characterized by 'the disposition to act'. The personality of the entrepreneur thus plays a central role in the first edition (1911), where two types of personality are distinguished: 'static-hedonic' and 'energetic' types.

In the first edition, entrepreneurship is therefore a matter of personality traits, and innovation originates in persons with particular personality traits. In the second edition, Schumpeter revised what defined an entrepreneur. He maintained the core idea that innovation consists in 'new combinations', and being an entrepreneur consists in 'carrying out new combinations'. He left behind the idea, however, that personality traits can explain those new combinations. Instead, he shifted the focus away from the entrepreneur's person and its traits towards the *function* of combining inputs. Taking a more depersonalized perspective, in the second German edition (1926), Schumpeter focuses on the entrepreneurial function the essence of which lies in recognizing and carrying out new possibilities in the economic sphere.⁶ He argues that anyone—not just a select few with a particular personality—can, in principle,

⁶Schumpeter first uses the expression 'entrepreneurial function' in *Entrepreneur* (1928), which he finished at the time (1926) he also revised the second edition of *Theory of Economic Development* (Becker and Knudsen 2003).

fulfill this function and can be an entrepreneur at some occasion. No one will be so all the time, however, as one might sometimes create new combinations and sometimes just old combinations that perpetuate the circular flow.⁷

Through this revision, Schumpeter de-emphasized the strong contrast between new combinations (instances of entrepreneurship) and the recurrent use of existing combinations (the circular flow) that was present in the first edition, and turned these two cases into parts of a continuum: anyone can be an entrepreneur on some occasion—but no one will be so all the time. By taking the perspective of functions by which production factors are combined, he also aligned to the perspective of production functions, while emphasizing the entrepreneur's role as middleman between producers and consumers. Or to phrase it differently, Schumpeter tried to integrate his theory of entrepreneurship into the mainstream economics of the 1930s in the United States.

In chapter 7 of the first edition, entitled 'The View of the Economy as a Whole', Schumpeter sketched a theory of change in society as a whole, spanning all of its different fields such as the economy, arts, politics, and so on. This chapter is interesting for a number of reasons, including that it provides one of the first examples of a complex systems theory in economics and business.⁸ Schumpeter attempted to explain the change in the social structure as emerging from the actions and social interactions of individual entrepreneurs living in distinct and yet interacting sectors of social life (arts, politics, the economy, and so forth). The entrepreneur can be found in all of these different sectors; he runs, for instance, a firm, is an art collector, has an influence in politics, etc. Schumpeter thereby extended the explanatory principle of the entrepreneur who introduces new combinations to all realms of social life. But, to repeat, in the second edition (1926), he completely eliminated the seventh chapter.

4 Schumpeter's vision of evolutionary economics

Evolutionary explanations consist of three mechanisms: variation, selection and retention. In *TED*, Schumpeter obviously introduces a variation mechanism, the entrepreneur, who realizes new combinations, thereby introducing variation into the economic system. That is his focus in *TED*, and also what Schumpeter has become famous for (e.g. Galunic and Rodan 1998; Fleming 2001). One might therefore have the impression that Schumpeter's contribution to evolutionary economics—introduced mainly in *TED*—is limited to having identified a variation mechanism. Considering the *development* of *TED*, however (as well as some of Schumpeter's writings from around the

⁷This aspect comes out particularly clearly in *Entrepreneur* (1928).

⁸In this way, Schumpeter also positioned himself as both rival and heir to Karl Marx whose view of the economic system had not incorporated a detailed specification of the interaction among social subsystems.

time when he was finishing his work on the second edition, in 1926), uncovers the fact that Schumpeter also pointed to selection and retention mechanisms. Thus, he did more than just cast light on one of the three mechanisms. He also provided pointers to the other two mechanisms and provided at least a sketch of a Schumpeterian framework of economic evolution.

In contrast to the variation mechanism, his ideas on the selection and retention mechanisms were less well specified—they changed much more over time and some parts were completely deleted from later editions. To uncover them from his writings requires considering the development of TED over the three editions, supported by three companion pieces Schumpeter wrote at about the same time. Even though he never quite put together all of these ideas in one text, one can, by considering the three editions of TED, flanked by three companion pieces, reconstruct the sketch of the variation, selection and retention mechanisms that Schumpeter had in mind. In what follows, we will argue that this sketch can inform and provide inspiration to current efforts in developing evolutionary economics.

4.1 Selection

Schumpeter pointed out two selection mechanisms, one in the environment of organizations and one within the organization. First, he identified a principle of selection based on the idea of “creative destruction.” By pushing through new combinations and thus making them available to consumers, entrepreneurs also change the selection regime for organizations. For instance, new features of a new product might lead consumers to re-evaluate their willingness to pay for existing features, thus leading to the demise of producers of the old product. Second, in two speeches that he gave in 1927, Schumpeter focused on the selection of leaders (top managers) in organizations, one of the most important factors in influencing who will be an entrepreneur in an organization. Such leaders can themselves act as entrepreneurs when and if they produce new combinations. They can also, however, have an impact on corporate entrepreneurship by making policy choices that influence the propensity of other agents in the organization to engage in entrepreneurship. Schumpeter suggests studying the selection of leaders in organizations and how this selection influences corporate entrepreneurship (Schumpeter 1927, 1929). In Schumpeter’s time, just as today, a variety of mechanisms were used to select leaders (and human resources more generally): election, examination, appointment, etc. (Schumpeter 1929). Applying a different mechanism and/or different selection criteria would produce different leaders and therefore different propensities for, and types of, entrepreneurship.

4.2 Retention

While the variation mechanism and especially the selection mechanism Schumpeter proposed are quite well known, it seems as if he did not identify a retention mechanism, thus leaving a gap that makes his theory fall short of

a complete evolutionary framework. In TED, Schumpeter did, however, point to possible retention mechanisms. These changed over the three editions of TED and are the most fleeting of the three mechanisms to capture. To do so, one must note two features of importance.

First of all, already in the first edition Schumpeter emphasizes the 'circular flow' of the steady state. By this he does not only mean the opposite of development, but also stability over time. Schumpeter writes, for instance, of 'the satisfaction of wants that are realized year in and year out in the same manner' (1911: 168).

Second, the first edition also strongly emphasizes that economic agents can be of two different types: they can be 'energetic' or 'static-hedonic'. The first type is distinguished by the actor's energy and will to push through new combinations against resistance, while the latter lack the energy to confront resistance when they encounter it—they rather take the path of least resistance, one could say. (This is also why the 'energetic' type can influence the behavior of the 'static-hedonic' type.) What is the reason for this difference in behavior? In the first edition, Schumpeter points to the agents' dispositions (e.g., 1911: 119, 120, 162, 164, 183, 464, 528, 530, 542–3). The two types are distinguished by their dispositions, e.g., 'to experiment with something new' (1911: 162) vs. to 'essentially do what they have learnt' (1911: 542). Schumpeter presents the two types as bundles of dispositions and wraps up the bundles in psychological types.

Two retention mechanisms are identifiable in the first edition. First, the actual new combinations that happen to be realized by the entrepreneur are retained by the social structure. In chapter 7 of the first edition, Schumpeter points to the interaction among social agents, and social agents nested within social sectors, as the underlying mechanism that might explain the retention of new combinations realized by the entrepreneur. Interaction among social agents can lead to the retention of courses of action—and thus to behavioral stability over time—if such interaction structures themselves are stable.

The second retention mechanism that Schumpeter suggests in the first edition consists in dispositions of the 'static-hedonic' types. Even though these agents at first resist new combinations, once they have adopted them, they will hold on to them and from then on resist subsequent new combinations. Resistance to new ways of doing things mean in this case clinging on to the old ways—and thus, making them persist over time. In the material that was deleted from the first edition, Schumpeter also explicitly mentions dispositions as sources of delay in the adoption of new combinations when he writes: 'Nothing is so difficult to change as ideas and dispositions' (1911: 528).

Schumpeter changed the idea that 'static-hedonic' and 'energetic' types are hard-wired personality traits for good reasons, but the idea may actually be valid and interesting. Consider the highly influential article on *Exploration and Exploitation in Organizational Learning* by James G. March (1991). In this article, he defines two types of organizational members: slow learners and fast learners. If we roughly equate fast learners with 'energetic' types, and slow learners with 'static-hedonic' types, it is easy to see how Schumpeter's

original idea could have spawned deep insights into the nature of social dynamics and learning. Essentially, the role of the fast learners ('energetic' types) is to push the economic system in a new promising direction, while the slow learners ('static-hedonic' types) then gradually freeze the system into a new configuration. As the reader will notice, Schumpeter continued to conceptualize the process of economic development roughly as breaking up a stable state and then establishing a new one. We can now see that his (justified) downplaying of the individual properties of economic actors led him away from a possible micro-foundation for such a dynamic theory. To be clear, the distribution of propensities to engage in entrepreneurship does not need to be bimodal, as it can include as many levels as you wish from the two opposite poles of static and energetic. (In response to Böhm-Bawerk's critique (1913) that he had focused only on extreme cases of the entrepreneur, Schumpeter (1913: 632) explained that there is a gradual transition between the two types). Neither does the distribution of propensities to engage in entrepreneurship need to be inborn or genetically hard-wired, since they can be culturally transmitted, or even to some extent influenced by the situation at hand. We believe that a lot can be learned from revisiting this idea, and connecting the micro-motives of entrepreneurial drive to the macro-properties of the economic system. Is it consistent with facts that a group of energetic entrepreneurs is pushing the system while another, more static part of the population influences the way it freezes into a new stable state? Is there a transition of types during the process, so that situational factors sometimes trigger entrepreneurial behavior and sometimes trigger the opposite tendency to preserve the current situation? Or is it the case that resistance to pushing new innovations through is changing during the process, so that a similar effect would be produced? In our view, these questions point to interesting problems and potentially important insights from revisiting the micro-motives of entrepreneurial drive that Schumpeter (probably wrongly) associated with inborn traits of individual agents.

Independently of the question whether agents differ gradually or form distinct types, in the 1926 revision Schumpeter greatly de-emphasized agents and their personality types and shifted attention instead to the depersonalized entrepreneurial function of producing combinations. Through this shift, his theoretical framework also 'lost' the dispositions (bundled up into personality types), which provided one of the possible retention mechanisms in the first edition. Thereby, one of the two retention mechanisms in the first edition was lost. (The entrepreneurial function, however, cannot serve as a retention mechanism since it concerns production of combinations rather than the properties of the underlying components that enter into these combinations.) Moreover, Schumpeter deleted chapter 7, where he had pointed to the interaction among social agents and its structure. Thereby, the second retention mechanism he had hinted at was also lost for future readers. As a result, no traces of the retention mechanisms were left in the second edition of TED (1926), the English edition (1934), and subsequent editions.

That being said, the development of Schumpeter's theory of economic development had not reached its end point yet. In the English translation of the second edition (1934), Schumpeter consistently used the term 'routine' to describe the contrast of 'innovation' and the stable behavior that characterizes the circular flow. In fact, in making the translation, translator Redvers Opie, with Schumpeter's active contribution (Stolper 1988, interview with Wolfgang Stolper, 4 August 2001), consistently translated a number of different German terms that dealt with behavioral stability as 'routine' (see Table 1 for an overview of relevant terms).

By using the term 'routine', Schumpeter used a term for the behavioral stability that would later be picked up and has continued to be used today. Because of the changes made in the 1926 revision, however, Schumpeter had deprived TED of any pointers to retention mechanisms that could actually *generate* such behavioral stability. A reader who only came to know TED in its English-language edition (or in any German edition from the second edition and onwards) would necessarily come to believe that Schumpeter downplayed selection and retention to the point that he only dealt with the variation mechanism.

Schumpeter thus started using the term 'routine' in TED (and in other writings, e.g. *Entrepreneur* of 1928) and would continue to do so in his later writings. For him, the term 'routines' described behavior that was stable over time, the 'year in and year out' of the 'circular flow'. He did not consider routines as a possible retention mechanism, however. Famously, Nelson and Winter (1982) later proposed that routines might be such a retention mechanism, i.e., a social mechanism that is somewhat analogous to the gene. In this

Table 1 Introduction of 'routine' in the English edition (1934)

2nd German edition (1926)	Literal translation	English edition (1934)
in der Wirklichkeit (1926: 150)	In reality	In the ordinary routine of established business (1934: 104)
Automatismus eines ausbalancierten Kreislaufs (1926: 112)	Automatism of a balanced circular flow	The routine of the circular flow (1934: 75)
Veränderung seiner Bahn (1926: 112)	Change of his trajectory	Changes in his routine (1934: 98)
bloß Verwaltungsarbeit (1926: 113)	Mere administrative work	Merely routine work (1934: 76)
das Erledigen von Qualifikationslisten (1926: 115)	Running down checklists	Routine work (1934: 77)
Basis des Gewohnten (1926: 119 n.)	Base of what one is used to	Routine (1934: 81 n.)
Bahn des Ablaufs (1926: 121)	Trajectory of the process	The channels of economic routine (1934: 82)
Alltäglichkeiten (1926: 123)	Everyday things	Routine (1934: 84)

connection it is also interesting to note that, in a talk entitled ‘Toward a neo-Schumpeterian theory of the firm’, Winter (1968 [2006]) specifically referred to chapter 2 of TED (1934). One section of his talk was about ‘Routine, adaptation and innovation’, and it was here he made an explicit reference to TED (1934).

Thus, to most readers, Schumpeter appeared silent on retention mechanisms. If one considers the whole development of TED (and some of the writings Schumpeter was busy with at the time he revised it), however, one can uncover a retention mechanism. Moreover, one of the retention mechanisms Schumpeter points to dovetails well with recent developments in the study of organizational routines. Schumpeter’s thought on retention mechanisms can therefore provide a foundation and inspiration for research on retention mechanisms in evolutionary economics.

If we take all that Schumpeter said on retention mechanisms over the course of the development of TED, we get the following picture. First, in terms of the explanandum, Schumpeter focused on behavioral stability over time, for instance ‘ways of doing things’ (Schumpeter, letter to S. Colum Gilfillan, May 18, 1934, in Hedtke and Swedberg 2000). He used the term ‘routine’ to denote this type of stable behavior. Second, at one point, he had two possible retention mechanisms in mind: 1) stable patterns of *social behavior*, referred to as routines, and 2) *proclivities* to behave in particular ways, denoted dispositions. With regard to dispositions, it is remarkable that, while Schumpeter clearly used dispositions in the sense of personality traits (as much of the entrepreneurship literature would do also in the decades after Schumpeter), recent developments in the psychology of habit and in research on organizational routines focus on dispositions as the causes of stable behavior. Recent research in psychology characterizes habits as behavioral dispositions to repeat well-practiced actions given recurring circumstances (Wood et al. 2005: 918; Ouellette and Wood 1998). On this basis, Hodgson and Knudsen (2010: 239) define habits as behavioral tendencies, or ‘dispositions to engage in previously adopted or acquired behavior that is triggered by an appropriate stimulus or context’ (see also Birnholtz et al. 2007 and Cohen 2007). This recent research identifies a second way of explaining the stable (innovative as well as non-innovative) behavior with which Schumpeter was concerned, and also modern research on entrepreneurship. Rather than considering behavior and its stability as driven by *personality traits*, behavior and its stability are seen as being driven by dispositions. Schumpeter used the term, but did not elaborate on it before he deleted it in the 1926 revision.

Dispositions are social retention mechanisms—at least to the extent that they are acquired (rather than inborn). This is where the difference between personality traits (such as introversion) and dispositions, in the sense of the definitions cited above, comes to the fore: dispositions can also be acquired. They can take shape in a learning process or through mere repetition (e.g., mere-exposure effect). Once formed, the same cue will evoke the same reaction and thus, retain the learned response (for instance, a new combination for a way for doing something).

Table 2 Typology of entrepreneurs (Schumpeter 1928)

Schumpeter's typology of entrepreneurial motivation		
Type of entrepreneur	Motivation	Origin of motivation
The factory owner and merchant	Care of the family, duty	Socially transmitted
The modern captain of industry	Will to win, exercise power	Inborn personality trait
The manager who actually carries out the entrepreneurial function	Applause of colleagues, recognition from others	Socially transmitted
The 'founder' (promoter)	Urge to action, seeking and carrying out new possibilities	Inborn personality trait

Schumpeter thus hints at a potential retention mechanism that is being studied today (e.g., Hodgson and Knudsen 2010; Cohen 2007; Birnholtz et al. 2007). This shows that Schumpeter was exploring a mechanism that is currently receiving attention once again, indicating a double potential for the further development of evolutionary economics.

In a handbook article on *Entrepreneur* (Schumpeter 1928) that Schumpeter finished in 1926, he provided a typology of entrepreneurs (see Table 2 below). Interestingly, one important characteristic along which the different types are distinguished, is whether what drives the entrepreneurial behavior (motivations) is socially acquired or inborn. This shows that Schumpeter was aware of the difference between inborn traits/instincts and socially transmitted dispositions.

5 Conclusion

Several streams of literature have invoked Schumpeter and his ideas and view him as their patron saint, such as entrepreneurship theory, the emerging theory of economic sociology (Swedberg 2000), and evolutionary economics (Nelson and Winter 1982). In evolutionary economics, Schumpeter's ideas have had an impact amongst others via Winter's (e.g., 1968 [2006]) and Nelson and Winter's (e.g., 1973, 1982) work. *The Theory of Economic Development* is Schumpeter's central text when it comes to evolutionary economics. As a comparison of the first German edition, the second German edition, and the first English edition show, material that Schumpeter discarded in the revision for the second German edition, as well as substantial changes in the later editions, add up to a more complete sketch of an evolutionary framework than Schumpeter is often seen as having provided. TED is therefore, indeed, a central and foundational piece for evolutionary economics. In revising TED during the first half of his career, Schumpeter developed his initial sketch for an evolutionary framework into a complete sketch of all of three mechanisms of variation, selection and retention. By developing his ideas in revising TED, however, he has also hidden the key to them. Finally unlocked, they can provide impulses and

inspiration for evolutionary economics, even one hundred years after their initial publication.

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