# Is there a "new" "mainstream" behavioral economics?

The many dichotomies in behavioral economics: a Survey

## Introduction

While during the 90's behavioral economics (BE) has often been presented as a field "against" or "opposed" to mainstream economics[1], many recent discussions argue that behavioral economics is "mainstream". Sometimes, as in the case of Heukelom[2] (2014) or Rabin[3] (2012), the idea of "mainstream behavioral economics" means a successful behavioral economics. Other times, like in the case of Sent (2004) who talks about the "mainstream roots" of "new" behavioral economics, the idea of "mainstream behavioral economics" refers to the idea that behavioral economics is within "standard economics".

Overall, we can distinguish two clear definitions of mainstream in the literature. The first definition (1) refers to mainstream economics as if it had a designated content, with a designated methodology. The second definition (2) is a less ambiguous term because, on the one hand it directly relates to the general use that we make of the term mainstream (popular, successful…), and on the other hand it has been more formally defined by Colander, Holt and Rosser (2004) as "*a sociologically defined category*" (p.490) and used in Davis (2006, 2008) for example.

The multiple uses of the term "mainstream" we can find between and within articles actually reflect two different questions: Is behavioral economics rooted in mainstream (orthodox, standard economics) in its content and/or methodology? Is behavioral economics mainstream in the sociological sense of being successful in the elite's spheres of economics?

These questions are of importance as many recent fields emerged in economics, changing the ways science is done. Because recent fields are not stable, and can be subject to changes[4], a lot is at stake, as reflected by the importance of reflexive articles in behavioral

[1] For example McFadden (1999) opposed the "K-T man" to the "chicago man"
[2] Heukelom (2014) article is entitled *"Mainstreaming Behavioral Economics"*
[3] "[…] behavioral economics is on the verge of 'going mainstream" (Rabin 2012, p.657).
[4] For example, Mäki (2010) commented: "Casual observation suggests that there is more flexibility in young and interdisciplinary (open) fields and less flexibility in old and monodisciplinary (closed) fields." and "The rise of neuroeconomics has created one of those rare historical occasions on which practicing economists themselves are inspired and forced to engage in reflection on foundational issues in their discipline."

economics. How we think, how we define and how we study behavioral economics matters for the future of the field.

In this article, we want to offer an overview of some articles that address explicitly or more implicitly, those questions. We will defend the idea that behavioral economics can't be analyzed as if it were either a successful heterodoxy or standard economics "in disguise". Behavioral economics is a very complex research program given the rich diversity of people actually intervening in it, making traditional frameworks, such as the opposition between orthodox and heterodox economics, inappropriate.

To start this overview, we believe that Sent (2004) makes an interesting point by making a distinction between an "old" non-mainstream-rooted and non-successful behavioral economics" and a "new mainstream-rooted successful behavioral economics". We will present this article in our first part. In a second part, we will try to see how other articles try to develop other methodologies to oppose or support the idea of "mainstream" behavioral economics. In a third part, we will examine the idea of scientific strategic thinking in behavioral economics. Finally, in the last two parts, we will try to take into consideration recent developments in philosophy and sociology of economics to see how we can frame the way we think about behavioral economics.

## I) Mainstream economics versus behavioral economics

We will first examine here the emergence of the idea of a "mainstream" behavioral economics with Sent's papers. The next two sections will focus on two papers that explicitly tackle the same problem with another methodology. First a paper Tomer (2007) compares different "brands" of behavioral economics to mainstream given six attributes (such as rigidity, narrowness…) to understand how different BE is from mainstream. If he doesn't explicitly adopt the dichotomy of Sent between "old" and "new" behavioral economics, all groups of old behavioral economics identified by Sent can be found, but they are distinguished as autonomous. The other paper by Earl and Peng (2012) offers a large classification of many research programs (including old and new behavioral economics) given many attributes that relate to methodology and contents. Finally, in the last section we will also quickly overview other papers that tackle this question more implicitly.

*Sent's view: the mainstream roots of behavioral economics, old and new behavioral economics*

The article of Sent is structured around the idea of an opposition between an "old" behavioral economics and a "new" behavioral economics. Old behavioral economics is presented as a pluralistic research programs starting in the 60's organized around four groups (situated at Carnegie, Michigan, Oxford and Stirling), united by their shared willingness to redirect economics towards new research directions. They are united by the fact that they explicitly rejected the "mainstream" conception of economics and any synthesis between "old" behavioral economics and "mainstream" economics. New behavioral economics on the other hand is presented as a rather monic research program that bears strong relations with "mainstream" economics.

The article offers a linear narrative of the history of behavioral economics going from the struggles of old behavioral economics to the success of new behavioral economics, and includes the period of transition between the two. The central question of the article is therefore: why did new behavioral economics succeed where old behavioral economics failed?

The term *"mainstream"* appears 38 times in Sent (2004), and the idea of *"Mainstream roots"* (1) is used to contrast new behavioral economics from old behavioral economics. In this article Sent tries to explain why the former successfully became acceptable in economics while the latter failed. Most of the time in the article, the term "mainstream" refers to the content of a dominant standard economics. When Sent says that the "new" behavioral economics is situated within the mainstream, it means that it is at the same time mainstream (1) and mainstream (2).

Because behavioral economics has "mainstream roots" (1) and its content is compatible with mainstream (1), it successfully became mainstream (2). The two uses of mainstream become one: behavioral economics is mainstream (2) (successful) because it is mainstream (1) (compatible with the standard approach).

Moreover, in the analysis of Sent the term "mainstream" refers to the standard approach in economics as something stable as she uses the concept to define simultaneously how old behavioral economics was against mainstream and how new behavioral economics is situated within the mainstream, as-if it were the same mainstream[5].

[5] Sent acknowledges that this consideration might change in her conclusion: "Therefore, the benchmark from which new behavioral economics considers deviations may itself be evolving" (Sent 2004, p.754)

She acknowledges that mainstream economics changed between "old" and "new" behavioral economics. This is not a change that occurred in the content or in the methodology of economics, but rather in the dynamics of the research program. For example, she emphasizes that the mainstream (in the senses (1) and (2)) was facing difficulties putting its dominant position at risk, notably because of mathematics:

> *"These mathematical difficulties encountered by mainstream economics facilitated not only the incorporation of psychological insights in general, but also encouraged efforts to integrate some bounded rationality in particular into mainstream models." (Sent 2004, p.753)*

Sent depicts standard economics as going from a successful program to a degenerative one in need of help. Because "old" behavioral economics was a big criticism of mainstream economics (1), standard economists were encouraged to turn towards "new" behavioral economics rather than old behavioral economics for two reasons:

> *"[…] partly because Simon abandoned his efforts and partly because new behavioral economists suggested ways in which their insights may help rebuild the mainstream stronghold" (Sent 2004, p.754)*

Therefore, "new" behavioral economics "*help rebuild the mainstream stronghold*". Behavioral economics did not establish a new program, it helped the mainstream (1) (Standard economics) to maintain its dominant position as mainstream (2). New behavioral economics is not presented as a weak version of Simon approach (or a weak critic of "mainstream"). Instead it has a completely different relationship with standard economics as it helped it to remain strong.

To sum up the story of Sent goes like this: mainstream economics (1) and (2) encountered *"mathematical difficulties"* and new behavioral economics was a way to answer those difficulties without compromising the core of mainstream economics (1) (contrary to old behavioral economics who sought to replace mainstream economics), maintaining the mainstream as the mainstream.

One inconsistency that emerges from Sent's history is that it cannot account for and does not acknowledge the diversity of new behavioral economics or any changes for economics since new behavioral economics became mainstream (2). Indeed, in her conclusion new

behavioral economics is only presented as something that *"rebuild the mainstream stronghold"*, and mainstream economics is presented as something very much static except for the difficulties it encounters. There is no mention of how "new" behavioral economics could change "standard economics", despite the fact that even if we consider that behavioral economists placed themselves within the mainstream, it is above all, a community that comes from outside the mainstream, and even from outside of economics.

Sent answers the two questions we asked in introduction in the same manner. For her, behavioral economics is mainstream in both senses. The point she tries to make in a successful way, is that we should look to "old" behavioral economics to favor a *"possible revival of abandoned research directions".* If Sent's narrative is a good account of the history of old and new behavioral economics, it might not be the best way to understand the relationship between "mainstream" and behavioral economics. Let's look at other approaches tackling the same question with a different methodology, and sometimes using the same distinction between "old" and "new" behavioral economics.

*Tomer and the "necessary evil"*

The paper of Tomer (2007) compares behavioral economics to the "mainstream" given six attributes that Tomer considers related to BE's critique of the mainstream (ME). The six attributes are narrowness, rigidity, intolerance, mechanicalness, separateness, and individualism. Amongst the eight brands of behavioral economics that Tomer identifies, the one that is the closest to "new" behavioral economics is "*psychological economics*" (PE). Tomer considers that psychological economics is a "*new school of thought*" different from the mainstream. Based on his six attributes, and on quotes from behavioral economists, Tomer shows for example that the links between behavioral economics and the "mainstream" are rather the results of a compromise:

> *"Although some PE practitioners utilize mathematical methods extensively to describe behavior or show where ME is in error, PE is generally less mathematical than ME. Rabin (p. 672) finds the mathematical formalism of ME to be a "necessary evil". On the one hand, it is evil because it entails "highly simplified and stylized models of human cognition, preferences, and behavior that, in every instance, omit a tremendous amount of psychological reality." On the other, it is necessary in order "to formulate precise and testable hypotheses." (Tomer 2007, p.471)*

Amongst the brand of behavioral economics that Tomer identifies, we can also recognize "old" behavioral economics. While Sent gathers four schools under the same category of "old" behavioral economics, Tomer actually analyzes those schools separately and makes no reference to Sent. The general idea that comes out of his analysis is that at one end of the spectrum we have mainstream economics which is rigid, intolerant, individualistic, etc… And at the other end we have Herbert Simon being the furthest "brand" from mainstream.

On the criterions of narrowness, rigidity, and intolerance psychological economics ("new" behavioral economics) is the closest to mainstream. The main argument of Tomer is that for example psychological economics extensively uses *"mathematical formalism"* and *"mathematical method"*. But on the three other topics (mechanicalness, separateness, individualism), psychological economics is positioned very closely to other "old" behavioral economics brands.

Let us note that Tomer is the only one to clearly make its demarcation process explicit with the concept of *"distinct school of economic thought"* that he borrows from Foldvary (1996). While this concept entails a large panel of criterions, Tomer focuses on one with the idea of a *"belief in a Great Problem, a key source of social evil, the great obstacle to examine and overcome*". In his conclusion, Tomer makes explicit a wish that is similar to what motivated Sent's paper, as he hopes that behavioral economics will evolve while taking into account the *"wisdom and insight of BE pioneers"* (Tomer 2007, p.477). But on our question, the conclusion of Tomer are very different. He depicts "new" behavioral economics (psychological economics in the papers) as something that is a distinct "*school of economics thought*" (a new research programs distinct from mainstream economics). Any resemblance to mainstream is a compromise rather than a will to reinforce the "mainstream" school of thought.

*Earl and Peng's and the "Trojan horse" of new behavioral economics*

Earl and Peng's (2012) paper, while adopting a similar methodology as Tomer (2007) "in style", completely adhere to the conclusion of Sent, and to the distinction between "old" and "new" behavioral economics. They offer a very complete and large classification to understand economics research programs given few attributes. This grid classifies 11 research programs between two poles (orthodox and heterodox) given 24 axes. The three first column

are dedicated to mainstream economics (1), new behavioral economics and old behavioral economics. Not surprisingly mainstream economics is orthodox on the 24 axes. Old behavioral economics is mostly heterodox with 23 heterodox axes (the orthodox axes are class and gender). New behavioral economics is orthodox on 17 axes, heterodox on 4 axes, and ambiguous on 3.

We refer to the grid of Earl and Peng at the end of the paper for more details. Once again note that here mainstream economics adheres to definition (1) where mainstream equals orthodox/standard economics. Here we are going to emphasize the axes where new behavioral economics deviates from mainstream (1) economics:

1) Agents obey axioms of normative rational choice *vs.* Choices are predictably twisted by heuristics and biases

2) One-size-fits-all view of choice *vs.* Decisions are made differently in different contexts

3) Choices are not susceptible to manipulation; advertising is essentially informative and the consumer is sovereign *vs.* Choices can be manipulated by firms and governments

4) Economics is a self-contained discipline *vs.* Economists can improve their analysis by importing ideas from other disciplines such as psychology and sociology

Those four axes basically define new behavioral economics by referring to some of the most successfully received contributions that diverge from "mainstream" economics: heuristic/bias, framing effect, nudges, and origins of those concepts. We mostly learn from this grid that "new" behavioral economics is a lot less heterodox than "old" behavioral economics but this doesn't help us understand the relationship of new behavioral economics to standard economics. The other three ambiguous axes are:

1) Reversible choices and timeless equilibrium states *vs.* Historical path-dependent Processes (equally orthodox and heterodox)

2) Global rationality *vs.* Bounded rationality (more orthodox than heterodox)

3) People are greedy, devious and selfish *vs.* Choice has a moral dimension (more orthodox than heterodox)

On those ambiguous axes "new" behavioral economics appears more orthodox than heterodox but here the classification is evidently less clear (all three points are debatable). On their grid Earl and Peng make "new" behavioral economics something that is very clearly more

orthodox than heterodox compared to other research programs (mostly heterodox research programs). This analysis makes them very close to the point that Sent tries to make as they support the same argument and they use the same distinction between "new" and "old" behavioral economics, while at the same time their argument relating the questions we asked in introduction are more clearly exposed thanks to this grid. Similarly to Sent, the vision of Earl and Peng poses mainstream economics as something very static (as it is completely confounded with orthodox economics), and new behavioral economics as something uniform.

If Tomer and Sent share the same wish, despite a different analysis of the situation of economics, Earl and Peng try to make a whole different point. What Earl and Peng argue is that for heterodox programs to succeed, they need to use a "Trojan horse" strategy that will make them acceptable for mainstream (similarly to what "new" behavioral economists did), while staying heterodox in the contents. At first sight, it seems like this question doesn't really relate to our own, but this is actually an important point that we will examine in our fourth part.

*Many definitions*

Contrary to Sent's approach which mostly relies on historical evidence and quotes, a systematic comparison of behavioral economics to mainstream allows to answer the question we asked in the introduction by looking at the characteristic of both behavioral economics and mainstream. We can see that it is very difficult to define both the field to which the comparison applies (in this case "behavioral economics" and "mainstream economics"), and the criteria we use to compare the fields (here the 24 axes of Earl and Peng, versus the 6 attributes of Tomer).

The diversity of approach to treat the same question emphasizes the difficulty we have in defining terms that are nonetheless often used such as mainstream economics, a problem that Davis (2002) emphasizes very well:

> *"For example, Colander considers characterizing mainstream economics as ``ad hoc modeling'' (Colander 2000, p. 141), Tony Lawson sees mainstream economics as ``deductivist'' and based on event regularities (Lawson 1997, p. 16), Bob Coats suggests that mainstream (or orthodox) economics be defined by its commitment to rigorous analysis (Coats 2000), and many have simply called mainstream economics formalist." (Davis 2002, p.149)*

Others criteria can be found in other articles which tackle this question more implicitly. Berg and Gigerenzer (2010) focus their comparison of mainstream/behavioral economics given one criterion: the as-if doctrine. For them, behavioral economics is constructed on the criticism of the as-if methodology, but only in appearance as the alternative models proposed by behavioral economist actually use the same *"as-if line of defense" (*Berg and Gigerenzer 2010, p.33). But they emphasize in their conclusion that not all behavioral economics is "as-if", and they take great care to differentiate the bad "as-if" behavioral economics from the good non-"as-if" behavioral economics[6].

Santos (2010) discusses the application of "choice architecture and design economics" to emphasize the rather ambiguous position of new research programs that seem to have on the one hand a *"rather conservative strategy, one that does not substantially change the nature of economics"* (p.21) and on the other hand policy proposals *"which cannot be adequately dealt with within the neoclassical economics framework"* (p.21).

Heukelom (2007) differentiate between two branches of behavioral economics on the basis of the reach of their critics of Samuelson's economics. The first branch of behavioral economics proposes *"radical changes to traditional economics"* and *"protects Samuelson's economics by labelling it a normative theory"* (p.41), while the second branch of economics is *"more destructive"* because it rejects Samuelson's economics *"both as a positive and as a normative theory"* (p.41). More concretely, the two branches opposes Kahneman, Tversky and Thaler as being part of the first branch to Camerer, Loewenstein and Laibson as being part of the second branch.

Finally, Davis (2006, 2008) are two articles where he defends the idea that new research programs such as behavioral economics have the potential to change economics in a big way, but we will discuss more extensively these articles in the next part where we want to emphasize different arguments about how we should study and think behavioral economics as it is a research program that is rather unique and full of peculiarities.

[6] Berg and Gigerenzer paper includes many examples of non-"as-if" methodology such as Tversky (1972) elimination by aspects, Rubinstein (2003) process model for temporal discounting, and Henrich et al. (2001) or Carpenter and Seki (2006) about other-regarding behavior.

## II) Scientific strategies and behavioral economics

Overall, we can distinguish two kinds of arguments about the relationship between behavioral and mainstream economics. First a lot of arguments we can find in the literature are based on what behavioral economists say about their discipline. Second, we can see that the relationship that behavioral economics maintains with mathematical tools and models is of importance for commentators. We will argue that the first argument is not really convincing because (1) behavioral economists may be the worst persons to talk about their own discipline (or at least the worst persons to believe when talking about their own discipline). Then we will argue that the commitment of behavioral economics to the use of models is not as strong and very different in nature as it is for "standard economics".

*What can we learn from quotes of behavioral economists?*

Sent argues that behavioral economics is "within the mainstream" (P.749) based on methodological statements by behavioral economists themselves. For example Sent mainly uses this citations of Camerer, Loewenstein (2004) and Camerer (1999) to prove her point:

> *"This conviction does not imply a wholesale rejection of the neoclassical approach to economics. . . . The neoclassical approach is useful because it provides economists with a theoretical framework that can be applied to almost any form of economic (and even non-economic) behavior, and it makes refutable predictions" (Camerer, Loewenstein (2004) in Sent 2004, P.749)*

> *"This sort of psychology provided a way to model bounded rationality which is more like standard economics than the more radical departure that Simon had in mind." (Camerer (1999) in Sent 2004, p.743))*

Partly based on these statements Sent argues that behavioral economics is situated within the mainstream because behavioral economists don't explicitly oppose neoclassical economics contrary to "old" behavioral economists who clearly rejected mainstream, and any synthesis.

However, first, the statements of behavioral economists are not that clear. For example, even if Camerer (1999) and Camerer and Loewenstein (2004) state the compatibility of

behavioral economics with standard economics, they don't locate themselves within the mainstream except for the use of *"mathematical structure"*:

> *"However, economists routinely—and proudly—use models that are grossly inconsistent with findings from psychology [...] A recent approach, ''behavioral economics,'' seeks to use psychology to inform economics, while maintaining the emphases on mathematical structure and explanation of field data that distinguish economics from other social sciences" (Camerer 1999, p.1)*

> *"While the chapters in this book largely adhere to the basic neoclassical framework, there is nothing inherent in behavioral economics that requires one to embrace the neoclassical economic model. Indeed, we consider it likely that alternative paradigms will eventually be proposed that have greater explanatory power. Recent developments in psychology, such as connectionist models that capture some of the essential features of neural functioning, bear little resemblance to models based on utility maximization, yet are reaching the point where they are able to predict many judgmental and behavioral phenomena." (Camerer and Loewenstein 2004, p.3 emphasis added)*[7]

For example in the second citation, Camerer and Loewenstein even suggest ways that don't require utility maximization, that come from outside of economics, and that they believe to be even better than the current way of doing economics. Camerer only claims compatibility with mainstream economics on the methodological/paradigmatic basis of *"mathematical structure and explanation of field data"*. There are no references to rationality or conceptual link between behavioral economics and mainstream. If behavioral economics is only consistent with mainstream because of the use of mathematics, then it hardly qualifies as "mainstream" or "standard".

Moreover, as stated by Heukelom (2011), the story of behavioral economics suggests that what behavioral economists criticized was the descriptive reach of neoclassical economics. The compatibility of behavioral economics with mainstream economics (1) might only mean that the two programs can coexist in parallel on different levels (one accurately descriptive, and the other normatively valid). In the words of Heukelom, psychologists shifted the traditional

[7] Part of this quote is used in Sent's paper, but she uses it to argue that there is indeed nothing inherent in behavioral economics that is mainstream, but she doesn't mention the fact that Camerer and Loewenstein seem pretty enthusiastic with developments in "new behavioral economics" that would break away from utility based models

positive-normative framework of economics towards a descriptive-normative frame familiar to psychologists. Moreover, as shown by the quotes below, even for new behavioral economists such as Loewenstein or Camerer, the normative quality of economic models was not so obvious, resulting in diverging approaches within new behavioral economics:

> *"Loewenstein argued that there is little normative and descriptive reason for holding on to the DU model, despite its aesthetic merits of mathematical simplicity and consistency. This conclusion produced tension in Loewenstein's work." (Heukelom (2011), p.125)*

> *"Using Kahneman and Tversky's distinction between a normative benchmark and descriptive deviations, this research moved in some instances even so far as to challenge the normative benchmark of rational choice itself. As we shall see, this last move was for some behavioral economists a 'bridge too far.'" (Heukelom 2011, p.122)*

The explicit compatibility with mainstream (1) that Sent used to support her idea that new BE is within the mainstream is no so obvious if we actually analyze new behavioral economics as a more complex and diverse community. Sent portrays only *"some behavioral economists".* As Davis (2006) emphasizes, the compatibility of behavioral economics with standard economics is a field where it's actually difficult to identify a clear position. Notably, Davis emphasize the difference between Sugden and Camerer for example, still on the same basis of the same quotes used by Sent:

> *"This issue is particularly relevant to behavioral economics in that a number of leading researchers have argued behavioral economics is not inconsistent with neoclassical economics (e.g., Camerer and Loewenstein, 2003), while, at the same time, other researchers have argued the opposite (e.g., Cubitt, Starmer, and Sugden, 2001)." (Davis 2006, footnote p.9)*

So, (i) there is a scission within new behavioral economics between some who state compatibility with mainstream and some who state the contrary. Even the new behavioral economists that Sent uses, mostly state that (ii) their program is compatible with mainstream because of the use of a similar mathematical structure[8], (iii) that the descriptive validity of

[8] In Heukelom (2014) and Heukelom (2011) behavioral economics is also mostly defined by two characteristics: the use of experiment, and the use of mathematics.

mainstream is close to non-existent for behavioral economists, and finally (iv) even the normative validity of mainstream is the subject of controversy within "new" behavioral economics. The earlier quote of Heukelom (2011), or the distinction between the two branches of behavioral economic in Heukelom (2007) that we presented in the previous part emphasizes one thing: not only is the community of behavioral economics split on various subject such as the critique of the normative model, but each behavioral economist is himself subject to an internal struggle.

*The marketing and strategizing of behavioral economics*

Something that is often alluded to in the literature is that behavioral economics are "marketing" their program. For critics of behavioral economics such as Gul and Pesendorfer (2008) the idea of marketing means that behavioral economics oversells its potential. But for the literature of interest to us, it rather means that behavioral economists are trying to sell their research programs so that economists accept it.

For example Heukelom (2011)[9] emphasizes that statements about behavioral economics could be a scientific strategy to help the incorporation of psychology into economics rather than a substantial epistemological claim. Therefore, the main reason why behavioral economics became mainstream (2) is not so much about the "mainstream roots" of its contents, but rather the results of a successful strategy by behavioral economists to "enter" economics[10]. The idea of a "Trojan horse" strategy of Earl and Peng (2012) is therefore enlightening when thinking about the struggle that behavioral economics are in. At the same times behavioral economics wants to penetrate economics by the legitimization of psychology, while promoting ideas that can be "destructive" in the words of Heukelom (2007) for more traditional economic approaches. This is an idea that we find to be scattered in the literature we examined earlier.

[9] For example Heukelom (2011) emphasizes how the positioning of Kahneman relative to Simon is a subtle scientific strategy: "In a clever way, Kahneman invoked Simon to construct authority for the behavioral economics program, while at the same time interpreting the concept of bounded rationality in such a way that it would become fully compatible with his and Tversky's approach and that of the behavioral economists"

[10] This is not an explanation that Sent explicitly rejects as we can see from her conclusion: "As this paper has shown, their taming efforts have been focused on not only the economy but also their fellow economists" (P.754). But if Heukelom use this kind of citation to emphasize the ambiguity of the position of behavioral economists, Sent clearly supports the interpretation that behavioral economics reinforced the "mainstream stronghold".

On the descriptive versus normative argument, Berg and Gigerenzer (2010) point out the possibility of strategic thinking by behavioral economists:

> *"[…] perhaps, in order to persuade gatekeepers of mainstream economics to become more accepting of behavioral models when pitched as an exclusively descriptive tool" (Berg Gigerenzer 2010, p.23)*

Berg and Gigerenzer talk about the *"pitch"* of behavioral economics but this is an idea that is very prominent in the literature, but rarely explored. For example Sent talks about the *"Taming effort"* of behavioral economics directed towards economists in her conclusion but doesn't explore this idea as determinant to understand behavioral economics.

On the one hand, Sent wants to emphasize that the new behavioral economics does not mention the insights of Simon despite the fact that he shared commons goals with the new behavioral economics. She wants to push economists to a *"possible revival of abandoned research directions".* On the other hand, authors emphasizing the idea of a scientific strategy of behavioral economists to enter economics want to highlight the selective character of behavioral economics. By that we mean that new behavioral economics tries to advance its scientific agenda without compromising its chances to enter mainstream economics. Therefore, behavioral economists do not have strong beliefs about preserving a "mainstream content" for other reasons than having psychology recognized and legitimized. They might want to change the mainstream to a great extent, but they do so slowly. Again, even if Sent narrative presents new behavioral economics as a united community, this is far from being the case. For example, on the case of how behavioral economics strategized their relationship to mainstream, Earl and Peng (2012) comments about publication in "non-core" journals by behavioral economists:

> *"Thaler accepted but Rabin declined, saying that to succeed in his mission to get psychology taken seriously by economics in general it was vital he restricted his work to the mainstream." (Earl and Peng 2012, p.456)*

The citation above emphasizes how some behavioral economists such as Thaler can commit to more non-mainstream initiative while Rabin on the other hand, cannot and does not want to commit to such a thing, arguing on the basis that for psychology to be taken seriously, a "limited" approach is necessary now, but not that it is necessary for theoretical or

epistemological purposes. Rabin does not argue on the basis of what is good economics, or what he believes to be good science, but he acts strategically with his representation of how scientific communities work and how he can achieve the goal of making psychology serious for economists[11]. Actions of behavioral economist can't be taken as a substantive claim about what they think given the stakes and the high strategic thinking that they are engaged in. This duality is also indicated by Heukelom who talks about behavioral economics as a (slightly) "schizophrenic program":

> *"The reason for this slight schizophrenia is that the incorporation of psychology has not been a neutral process. In fact, behavioral economists have used psychology to redefine economics. The psychological theories, experimental results and authoritative figures have not been used for their own sake but solely because they could be used to steer economics in a different direction. Part of this new direction has been a language of "enriching" economics with psychology, but this is merely a rhetorical guise for convincing economists which part of psychology they should understand, and in which way that should alter economic reasoning." (Heukelom 2011, p.147, emphasis added)*

It is very important to be careful when we look at what behavioral economists say about their own discipline, including its compatibility with mainstream, as this is typically the kind of statements that may only reflect a scientific strategy. As emphasized by Heukelom, the process that behavioral economists started is far from neutral or trivial. Behavioral economists are against a particular kind of economics, and this engagement is best reflected in the many controversies opposing traditional economists with behavioral economists. While those controversies reflect this engagement, at the opposite, many of the statements made by behavioral economists might only reflect a "rethorical guise" devoid of any content.

If the statements of behavioral economists are only the result of scientific strategy, then there are no substantial commitments from behavioral economics that suggest they are neoclassical or mainstream, and we can suppose that what is identified as "mainstream behavioral economics" might be a temporary/transitional research program.

[11] It is important to note that for some economists most social sciences (and especially social psychology or sociology) are still considered inferior to economics. For example Manski (2000) about sociology (and implicitly social psychology) appearing *"no more rigorous a discipline than thirty years ago."* (Manski 2000, p.13)

*Models and languages: psychologists talking to economists*

Much of the differences between analyses that we can see can be explained by how different authors focus on different characteristics of behavioral economics. Sent argues that new behavioral economics has a direct link to mainstream (1) because of how it took rationality as a starting point, and because behavioral economists state compatibility between their approach and the mainstream approach. On the opposite, Heukelom (2014) emphasizes that one main characteristic, and one of the biggest change since behaviorals economics, is that experiments are now accepted in economics while still being distinguished from psychology by heavy use of mathematics.

The point that Earl and Peng try to make is that new behavioral economics is less radical than old behavioral economics, but also that new behavioral economists put more effort into the marketing of their research programs.

All the literature seems to agree on the point that behavioral economics succeeded partly because it adopted the same mathematical language as standard economists, whereas more traditional heterodoxy did not:

> *"Our view is that the current elite are relatively open minded when it comes to new ideas, but quite closed minded when it comes to alternative methodologies. If it isn't modelled, it isn't economics, no matter how insightful. […] Specifically, it is because of their method, not their ideas, that most heterodox find themselves defined outside the field by the elite." (Colander et al., 2004, p.493, emphasis added)*

> *"In the case of economics by contrast, eminence is more often than not claimed on grounds of formal rigour and scientific method (cf. Mäki 2002; Ioannides and Nielsen 2007)" (Arena et al., 2009, p.1, emphasis added)*

> *"Worse still, in his later publications in economics Simon was not only arguing against optimization but also doing it via words rather than with heavily mathematical papers." (Earl and Peng 2012, p.455)*

For Sent mathematics are the source of difficulties, and for Earl and Peng they can be a source of limit for the "real-world" reach of economic theory[12]. At the opposite, Colander, Holt and Rosser (2004) argue that development in mathematics was a mean that helped economists to develop more open-minded models than can incorporate new ideas[13]. For them, mathematics is just a technical constraint that is present in economics independently of ideas. Ideas presented in non-formal ways can't be accepted by economists, but symmetrically, economists became more open to new ideas when they became possible to model. Mathematics can therefore be seen as the mean by which economics can be changed.

The use of mathematics seems to be one of the important sticking point in the literature. For the ones defending the originality of new research programs such as behavioral economics, mathematics is just a tool that can express orthodox ideas as much as heterodox ideas. But for the one arguing that behavioral economics is "mainstream", there is a deep commitment in the use of mathematics that go beyond the simple idea of "tools". This opposition is for example embodied in the position of Tony Lawson (2013) wich has recently been discussed by Mark Setterfield (2015) in a working paper[14]. For Lawson (2013) mathematical modelling is the source of many problems in recent economics. But most importantly, for our question, what Lawson argues is that many "orthodox" research programs used mathematical models despite having a social ontological commitments that is deeply incompatible with this methodological approach. Implicitly, Sent (2004) or Earl and Peng (2012) seem to adhere to this idea:

> *"The contemporary discipline of economics, most now agree, has lost its way. It is easy enough to demonstrate that this is due largely to the widespread contemporary persistence with methods of mathematical modelling (whether through mainstream insistence or through heterodox confusion/optimism)" (Lawson 2013, p.35)*

At the opposite Mark Satterfield defends the idea that the use of mathematical modeling is not necessarily incompatible with such a commitment:

[12] "When teaching heterodox economics, they should simply call it 'economics' but at the same time they should alert their students to be on the lookout for other kinds of economists who seem rather less interested in the real world and more interested in playing with mathematics" (Earl and Peng 2012, p.462)

[13] "For example, developments in nonlinear dynamics now allow alternative models of processes that include sudden shifts from one equilibrium to another, and the development of agent-based modeling is allowing researchers to explore models with heterogeneous agents and to move away from a focus on unique equilibria." (Colander et al., 2004, p.488)

[14] It is important to note that none of these articles explicitly refers to behavioral economics, but they are very enlightening to understand the position of different authors talking about behavioral economics.

*"The position advanced in this chapter, meanwhile, is that mathematical modeling does not require such formulations, and where the noted tension does arise, explicit acknowledgement of the tension is as if not more important than the tension itself. In other words, the argument that mathematical modeling must always describe closed systems that generate event regularities is:*

*(a) true only some of the time, depending on the approach to [mathematical modeling] that advises the author ...; and*

*(b) problematic only some of the time that it is true, again depending on the approach to[mathematical modeling] that advises the author (Setterfield, 2007, p.204)." (Satterfield 2015, p.9)*

We believe this very point is important as we could argue that behavioral economists, and especially those witch psychological background, cared about the content of theory, and other methodological elements to build behavioral economics (such as the role of cognitive biases, emotion, social interaction, or the place of experiment in empirical investigations), but they were more neutral about things such as using "economic models". In other words, psychologists did not care if their ideas were conveyed through models or not, as long as experimental results and psychological concepts were penetrating economics without being distorted. Even in the words of Lawson (2013), behavioral economics could be seen "confused" or "optimistic" heterodox, but not necessarily as "defender of the orthodoxy". But we will discuss more extensively the term heterodox and orthodox in the next part.

More concretely in behavioral economics, this type of question can be found in the controversies between Camerer and Gul and Pensendorfer (2008). Gul and Pesendorfer argue that economics is flexible enough to integrate any concept in an economic formal language, while Camerer argues that psychology brings specific concepts that cannot be entirely translated in economic formal terms. For example, about cues:

*"GP state that, "For economists, the notion of a cue is not useful because it lumps together two distinct economic phenomena". I think the opposite is true— precisely because there is no special word in economics language for a good or state variable that is both complementary and (potentially) external. It might be useful to have such a word, if the goal is to predict addict behavior and also think about policy. Furthermore, cues have other properties: Typically, cue effects can be extinguished with repeated exposure (this is a common basis of therapies), but can also be rapidly reinstated. Cues also are*

> *typically asymmetric—that is, seeing "Scarface" might increase demand for cocaine, but ingesting cocaine does not create demand for seeing "Scarface". So we could adapt the language of economics to describe "cues" as "dynamically adaptive, rapidly reinstateable asymmetric complements to consumption". Or we can just learn a new vocabulary word— "cue" which summarizes certain kinds of complements." (Camerer 2008, p.10)*

Regarding our question this means that while Gul and Pesendorfer argue that mainstream economics is sufficient to acknowledge any behavior, Camerer argues that mainstream economics need to be transformed to incorporate new concepts from psychology. Even if the new concepts are translated into mathematical terms, the point is that they need to keep their particularity as psychological concepts[15]. In that sense, the link between behavioral economics and mainstream economics appears very weak unless we argue that psychological concepts are all mainstream.

Moreover, behavioral economics also enriched economics with non-mathematical concepts and results that are often overlooked as we tend to focus on successful models to assess behavioral economics (such as prospect theory[16]). Those concepts from psychology are accepted in behavioral economics (and economics more often than not) as important when talking about decision making, independently from the fact that it is modeled or not. The anchoring effect, the framing effect, and many more concepts from psychology, are not modeled, but they are accepted as relevant. If many behavioral economists insist on concepts that are rich but hard to modeled, the position of standard economics on this question is rather explicit. For example when talking about the concept of social capital Manski (2000) wrote:

> *"The only salient question, as I see it, is whether this vague term conveys an idea that is missing in modern economic thought; an idea that cannot be expressed using the core concepts of preferences, expectations, constraints, and equilibrium. If so, the ongoing efforts to interpret "social capital" may be productive. If not, social scientists*

[15] On a similar topic, Camerer (2008) for example argue that concepts can be important and complex, even when they can't be modeled. Here he talks about economics, but this can be interpreted in a more general way as psychological concept versus mathematics/economics concepts: *"Precise definitions are necessary in mathematics, and the invention of abstract symbolic systems permits them. In virtually all other domains, the more important a concept is, the less simple it is define it precisely"(p.14)*

[16] Furthermore, it should be noted that even in prospect theory the "editing phase", while very important to the theory, is not mathematically modeled. This phase is typically overlooked by more traditional economists talking about prospect theory as they tend to focus on the formal contribution.

*should use "social capital" only as a lesson in the ambiguity of words." (Manski 2000, p.14)*[17]

If behavioral economics was so obviously rooted within the mainstream, there would probably be no debate between standard economists about the role and place of behavioral economics[18].

## III) Behavioral economics changing economics?

*Changing the views on economics*

Behavioral economics changed our views on economics in two ways at least. First, it affected a lot of how we reflect about economics. If some argue that behavioral economics did not change the content of economics, it certainly affected the field of philosophy of economics as the new problematic opened up by the field have been rather welcomed by philosophers and historians[19]. Rather than looking at the content of economic theory, one may look behavioral economics as a field that might have changed the "structure" of the field of economics. More precisely, the way we think about economics or how we define it. For example, on this subject Davis (2010) commented that there is still ambiguity on the compatibility of behavioral economics with traditional economics as behavioral economics might shift the definition of economics:

*"However, the view that the behavioral economics program is compatible with much of standard economics may not be accurate if the ways in which behavioral economics revises the standard Homo economicus conception undermines the idea that economics is*

[17] We could oppose this citation to one we can find in Camerer (2008) where he states: "Furthermore, drawing sharp boundaries between academic disciplines, like other complex categories, is notoriously difficult. Precise definitions are necessary in mathematics, and the invention of abstract symbolic systems permits them. In virtually all other domains, the more important a concept is, the less simple it is define it precisely" (Camerer 2008, p.14) One should not read too much into this citation. Camerer here defend the idea that we should not try to propose a strict definition for scientific fields such as economics, but does not refer to scientific concepts such as "cues" or "social capital". But more generally the position of Camerer contrast with the traditional position of economist such as Robbins or Becker who put a lot of effort into trying to come up with a precise definition for economics. A precise definition that behavioral economics might endanger by its existence.

[18] Most notably, this question has raised many controversies such as: Gul and Pensendorfer (2008) *vs* Camerer (2008); the behavioral counter-revolution of Harrison (2010); or the provocative questioning of Levine (2012) *Is behavioral economics doomed?*.

[19] On this topic Hands (2015) provides a good evolution of the field of economics and philosophy as he argues that most of the focus in on the new fields such as behavioral or experimental economics: *"[…] the "hot" methodological topics are in these relatively new microeconomic fields […] important methodological questions are no longer about either traditional neoclassical or heterodox economics, but rather, are about precisely the fields most often identified as representing a new more pluralistic mainstream"* (Hands 2015, p.75)

> *essentially about individuals' interaction in markets." (Davis 2010, p.48)*

One of the most important characteristic of behavioral economics relates to the fact that it now interacts openly with psychology. Even if this relationship is *"limited"* and behavioral economics appears less radical than what Simon had in mind, the fact that behavioral economics brought into light problems that are not limited to interaction in markets is an important change. Once again what we want to emphasize is not the fact that behavioral economics as a whole is a major departure from traditional economics, but rather the fact that "new" behavioral economics is very diverse and "radical" positions interact with moderate ones and that overall "new" behavioral economics has the structure to allows major shift in economics.

The changes brought by behavioral economics also influenced how we view the more traditional economic program in two ways. Because behavioral economics maintain the use of mathematics, while offering an alternative approach to economics, the traditional view that mathematics was the source of the many problems of economics is made less obvious. But more generally, the acceptance of behavioral economics might reveal how "mainstream" or traditional economics changed independently from the emergence of this new field.

For example, Sent explanation for why new behavioral economics was successful is that mainstream economics encountered mathematical difficulties. This explanation is not obvious when we look at how mainstream is depicted by authors such as Colander et al. or Davis who argue that (a) mainstream economics changed in its content independently from behavioral economics, (b) that the interpretation of neoclassical economics as a degenerative program is not the only possible analysis to understand how neoclassical economics has been supplanted (Davis (2006)[20]), and (c) that progress in mathematics actually helped "mainstream" economics to change:

> *"What makes it possible for these ideas to take root now, but not in the past, are advances in analytic technology, such as non-linear dynamics, which has made it possible to study much more complex models than before, and developments in computing capabilities, which have made studies with simulations and agent-based models much more useful,*

[20] Davis distinguishes three explanations possible with (i) the 'breakdown' view, (ii) the 'outside takeover' view, and (iii) the 'maturity' view. For example the maturity view emphasizes that neoclassical economics might not so much be a failed program than a mature research program that is finished because it accomplished everything it can. The "outside takeover" emphasize the instable nature of fields, and the role of outsiders.

> *allowing economists to study problems that do not have analytic solutions" (Colander et al., 2004, p.487)"*

Mainstream economics might not be a pluralistic heaven, but it is certainly more diverse today than it was when "old" behavioral economists were up against the mainstream, especially in regards to how successful economists now recognized the importance of other social sciences. If the goal to improve economics was to open economics to social sciences and to favor pluralism, it would be difficult to argue that behavioral economics actually did the opposite. To the very least, behavioral economics changed economics in the way it created a space where explicit heterodox ideas interact with explicit orthodox actors.

Moreover, even if behavioral economics played an important role in the shaping of today's mainstream, it is important to not lose sight of all the new developments in economics that are recognized as "good science" by the profession, and how much they differ from what constituted mainstream economics twenty years ago:

> *"In modern economics, bounded rationality, norm-based rationality (perhaps established through evolutionary game theory), and empirically determined rationality are fully acceptable approaches to problems" (Colander 2000, p.136, emphasize added)*

> *"Combined, these different programs offer an alternative substantive account of individual behavior as interactive as well as alternative methodologies and methods of investigation." (Davis 2008, p.22)"*

The vision provided by Earl and Peng, similarly to Sent, poses mainstream economics as something very static (as it is completely confounded with orthodox economics). Colander actually argues the opposite, as he claims that neoclassical economics is dead and that modern economics is not neoclassical given six attributes: 1. Focus on allocation of resources at a given moment in time. 2. Acceptance of utilitarianism. 3. Focus on marginal tradeoffs. 4. Assumption of farsighted rationality. 5. Methodological individualism. 6. General equilibrium. On those six topics Colander argues that modern economics is not similar to neoclassical economics. Moreover, Sent, Earl and Peng take new behavioral economics as something uniform while it is probably more diverse (or less united) than "old" behavioral economics.

We will also develop this point in the next part, claiming that we should rethink overused concepts such as orthodox, heterodox, mainstream, and neoclassical, as they don't seem to necessarily fit this particular topic.

*New ways to think about economics: are the traditional concepts to analyse the field of economic science sufficient?*

Because behavioral economics had such an impact on the structure of the field of economics, the usual concepts marshaled to understand movement in economics might not be as relevant today. For example the mainstream/non-mainstream opposition of Sent (2004) and the classic heterodox/orthodox distinction of Earl and Peng (2012) might not be very well suited to analyze recent changes in economics. The distinction brought by Davis (2008) between traditional heterodoxy and mainstream heterodoxy seems indeed very relevant to the argument.

> *"I claim that all the new mainstream research programmes in economics (evolutionary economics may be an exception) are generally, like behavioural economics, examples of the second extreme above. They all originate outside of economics and are mostly oriented toward redirecting the core of economics. That is, their agenda is to revise the existing core principles in the discipline. The situation is more mixed, however, with those approaches usually recognized as heterodox. Some are oriented toward the field's core, but most, I believe, are oriented more towards the field's boundaries, with the project of broadening or transforming economics as a whole by challenging its boundaries." (Davis 2008, p.17)*

The analysis of Davis allows to emphasize how new movements of economics that are critics of "mainstream" might not fit the traditional framework that we are used to mobilize in economics. The point is that some of those new fields are still pretty critical of the mainstream and neoclassical economics, but they are in a different way. More oriented towards redirecting the core of economics and more inclined to interact with historical actors of the said theory according to Davis. This was also pointed by Hand (2015) for example who argues that

> *"These are fields that are not "orthodox" in the strict neoclassical sense—they often produce anomalous results that conflict with standard neoclassical theory and often characterized economic behavior in very non-neoclassical ways—but they are also not*

> *"heterodox" in the traditional sense either; they are not Marxist, or institutionalist, Austrian, and so on." (Hands 2015, p.64)*

> *"It is also important to note that the work identified with the new more pluralistic mainstream is not only not strictly neoclassical, it is also not heterodox either"(Hands 2015, p.72)*

Another aspect that can help understanding how the usual frame does not allow for a good analysis of new behavioral economics is that, as emphasized by Sent, behavioral economics does not locate itself outside the mainstream:

> *"A self-identified heterodox economist has also defined his or herself outside the mainstream. Heterodox economists are highly unlikely to get funding through normal channels, such as the National Science Foundation, although they might receive alternative funding from a variety of sources. Thus, heterodoxy involves both sociological and intellectual aspects" (Colander, Holt and Rosser 2004, p.491)*

Therefore, behavioral economists are not "self-identified heterodox", and therefore behavioral economics is not a heterodoxy in-itself or for-itself. They locate themselves within the mainstream (or in parallel of the mainstream) in the sense that they interact with actors of the mainstream, but this does not mean that behavioral economics theory is within the mainstream (traditional, neoclassical) in respect to its content and/or methodology.

We can understand the opposition between old behavioral economics and new behavioral economics as a more general opposition between traditional heterodoxy and mainstream heterodoxy. While old behavioral economics, similarly to traditional heterodoxy, actually rejects orthodox economics and any synthesis[21] (Sent (2004), about Earl (1988)), mainstream heterodoxy is based upon changing the core of economics (in Davis's words) of economics, while claiming epistemological compatibility with economics and looking for mainstream recognition. In this analysis behavioral economics is mainstream in its sociological aspect, while being more "heterodox" in its intellectual aspects.

[21] On this subject we can see the opposition between the different authors with how Arrow is painted: *"Earl criticized Williamson for maintaining constrained maximization and failing to embrace satisficing and saw Arrow as a threat to behavioral economics because he sought to incorporate it into the mainstream and desired a synthesis." (Sent 2004, p.747). "Good economists simultaneously recognize the strengths and limitations of a theory, and are open to new approaches and ideas. A good example of a person that fits this category is Kenneth Arrow" (Colander et al. 2004, p.489).*

With new behavioral economics, psychologists decided to enter into some kind of bargaining game with economists where they both have a say in what constitutes good science[22]. This idea raises many questions on the way we can understand behavioral economics. Most notably the idea of "selection bias" [23] that we can find in Davis (2006). If a selection bias is present in behavioral economics, it most probably comes from economists working with ideas and concepts of behavioral economics, rather than behavioral economists that are not originally economists and try to import ideas from their own discipline.

While old behavioral economics always refused to incorporate any synthesis, new behavioral economists accepted to include mainstream economists in how behavioral economics is going to be defined. They accepted to be judged and evaluated by economists outside of their program, and therefore risking an appropriation of the behavioral economics program by economists.

It is important to differentiate the way we usually define behavioral economics, and what it actually is. Especially because of the success of behavioral economics, many actors originally outside of behavioral economics are influencing it in its more recent developments. Behavioral economics can therefore be the object of appropriation because of this interaction with mainstream, but not because it would be more mainstream in its core. As Kales and Sent (2005) point out, even the heterodox ideas of Simon have been subjected to appropriation by standard economists:

> *"First, whereas Simon saw bounded rationality as part of an alternative research programme, game theorists employ his ideas to further the prevailing orthodoxy. Second, in adopting bounded rationality, game theorists find themselves in the position of using bounded rationality to define rationality" (Kales and Sent 2005, p.2)*

Many economists contributed to behavioral economics, but also psychologists, anthropologists or sociologists. Jean Tirole is for example often considered to have contributed

[22] On this note Earl and Peng (2012) emphasize the bargaining aspect, and also the "schizophrenic" aspect of behavioral economics with the "Trojan horse" metaphor:
*"It remains to be seen whether, having helped win a place for psychology within economics by positioning the new behavioural economics on the fringes of the existing mainstream, contributors such as Thaler and Rabin start building further heterodox ideas into their work and make it look more like what Simon had attempted to promote." (Earl and Peng 2012, p.456)*

[23] "Were imports only to occur which were broadly consistent with the neoclassical approach, an argument could be made that the new environment is less pluralistic than the distinct sources of these imports seem to suggest." (Davis 2006, p.9)

to behavioral economics, but it is clear that his approach is more traditional than the ones of Leowenstein or Camerer. While focusing on Tirole, we could argue that behavioral economics is close to "mainstream", the focus on Henrich could lead to the opposite conclusion. Therefore, we can only argue that "new" behavioral economics can't be analyzed as a homogenous field when we try to examine its relationship to mainstream. And this is particularly the case when different generations of "new" behavioral economics are mixed into the same category.

*A "bad new" behavioral economics versus a "good old" behavioral economics?*

One thing that is striking in the literature arguing that behavioral economics is "mainstream", is the distinction established between two behavioral economics. Sent, Earl and Peng's explicit use of the distinction between "old" and "new" behavioral economics is interesting as it is both based on a temporal distinction between old and new, and a substantive distinction between the non-mainstream roots of the former, and the mainstream roots of the latter. Sometimes, this type of discussion tends to be a bit normative and focuses on the opposition between what is perceived as a "good" behavioral economics versus a "bad" behavioral economics and argue for a revival of the "good" behavioral.

In the literature many authors oppose two types of behavioral economics, they do so on different criteria that the opposition old/new. This multitude of criteria emphasizes how much diversity there is in behavioral economics.

We extensively studied here the opposition between "old" and "new" behavioral economics, but we can find many others. When citing economists taking a different road from the "as-if" line of defense, Berg and Gigerenzer (2010) uses the work of recognized "new" behavioral economist such as Rubinstein (2003) and Henrich et al. (2001)[24] to emphasize how it is possible to do behavioral economics away from this traditional "as-if" economic approach. Earl and Peng (2012) emphasize differences in relationship with the mainstream with the fact that "new" mainstream behavioral economists such as Thaler accepted to publish in a "non-core" journal[25] while Rabin declined. On a more descriptive approach Heukelom (2007) focuses his argument on the opposition between the behavioral economists criticizing the normative validity of the rational choice theory and those limiting their critics to its descriptive validity.

[24] Note that mainstream "new" behavioral economists cited by Sent (2004) such as Camerer participated in the publication of this book.
[25] The journal in question is the "Journal of Economic Psychology"

What we want to argue here is that behavioral economics is a research program involving very heterogeneous actors. Most specifically, what is important in the distinction that most authors emphasize between the "good" and the "bad" is that on all those criteria, many "new" behavioral economists correspond to the "good" behavioral economics. Some are not "as-if". Some are very critical of "mainstream" both normatively and positively.

One very important characteristic of behavioral economics is that it is a field that comes from outside of economics like many recent fields of economics[26]. Therefore, many actors of behavioral economics, especially new behavioral economics, are not economists at all. In that sense, many behavioral economists whose work are recent, and actively participate in the field of "new" behavioral economics, actually contribute to it in a very different way than an economist would. But similarly, economists also contribute to behavioral economics in a very traditional way. What we want to emphasize is that we should not overlook one or the other.

Overall, all those arguments emphasize how much diversity we can find in behavioral economics. Most of the criteria evoked here are not necessarily correlated. The fact that behavioral economics is built on the interdisciplinarity between psychology and economics shows a change in the way economics is structured as a science. One thing that is emphasized by Tomer (2007), Davis (2006, 2008), or Colander, Holt, Rosser (2004) is that behavioral economics is more tolerant than what we usually identify as traditional economics, and so is more generally the "mainstream" economics today. Because of this tolerance the community of behavioral economists is incredibly diverse.

## Conclusion:

Commentators argued that behavioral economics is mainstream (successful) but also that behavioral economics is within the mainstream (standard economics) relatively to its content. We have seen that Sent played an important role in this idea with the distinction between "old" and "new" behavioral economics. But despite the historical approach of Sent, we also saw that other approaches such as a recent systematic comparisons of behavioral economics with mainstream could lead to a similar conclusion (Earl and Peng 2012), even if some nuanced this idea (Tomer 2007).

[26] "I claim that all the new mainstream research programs in economics […] are generally, like behavioral economics […] They all originate outside of economics and are mostly oriented toward redirecting the core of economics" (Davis 2008, p.17)

We have seen that Sent argues this on a general basis by examining what behavioral economics says and how it relates to an orthodox mainstream and others heterodox programs. On the opposite, Heukelom and Davis, for example, rather argue that behavioral economics differs from mainstream economics in substantive ways, while Colander argues that mainstream economics can't be considered a fixed scientific program as it changed in notable ways in the last decades.

Overall, many authors tend to portray behavioral economics as being for some parts "good" and different from "mainstream" and for others part as being "bad" and similar to "mainstream", but they do so on different basis. As we have seen behavioral economics is a complex research program in many ways as the many different criteria use by the different authors allow us to see that behavioral economics is actually a pluralistic research program that entails many different characteristics, very far from the uniformity portrays by Sent or Earl and Peng for example.

Moreover, the amount of "marketing" and strategic thinking in behavioral economics makes it difficult to differentiate what is a substantial commitment from what is an empty statement to reassure economists, especially because of how behavioral economist adopted the language of economist. We have seen types of behavioral economics being compared to a *"Trojan horse",* a way to *"tame"* economist, a way to *"persuade"* the gatekeepers, while other types are considered to be *"destructive"* or *"incompatible"* with the mainstream. In every case, this strategy makes behavioral economics more susceptible to "selection bias" and risk of appropriation by standard economists.

Finally, we emphasize that most authors commenting on the strong link between behavioral economics and "standard" economics tend to think of behavioral economics in very traditional terms such as orthodoxy, heterodoxy… We show that despite the very traditional framework of some papers, Colander, Davis, or Hands present strong arguments to support the idea that "mainstream" economics is not the same thing as it was twenty years ago and that "new research programs" such as behavioral economics can't be well understood in the traditional opposition between orthodoxy and heterodoxy as they differ in substantive epistemological and sociological ways.

As the vocabulary of Heukelom emphasizes, behavioral economists are testing the limit of what is acceptable or not to do in behavioral economics, they may venture "a bridge too far" for economists (Heukelom 2011) but they are not done trying. What we want to emphasize in

this article is the fact that behavioral economics is not neutral. It challenges more traditional economics on many aspects, but it does so very differently than traditional heterodoxy, or even "old" behavioral economics. It a very eclectic program, with a diverse community as shown by "who are behavioral economists" in Heukelom (2007). It adopted the language of economics and approached economist with carefulness by paying as much attention to the content of the science as to the way it will be received by its proponent actors. Overall, this produced a new entity that is difficult to understand because it does not fit the traditional structure that we use to think about economics as a science.

Our conclusion raises many questions that would deserve inquiries: How to understand the behavioral economics research program in philosophical framework such as Kuhn's revolution? How successful is behavioral economics in economics and outside of economics relatively to the different approach distinguished here? Is the success of behavioral economics only measured by its success in the most traditional sphere of economics? Does behavioral economics have a specific representation of the economic agent and/or a commitments to a specific social ontology?

To answers those questions we should investigate by case study the transfer of particular and precise concepts are either considered compatible or incompatible with mainstream economics.

# Appendix

**Table 1**. The authors' repertory grid for economics research programs/brands of economics

| Orthodox Pole | Heterodox Pole | ME | NBE | OBE | S-E | NIE | OIE | AE | EE | PKE | RPE | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constrained optimization | Satisficing | O | O | H | H | O > H | O/H | O | H | O/H | ? | ? |
| Deterministic 'single exit' models and single-line forecasts | Open-ended 'multi-exit' models focusing on bounded ranges of possibilities | O | O | H | H | O > H | H | H | H | H | H | ? |
| Reversible choices and timeless equilibrium states | Historical path-dependent processes | O | O/H | H | H | H | H | O/H | H | H | H | H |
| A set of propositions not expressed mathematically do not constitute a model | Mathematical tools are not prerequisites for economic analysis | O | O | H | H | H | H | H | H | H | H | H |
| Global rationality | Bounded rationality | O | O > H | H | H | O/H | O/H | H | O < H | ? | ? | ? |
| Agents obey axioms of normative rational choice | Choices are predictably twisted by heuristics and biases | O | H | H | H | O > H | ? | O | H | O/H | ? | ? |
| Preference-based choices | Rule-based choices | O | O | H | H | O/H | O < H | O | H | O/H | ? | ? |
| Everything has its price | The axiom of continuity does not always apply | O | O | H | H | O | ? | H | H | H | ? | ? |
| People are greedy, devious and selfish | Choice has a moral dimension | O | O > H | H | H | O | ? | O | ? | H | ? | ? |
| Uncertainty can always be reduced to risk or lottery equivalence | Some choices involve non-probabilistic uncertainty and potential for surprise, and may be crucial for the decision maker | O | O | H | ? | H | ? | H | H | H | ? | ? |
| Base models on representative agents | Take account of different world-views and ways of forming expectations | O | O | H | H | ? | H | H | H | H | H | H |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| One-size-fits-all view of choice | Decisions are made differently in different contexts | O | H | H | H | H | O | H | H | ? | H |
| Begin analysis by assuming agents have full knowledge and only relax assumptions if this can be done within existing modelling framework | Begin by focusing on the problems of information and knowledge that agents face and analyze how they will try to deal with these problems in practice | O | O | H | H | H | H | H | H | ? | ? |
| Ignore institutions | Institutions affect and facilitate choices | O | O | H | H | H | O > H | H | H | H | H |
| Choices are not susceptible to manipulation; advertising is essentially informative and the consumer is sovereign | Choices can be manipulated by firms and governments | O | H | H | H | H | O | ? | H | H | H |
| Individualistic and asocial | Choice has a social dimension | O | O | H | H | O | O | H | H | H | H |
| Ignore gender | Gender is seen as significant | O | O | O | O | O | O | O | O/H | O | H |
| Economics is a self-contained discipline | Economists can improve their analysis by importing ideas from other disciplines such as psychology and sociology | O | H | H | H | H | H | H | H | H | H |
| Ignore class and/or power | Focus on class and/or power | O | O | H | H | H | O | O | H | H | H |
| 'Black box' view of households, firms and bureaucracies | Analyze internal decision-making of organizations | O | O | H | H | H | O | H | O > H | H | H |

*(Continued)*

**Table 1.** Continued

| Orthodox Pole | Heterodox Pole | ME | NBE | OBE | S-E | NIE | OIE | AE | EE | PKE | RPE | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Economy is a 'field' with no structural architecture | Economy is a complex system of complex systems | O | O | H | H | H | H | H | H | H | H | H |
| Economic 'wholes' are simply the sum of their parts | Economic 'wholes' may display emergent properties due to complementarities; simple aggregation may lead to fallacies of composition | O | O | H | H | ? | H | O | H | H | H | ? |
| 'Imperfections' impede the efficient working of the economy | 'Imperfections' may help economic system to function efficiently | O | O | H | H | O | H | O | H | H | H | ? |
| Empirical work should be based only on quantitative data, ideally based on observed behaviour | Qualitative materials, such as case studies, interview transcriptions and introspection may have a useful role to play in economic analysis | O | O | H | H | H | H | H | H | H | H | H |

ME = Mainstream Economics; NBE = New Behavioural Economics; OBE = Old Behavioural Economics; S-E = Socio-Economics; NIE = New Institutional Economics; OIE = Old Institutional Economics; AE = Austrian Economics; EE = Evolutionary Economics; PKE = Post Keynesian Economics; RPE = Radical Political Economy; FE = Feminist Economics

O = Orthodox position; H = Heterodox position; O/H Commonly use either position; O > H = Normally takes orthodox position but sometimes takes heterodox position; O < H = Normally takes heterodox position but sometimes takes orthodox position; ? = Unclear to us/not an issue that we have seen being raised explicitly

# Bibliographie


Berg, N., & Gigerenzer, G. (2010). As-if behavioral economics: Neoclassical economics in disguise?

Binmore, K. (2005). Economic man–or straw man?. *Behavioral and Brain Sciences*, *28*(06), 817-818.

Bruni, L., & Sugden, R. (2007). The road not taken: how psychology was removed from economics, and how it might be brought back*. *The Economic Journal*, *117*(516), 146-173.

Camerer, C. (1999). Behavioral economics: Reunifying psychology and economics. *Proceedings of the National Academy of Sciences*, *96*(19), 10575-10577.

Camerer, C. (2008). The case for mindful economics. *The foundations of positive and normative economics*, 43-69.

Camerer, C. F., Loewenstein, G., & Rabin, M. (Eds.). (2011). *Advances in behavioral economics*. Princeton University Press.

Colander, D., Holt, R., & Rosser Jr, B. (2004). The changing face of mainstream economics. *Review of Political Economy*, *16*(4), 485-499.

Colander, David. 2000. « The Death of Neoclassical Economics ». Journal of the History of Economic Thought 22 (02): 127-143.

Cubitt, R. P., Starmer, C., & Sugden, R. (2001). Discovered preferences and the experimental evidence of violations of expected utility theory. *Journal of Economic Methodology*, *8*(3), 385-414.

Davis, J. B. (2002). The emperor's clothes. *Journal of the History of Economic Thought*, *24*(02), 141-154.

Davis, J. B. (2006). The turn in economics: neoclassical dominance to mainstream pluralism?. *Journal of institutional economics*, *2*(01), 1-20.

Davis, J. B. (2008). The turn in recent economics and return of orthodoxy. *Cambridge Journal of Economics*, *32*(3), 349-366.

Davis, J. B. (2010). *Individuals and identity in economics*. Cambridge University Press.

Davis, J. B. (2015). Bounded Rationality and Bounded Individuality. In *A Research Annual* (pp. 75-93). Emerald Group Publishing Limited.

Dekel, E., & Lipman, B. L. (2010). How (not) to do decision theory. *Annu. Rev. Econ.*, *2*(1), 257-282.

Earl, P. E., & Peng, T. C. (2012). Brands of economics and the Trojan horse of pluralism. *Review of Political Economy*, *24*(3), 451-467.

Gul F., Pesendorfer W. [2008], « The Case for Mindless Economics », in: The Foundations of Positive and Normative Economics, by Andrew Caplin and Andrew Shotter (eds.). Oxford University Press. 2008.

Hands, D. W. (2015). Orthodox and Heterodox Economics in Recent Economic Methodology. *Erasmus Journal for Philosophy and Economics, 8 (1), 61-81*.

Harrison, G. W. (2010). The behavioral counter-revolution. *Journal of economic behavior & organization*, *73*(1), 49-57.

Heukelom, F. (2007). Who are the Behavioral Economists and what do they say?. *Available at SSRN 964620*.

Heukelom, F. (2011). Building and defining behavioral economics. *Research in History of Economic Thought and Methodology, 29*, 1-30.

Heukelom, F. (2014). Mainstreaming Behavioral Economics. *Journal of Economic Methodology*, *21*(1), 92-95.

Klaes, M., & Sent, E. M. (2005). A conceptual history of the emergence of bounded rationality. *History of political economy*, *37*(1), 27-59.

Lawson, T. (2013). What is this 'school'called neoclassical economics?. *Cambridge Journal of Economics*, *37*(5), 947-983.

Levine, D. K. (2012). *Is behavioral economics doomed?: The ordinary versus the extraordinary*. Open Book Publishers.

Mäki, U. (2010). When economics meets neuroscience: hype and hope. *Journal of Economic Methodology*, *17*(2), 107-117.

Manski, C. F. (2000). *Economic analysis of social interactions* (No. w7580). National bureau of economic research.

McFadden, D. (1999). Rationality for economists?. *Journal of risk and uncertainty*, *19*(1-3), 73-105.

Rabin, M. (2002). A perspective on psychology and economics. *European economic review*, *46*(4), 657-685.

Santos, A. C. (2011).Behavioural and experimental economics: are they really transforming economics?. *Cambridge Journal of Economics*, *35*(4), 705-728.

Sent, E. M. (2005). Behavioral economics: how psychology made its (limited) way back into economics. *History of Political Economy*, *36*(4), 735-760.

Setterfield , Mark (2015). Heterodox Economics, Social Ontology, and the Use of Mathematics. Available at SSRN: http://ssrn.com/abstract=2574725

Tomer, J. F. (2007). What is behavioral economics?. *The Journal of Socio-Economics*, *36*(3), 463-479.